

Grade 3

Unit 3 | Teacher Guide

The Human Body: Systems and Senses

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Teacher Guide

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- Introducing the Reading
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- Spelling Assessment

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Introduction

THE HUMAN BODY: SYSTEMS AND SENSES

This introduction includes the necessary background information to teach *The Human Body: Systems and Senses* domain. This unit contains 13 daily lessons, plus two Pausing Point days that may be used for differentiated instruction. Each lesson will require a total of 120 minutes. Lesson 14 contains the Unit Assessment.

As noted, two days are intended to be used as Pausing Point days. These Pausing Points are embedded into the instruction at appropriate points, with the first one after Lesson 7 and the second after Lesson 13. You may choose to continue to the next lesson and schedule the first Pausing Point day for another day in the unit sequence. Pausing Points can be used to focus on content understanding, writing, spelling, grammar, morphology skills, or fluency.

SKILLS

Reading

The nonfiction Reader for Unit 3, entitled *How Does Your Body Work?*, consists of selections that will further students' scientific understanding of the skeletal, muscular, and nervous systems of the human body. The role of various body parts and organs associated with each system, such as bones, joints, muscles, nerves, the spinal cord, and the brain, will be described. Students will also take an in-depth look at the senses of sight and hearing and the various body parts that enable these senses to function properly. The later chapters of the Reader will provide insight into difficulties that may occur when vision and/or hearing are impaired and how people cope with these challenges.

Spelling

During this unit's spelling exercises, students will review the spelling of regular and irregular plural nouns, as well as adding *-s* or *-es* to certain verb forms. Students will review changing the letter 'f' to 'v' and adding the suffix *-es* to create the plural form of words. Students will review spelling patterns and irregular formation of plurals to correctly spell plural words. In addition, students will have two Challenge Words added to each spelling list.

Students will also continue to practice alphabetizing spelling words in preparation for dictionary skills.

Grammar

Grammar continues with a review and expansion of skills introduced in second grade. Students will identify and write topic and concluding sentences for paragraphs and will write and sequence supporting detail sentences within paragraphs. Students will remove irrelevant sentences in paragraphs and write titles for paragraphs. Students will be introduced to a new part of speech called a pronoun. Specifically, they will learn to replace nouns that are subjects of sentences with subject pronouns.

Students will apply their new knowledge of pronouns by determining subject-verb agreement in sentences, recognizing the pattern of adding –s or –es to third person singular verbs.

Morphology

Throughout Grade 3, students will study word parts, such as prefixes, suffixes, and root words, during the morphology portion of the lessons. In this unit, students will study the common prefixes *dis-* and *mis-* and review prefixes learned thus far in Grade 3, which are *un-*, *non-*, *re-*, *pre-*, *dis-*, and *mis-*. They will continue to review how prefixes change the meaning of root words and how they may change the part of speech of that word. Students will define and use words with these prefixes in different contexts.

KNOWLEDGE: WHY THE HUMAN BODY: SYSTEMS AND SENSES IS IMPORTANT

This unit reviews what students have already learned about the human body and some of its systems. Two systems students have previously learned about in greater depth are the excretory and digestive systems in Grade 2, so these are briefly reviewed here. In this unit, students will focus in greater detail on the skeletal, muscular, and nervous systems and the fact that they are closely interconnected with all the human body systems. Furthermore, students will learn details about the senses of sight and hearing and how the eyes and ears work. Students will also learn the idiom “a clean bill of health” and will discover ways they can keep their bodies active and healthy.

Throughout this unit students will use descriptive words to discuss parts of the body. Encourage students to use language that is kind, sensitive, inclusive, and supportive of all body types, shapes, and sizes.

The Human Body: Systems and Senses unit also provides opportunities for students to build content knowledge and draw connections to the science subject area, but it does not explicitly teach the Texas Essential Knowledge and Skills standards for Science. At times throughout the unit, you may wish to build on class discussions to support students in making cross-curricular connections to the strands of Organisms and environments and Scientific investigation and reasoning from the science discipline.

Prior Knowledge

Students who have received instruction from this program in Grades 1–2 will already have pertinent background knowledge for this unit. For students who have not received prior instruction in the program, introductory knowledge is addressed at the beginning of each unit.

The Five Senses (Kindergarten)

- Identify and demonstrate understanding of the five senses: sight, hearing, smell, taste, and touch
- Identify each of the body parts associated with the five senses
- Provide simple explanations about how the eyes, ears, nose, tongue, and skin work and their function
- Describe how the five senses help humans learn about their world
- Describe some ways the five senses help protect people from harm
- Describe the experiences and challenges of someone who is blind or deaf

The Human Body (Grade 1)

- Explain that the human body is a network of systems
- Explain that all living things are made of microscopic cells
- Identify five of the body systems: skeletal, muscular, digestive, circulatory, and nervous
- Recall basic facts about the skeletal system
- Recall basic facts about the muscular system
- Define the heart as a muscle that never stops working
- Recall basic facts about the circulatory system
- Recall basic facts about the nervous system

The Human Body: Building Blocks and Nutrition (Grade 2)

- Identify the brain as the body's control center
- Recall basic facts about the digestive system
- Identify important components of the digestive system and their functions
- Recall basic facts about the excretory system
- Identify important components of the excretory system and their functions
- Describe how the digestive and excretory systems work together
- Describe the process of nourishing the body from the time food is taken into the mouth until waste is removed from the body
- Explain the importance of exercise, cleanliness, a balanced diet, and rest for bodily health

WRITING

Students have many opportunities to write in a variety of ways and for different purposes. The formal writing piece for *The Human Body: Systems and Senses* unit asks students to write about one of the systems covered in the unit. Students must include an appropriate title, a description of the system, an explanation of how the system works with other systems, and a drawing of the system(s).

Everyday writing opportunities come in many forms, including: maintaining a “unit dictionary” notebook containing definitions, sentences, and/or other writing exercises that use Core and Academic Vocabulary Words; Quick Writes; written responses to prompts requiring comprehension of key elements from unit readings; and teacher-led writing practices. Students will also use graphic organizers to gather and categorize information from Read-Alouds, readings, or to plan for writing. Many writing lessons provide opportunities for students to collaborate, share ideas, and exchange feedback on their writing.

PERFORMANCE TASKS AND ASSESSMENTS

The Primary Focus objectives in each lesson are carefully structured and sequenced throughout the unit to help build student understanding. Additionally, formative assessments are provided to help keep track of student progress toward objectives and standards. These can be found in the Student Activity Book and are referenced in every lesson.

The Human Body: Systems and Senses unit ends with a Unit Assessment consisting of a student skills assessment (ask and answer questions about the text), a reading fluency assessment, a written reflection, and a spelling assessment.

FLUENCY SUPPLEMENT

A separate component, the Fluency Supplement, is available for download on the program's digital components site. This component was created to accompany materials for Grade 3. It consists of selections from a variety of genres, including poetry, folklore, and fables. These selections provide additional opportunities for students to practice reading with fluency and expression (prosody). For more information on implementation, please consult the supplement.

INSTRUCTIONAL COMPONENTS

Teacher Resources

There are 27 Image Cards on the program's digital components site that include pictures to augment instruction of *The Human Body: Systems and Senses* unit.

At the back of this Teacher Guide, you will find a section titled "Teacher Resources." In this section you will find the following:

- Glossary for unit
- Activity Book Answer Key

Digital Resources

In the Advance Preparation section of each lesson, you will be directed to prepare to project images associated with the Read-Aloud portion of the lesson. These can be found on the program's digital components site.

ACADEMIC AND CORE VOCABULARY

Lesson 1

- cells
- tissues
- organs
- circulate
- functions

Lesson 2

- axial bones
- cartilage
- cranium
- expand
- fibula
- organs
- pelvis
- scapula
- shoulder blades
- skeletal system
- skull
- spinal column
- sternum
- structure
- tibia
- vertebrae

Lesson 3

- appendicular bones
- femur
- ligaments
- appendages
- joint

- calcium
- cast
- cell
- dairy
- marrow
- tissue
- x-ray

Lesson 5

- cardiac muscle
- muscles
- nerves
- voluntary muscles
- contract
- involuntary muscle
- stomach
- automatically
- digest
- involuntary
- realistic

Lesson 6

- connective
- cartilage
- ligament
- tendon
- Achilles
- Achilles tendon (Sayings and Phrases)
- vulnerable
- Trojan

- joint
- cushion
- flexible
- model
- warrior
- invulnerable

Lesson 7

- consciously
- receptors
- reflex
- command
- coordinates
- cell body
- dendrite
- flinch

Lesson 8

- brain stem
- hemisphere
- cerebrum
- cerebellum
- accurate
- paralyzed
- hollow
- concussion
- medulla
- cerebral cortex

Lesson 9

- accurate
- paralyzed

- hollow
- brain stem
- hemispheres
- cerebrum
- cerebellum
- concussion
- medulla
- cerebral cortex

Lesson 10

- pupil
- lens
- retina
- wondrous
- vision
- iris
- cornea
- optic nerve
- rods and cones

Lesson 11

- cochlea
- eardrum
- inner ear
- middle ear
- outer ear
- membrane
- vibrate
- gland
- sensitive
- auditory nerve

Lesson 12

- wiring
delicate
- miraculously
- posture

Lesson 13

- disability

- deaf
- blind
- overcoming
- gesture
- challenge
- determined
- breakthrough
- tribute
- courage

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Building Blocks and Systems

PRIMARY FOCUS OF LESSON

Core Connections

Students will describe and review the systems of the human body.

✚ **TEKS 3.1.C**

Speaking and Listening

Students will explain how the human body is an interconnected system.

✚ **TEKS 3.1.A; TEKS 3.6.B; TEKS 3.7.C**

Students will use synonyms and antonyms to define and explain new words in

✚ the text. **TEKS 3.3.D**

Writing

Students will describe the ways various systems are working in one's own

✚ body. **TEKS 3.7.B; TEKS 3.7.E; TEKS 3.12.B**

Language

Students will write words using spelling patterns and rules for regular and

✚ irregular plural nouns. **TEKS 3.2.B.iv; TEKS 3.2.B.vii**

FORMATIVE ASSESSMENT

Exit Ticket

Exit Ticket Explain different systems and compare the

✚ human body to a complex machine. **TEKS 3.7.C**

Activity Page 1.2

Topic and Concluding Sentences Identify different

✚ components of a paragraph. **TEKS 3.7.E; TEKS 3.12.B**

Practice

Practice Describe ways various systems are

✚ working. **TEKS 3.7.B**

✚ **TEKS 3.1.C** Speak coherently about the topic under discussion, employing eye contact, speaking rate, volume, enunciation, and the conventions of language to communicate ideas effectively; **TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.B** Generate questions about text before, during, and after reading to deepen understanding and gain information; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.3.D** Identify, use, and explain the meaning of antonyms, synonyms, idioms, homophones, and homographs in a text; **TEKS 3.7.B** Write a response to a literary or informational text that demonstrates an understanding of a text; **TEKS 3.7.E** Interact with sources in meaningful ways such as notetaking, annotating, freewriting, or illustrating;

LESSON AT A GLANCE

	Grouping	Time	Materials
Core Connections (10 min.)			
Introducing the Unit	Whole Group	10 min.	<input type="checkbox"/> white paper
Speaking and Listening (65 min.)			
Previewing Vocabulary	Whole Group	5 min.	<input type="checkbox"/> KWL Chart <input type="checkbox"/> Activity Page 1.1
Introducing the Read-Aloud: KWL	Whole Group/ Partner/ Small Group	10 min.	<input type="checkbox"/> lined paper <input type="checkbox"/> Digital Flip Book: U3.L1.1–U3.L1.11
Presenting the Read-Aloud: “Building Blocks and Systems”	Whole Group/ Partner	20 min.	
Discussing the Read-Aloud	Whole Group	15 min.	
Word Work: <i>Interconnected</i>	Whole Group	5 min.	
Extension	Whole Group/ Partner	10 min.	
Writing (25 min.)			
Topic and Concluding Sentences	Whole Group	5 min.	<input type="checkbox"/> Writing Paragraph Chart (Digital Projections)
Independent or Partner Practice: Topic and Concluding Sentences	Independent/ Partner	10 min.	<input type="checkbox"/> Activity Page 1.2 <input type="checkbox"/> lined paper
Practice	Partner	10 min.	
Language (20 min.)			
Spelling: Regular and Irregular Plural Nouns	Whole Group	20 min.	<input type="checkbox"/> Regular and Irregular Charts (Digital Projections)
Take-Home Material			
Topic and Concluding Sentences			<input type="checkbox"/> Activity Pages 1.3, 1.4
Take-Home Letters			

ADVANCE PREPARATION

Core Connections

- Predetermine partners or small groups.

Speaking and Listening

- On chart paper create a KWL chart.

Note: This chart will be used throughout the unit.

KWL Chart: Human Body Systems		
K	W	L

- Prepare to project the following digital images on the program's digital components site during the Read-Aloud: U3.L1.1–U3.L1.11.

Writing

- On chart paper, write the following paragraph or display digital image DP.U3.L1.1.

The systems of the human body are organ systems. Each system is made up of organs, parts of the body with clearly defined functions. For example, your stomach is an organ. Your stomach works closely with other organs—your mouth, your esophagus, your liver, and your intestines. These organs are all parts of your digestive system. Each one of these organs has a specific function to perform as part of your digestive system's overall job, which is to break down your body's food.

TEKS 3.12.B Compose informational texts, including brief compositions that convey information about a topic, using a clear central idea and genre characteristics and craft; **TEKS 3.2.B** Demonstrate and apply spelling knowledge by (iv) spelling multisyllabic words with multiple sound-spelling patterns; (vii) spelling words using knowledge of suffixes, including how they can change base words such as dropping e, changing y to i, and doubling final consonants.

Spelling

- Create **Regular Singular/Plural Noun Chart** or prepare Digital Projection DPU3.L1.2.

Regular Singular Noun	Regular Plural Noun

- Create **Irregular Singular/Plural Noun Chart** or prepare Digital Projection DPU3.L1.3.

Irregular Singular Noun	Irregular Plural Noun

Universal Access

- Display vocabulary words in the classroom during and after instruction to reinforce word meaning.
- Review digital images with students during and after instruction to reinforce ideas.
- Demonstrate the concepts of complex, interconnected systems: skeletal, muscular, nervous, digestive, excretory, circulatory, and respiratory.

Lesson 1: Building Blocks and Systems

Core Connections



Primary Focus: Students will describe and review the systems of the human body. **TEKS 3.1.C**

INTRODUCING THE UNIT (10 MIN.)

- Explain to students that in this unit, they will learn about seven systems of the human body, including how they function independently and as part of a larger interconnected system that works together to keep the body healthy.
- Elicit from students what they know about their bodies, specifically what they know about what is inside their bodies. If necessary, point to specific body parts and ask students to identify different components. For example, wave your arm and hand and encourage students to shout out things like elbow, bones, hand, fingers, etc.
- Pass out white paper to pairs or small groups of students. Have students choose one part of their body and make a list of everything they know about that part.
- Encourage student pairs and groups to share what they know about different parts of the body.
- Explain to students they will learn more about the systems inside us that work together.

Lesson 1: Building Blocks and Systems

Speaking and Listening



Primary Focus: Students will explain how the human body is an interconnected system. **TEKS 3.1.A; TEKS 3.6.B; TEKS 3.7.C**
 Students will use synonyms and antonyms to define and explain new words in the text. **TEKS 3.3.D**

PREVIEWING VOCABULARY (5 MIN.)

The following are core vocabulary words used in this lesson. Preview the words with the students before the lesson. Students are not expected to be able to

TEKS 3.1.C Speak coherently about the topic under discussion, employing eye contact, speaking rate, volume, enunciation, and the conventions of language to communicate ideas effectively; **TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.B** Generate questions about text before, during, and after reading to

use these words immediately, but with repeated exposure throughout the lessons, they will acquire a good understanding of most of the words. Students may also keep a “unit dictionary” notebook along with definitions, sentences, and/or other writing exercises using these vocabulary words.

cells, the smallest units that make up living things and are microscopic.

circulate, to move around in a loop or circle

functions, the actions or activities that something was designed to do

organs, major parts of the body formed by tissues that perform specific functions

tissues, masses of cells that have a specific structure and come together to form organs

Vocabulary Chart for “Building Blocks and Systems”		
Type	Tier 3 Domain-Specific Words	Tier 2 General Academic Words
Vocabulary		circulate functions
Multiple Meaning	cells tissues organs	
Sayings and Phrases		



INTRODUCING THE READ-ALoud: KWL (10 MIN.)

TEKS 3.6.B

- Tell students they will learn about how the human body works, and review different ways to keep their bodies healthy. Ask students why it is important to take care of their bodies and keep them healthy. Tell students that they will be learning mostly about three of the human body systems—the skeletal, muscular, and nervous systems—and how they work together to help the human body function. Explain that there are more systems in the human body, but for now—with the exception of a brief overview and review of some other systems—they are going to learn mainly about these three. Tell students they will learn more about human body systems in later grades.
- Display the KWL chart to introduce this unit. Use multiple pieces of chart paper so that you can add more information to the chart as students listen

deepen understanding and gain information; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.3.D** Identify, use, and explain the meaning of antonyms, synonyms, idioms, homophones, and homographs in a text; **TEKS 3.6.B** Generate questions about text before, during, and after reading to deepen understanding and gain information.

Activity Page 1.1



Support

Consider pairing students or having them work in small groups to solicit information for the KWL chart before sharing and compiling as a class.

Support

Consider preparing a targeted question sheet for each column of each KWL chart to guide students as you work to fill in the columns of the chart.

to the various Read-Alouds. This chart will be used throughout the Read-Alouds to determine what your students may already know (K), what they wonder about or want to know (W), and what they have learned (L) about the various human body systems.

Note: You may choose to assign each system and sense its own piece of chart paper for the KWL chart, Activity Page 1.1, or you may assign all of the ‘K’ items to one piece of paper, all of the ‘W’ items to another, and so on.

- Prior to recording the students’ responses, point out that you are going to write down what they say. Give students the opportunity to share anything they already know about how their bodies work, and how the different body systems work together. As students respond, repeat and expand upon each response, using richer and more complex language, including, if possible, any Read-Aloud vocabulary. Record students’ responses under the ‘K’ of the KWL chart. If a student’s response includes inaccurate factual information, record it nonetheless and revisit and correct the misconception once the correct factual information has been presented.
- Have students take out Activity Page 1.1, where they will record the class responses.
- Ask students, “What are some of the things you want to know or that you wonder about the human body?” Record their responses under the ‘W’ of the KWL chart. Tell your students that after they have listened to some of the Read-Alouds in this unit, they will have a chance to share what they have learned. These answers will be listed under the ‘L’ portion of the chart. As students listen to the upcoming Read-Alouds, remind them occasionally of the ‘W’ to see if they can find answers to some of their questions.

PRESENTING THE READ-ALoud: “BUILDING BLOCKS AND SYSTEMS” (20 MIN.)

- Prepare to project the following digital images on the program’s digital components site during the read aloud: U3.L1.1–U3.L1.11.
- Read the title of today’s Read-Aloud: “Building Blocks and Systems.” Remind students that titles of books and stories often foreshadow, or give a hint or clue about, what they will be reading or hearing. Ask students what they think they will be learning about based on the title. Tell students that over the next few weeks, they will be learning about the human body, its many interconnected systems, and how these systems are related to our senses. Ask students if they are familiar with any human body systems, and ask them to explain what a system is (a group of items or things that are connected and work together as a single item to achieve a particular result).

- Ask students if they think their human body is simple, or if it's like a complex machine made up of many different parts. Ask, "Can you think of any complex machines?" Give students the example of a bicycle, and ask them what would happen if one part of the bike, like the chain, failed to work properly. Tell them that many of the human body's functions take place internally, inside our bodies. Explain that many complex systems are working together in our bodies without us really paying attention to them. Tell students to sit very still and quiet and to feel their heartbeat. Ask, "Do you have to think to make your heart beat, or does your body do it automatically?"



Show Image U3.L1.1
Ricardo and Dr. Welbody in
Doctor's Office

- Ask students if they remember Dr. Welbody, the rhyming pediatrician from the Grade 1: The Human Body. Tell them they will be learning about

the human body from a narrator named Ricardo who loves to tell riddles about the human body. Ask them to explain what a riddle is, and, if time allows, give an example and/or have students share one or two riddles they know.

- Tell students to listen carefully to the Read-Aloud to hear a little bit about the skeletal, muscular, nervous, digestive, circulatory, respiratory, and excretory systems. Remind students that they will be hearing riddles about each of these systems, so they should listen carefully to guess the correct answers. Also, tell students to listen carefully to find out about the building blocks of the human body. Explain that a riddle is a word puzzle.



Show Image U3.L1.1
Ricardo and Dr. Welbody in
Doctor's Office

Hello, everybody. I'm Ricardo. I'm in the fourth grade, and I am fascinated by the human body and its complex, interconnected systems. I hope to

continue to learn about the human body in great detail and become a doctor someday.

Dr. Welbody is a friend of mine. Who remembers Dr. Welbody? She's the rhyming pediatrician whom some of you may have met when you were in first grade. Dr. Welbody taught you about your body using several rhymes like this one:

Everybody has a body
And I have one, too.
It is grand to understand
The things our bodies do.

Dr. Welbody just happens to be my very own pediatrician. She's also one of my teachers, but not the kind you find in a school. Because she's taught me so much about my body, she has asked me to come share a little of what I've learned with you. Thanks for welcoming me. I can't wait!



Show Image U3.L1.2

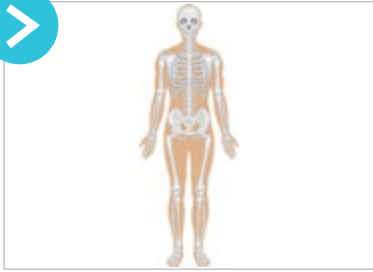
A Group of People Together, a Network of Systems

Our bodies are often compared with machines. That comparison may seem strange to you at first, because

machines are nonliving objects and our bodies are very much alive. But think about it: Machines are made up of networks. Human body systems include lots of different parts working together to perform very special jobs. Dr. Welbody says that our bodies are the most marvelous machines on Earth, and I think you will agree with her once we review how our bodies work.

Just as Dr. Welbody loves rhymes, I love riddles! So, expect to hear a lot of riddles from me. Let's begin our lesson with one now:

I am as strong as a tree trunk, but with a little help from other human body systems, I can bend in many directions. I give your body its shape. What am I?



Show Image U3.L1.3 **The Skeletal System**

It is your skeleton. Does anyone know which system of the body includes your skeleton? Your skeletal system, that bony network that supports you and protects important organs inside your body. The skeletal system is only one of many systems working together in your body.



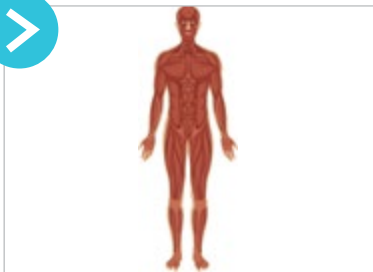
Check for Understanding

What is the function of the skeletal system?

- » It supports the human body and protects important organs in the body.

Now, I'm going to ask you some more riddles. See if you can match the riddle to the right body system. Ready? Let's go:

I'm the system that makes your bones move. I also help you blink and swallow. What system am I?



Show Image U3.L1.4 **The Muscular System**

The muscular system is made up of muscles. Muscles are the motors of the human machine, and they keep your body moving in lots of different ways. Some are attached to your bones and help you run and throw a ball. Others line the walls of the stomach, squeezing in and then relaxing to help digest your food. Small muscles in your face help you smile. Your strongest and most important muscle, your heart, works nonstop, pumping blood throughout your body, day and night.



Exchanging Information and ideas

Beginning

Ask students simple yes/no questions, e.g., "Are bones part of the nervous system?"

Intermediate

Have students provide the unit words when asked definition questions, e.g., "What is the word for the smallest units that make up living things and that are most often microscopic?"

Advanced/

Advanced High

Encourage students to answer questions using complete sentences and unit vocabulary.

ELPS 2.G; ELPS 3.D



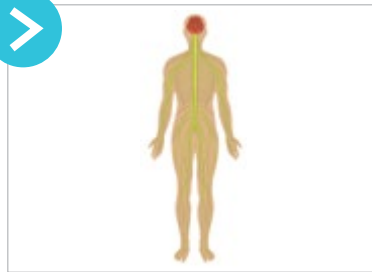
Checking for Understanding

What is the function of the muscular system?

- » Muscles help the human body move in many different ways.

Here's the next riddle:

Without me, you would not be able to feel, see, or hear. I control your senses by sending messages to my command center, the brain. What system am I?



Show Image U3.L1.5 The Nervous System

The nervous system is your body's communicator. It tells your body what to do. Nerves run throughout your body, from head to toe, like a giant

road system. Nerves send messages up and down your spine to your brain. The nervous system controls your muscles, telling them how to move. It also helps all your other systems do their jobs.



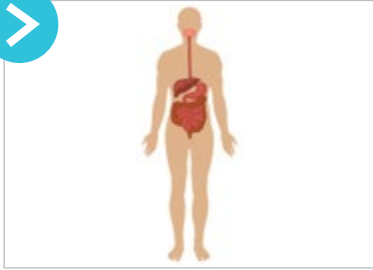
Check for Understanding

What is the function of the nervous system?

- » Nerves run all through the human body, sending messages up and down the spine and to and from the brain. The nervous system controls the other human body systems, helping them do their jobs.

Here's your next riddle:

I work like a food-processing machine. You put food in your mouth, and I churn it up for the rest of your body to use as fuel. What system am I?



Show Image U3.L1.6 The Digestive System

The digestive system helps you digest, or break down, your food. It splits your food into nutrients, giving your body energy to live and grow. Food enters

your mouth and travels down a long tube called the esophagus, all the way to the stomach and the intestines. It takes food nearly two days to pass all the way through your body.



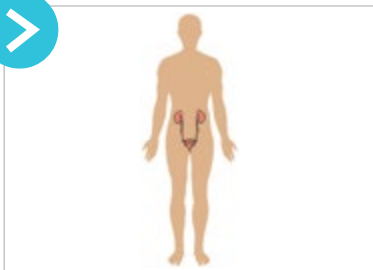
Check for Understanding

What is the function of the digestive system?

- » It helps to break down food, splitting food into nutrients that give the body energy to help it live and grow.

Ready for another riddle?

I work like a water filter, getting rid of harmful substances in the liquid that passes through your body. I excrete them, or push them out of the body. What system am I?



Show Image U3.L1.7 The Excretory System

The excretory system excretes, or gets rid of, liquids such as sweat and urine that may be harmful to the body. Your skin, the largest organ of the

body, excretes sweat through its many pores. A pair of organs called the kidneys filter harmful substances and extra water from the blood and send them to your bladder. Your bladder looks like a bag, holding excess fluid, or urine, until it is ready to pass out of your body.



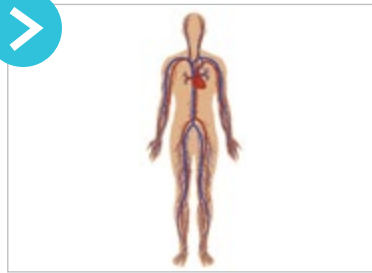
Check for Understanding

What is the function of the excretory system?

- » It helps get rid of liquids, such as urine and sweat, that may be harmful if they stay in the human body.

Here's another riddle:

I am your body's delivery system. I deliver nutrients and oxygen to all parts of your body. Nutrients and oxygen circulate, or are carried throughout the body, by blood vessels. The heart acts as my pump. What system am I?



Show Image U3.L1.8 The Circulatory System

The circulatory system is made up of your heart, blood vessels, and blood. Blood enters your heart and is pumped into a large blood vessel.

Blood vessels carry blood to every part of your body and loop back again. This circulation of the blood, carrying nutrients and oxygen, happens all day and all night.



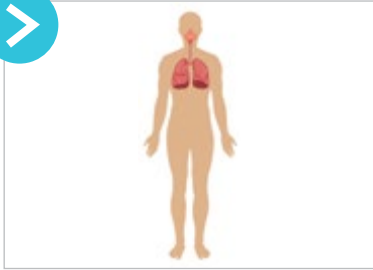
Checking for Understanding

What is the function of the circulatory system?

- » The pumping of the heart circulates the nutrients and oxygen in the blood all around the body through blood vessels.

Here's the last riddle for now:

I carry oxygen to your blood. Without oxygen, you cannot live. I also get rid of a gas called carbon dioxide that the body does not need. I help you breathe. What system am I?



Show Image U3.L1.9 The Respiratory System

The respiratory system brings oxygen-filled air into your body. You can live without food for days, but you cannot live for more than a few minutes without oxygen. You breathe in air

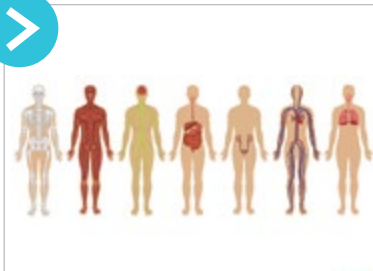
through your mouth and nose, and exhale a gas called carbon dioxide. Air travels through a tube into your lungs, the organs that take up most of your chest. Your lungs take in the oxygen that keeps you alive.



Check for Understanding

What is the function of the respiratory system?

- » It helps bring oxygen into the human body and gets rid of a gas called carbon dioxide.



Show Image U3.L1.10 The Interconnected Human Body Systems

Wow, everybody, you've identified seven of the body's systems! Let's see if you can name all seven with

me: skeletal, muscular, nervous, digestive, excretory, circulatory, and respiratory. Now, it's time to find out what all these systems have in common.

The systems of the human body are organ systems. Each system is made up of organs, parts of the body with clearly defined functions. For example, your stomach is an organ. Your stomach works closely with other organs—your mouth, esophagus, liver, and intestines. These organs are all parts of your digestive system. Each one of these organs has a specific function to perform as part of your digestive system's overall job, which is to break down your body's food.

Challenge

Have students identify each system shown on Image U3.L1.10.

Challenge

Ask students to find examples of other things that are interconnected in the world (e.g., the food chain, the solar system, or a sports team).

Support

Brainstorm with students how things around us are interconnected. Consider modeling how things are interconnected in nature (e.g., the food chain).

Organs are made up of tissues. Tissues are masses of cells that have a specific structure and come together to form organs. There are many different types of tissues, including muscle, bone, skin, blood, and nerve tissue. Each type of tissue is made up of different groups of similar cells that do the same jobs. All body tissues are made up of cells. What exactly are cells?

Cells are tiny building blocks—so tiny, in fact, that nobody even knew what they were or that they existed until microscopes were invented about 400 years ago. Microscopes magnify cells, making them big enough to see and study. Your body contains trillions of cells.

Cells come in all shapes and sizes, depending upon the jobs they must perform. For example, red blood cells look like bagels with dents instead of holes. They travel through your blood, carrying important nutrients throughout your body. Skin cells, grouped together in skin tissue, are packed tightly together to form a protective boundary between you and your environment. Your skin is your largest organ. Nerve cells are grouped together in nerve tissue, and often have long extensions that send and receive messages quickly. Muscle cells, grouped together in muscle tissue, look very different, too. They are long and lean, helping the body move as they stretch and shorten.

Each body system is made up of different types of cells. There are over 200 different types of cells in your body. Everything you do, from breathing to eating to running to sleeping, requires lots of working cells. They are truly the building blocks of your body. Without cells, there would be no body tissues, no body organs, and no body systems. In fact, all living things have cells. There would be no living things on Earth if it weren't for cells!

Cells are alive, and living things do not last forever. Some cells live for only a few days. Others live for years. Some cells become damaged when you get hurt. Others wear out over time, but inside your body's tissues, cells are constantly dividing and multiplying. One cell becomes two cells, two cells become four, four become eight, and so forth. As cells die, the dead cells are replaced with new cells on a daily basis. Isn't the life cycle of cells amazing?



Show Image U3.L1.11
Ricardo Waving Good-Bye

Well, everybody, we're out of time. Today you heard a little about a lot of body systems. Next time, I'll be back to give you a peek inside your body.

I'm looking forward to discussing the human body systems with you. See you next time!

DISCUSSING THE READ-ALoud (15 MIN.)

- 1. Inferential.** Describe cells and their function.
 - » Cells are the building blocks of life, and they are found only in living things. Cells are living things that are constantly dividing and multiplying; they can also die.
- 2. Inferential.** What are organs?
 - » Organs are parts of the body that have specific functions and form systems; organs include the heart, lungs, stomach, etc.
- 3. Evaluative.** Why are human bodies compared to complex machines?
 - » The human body, like a complex machine, is composed of several different systems that do specific jobs. These different systems have many different, interconnected parts and need to work together in order to function properly.
- 4. Evaluative.** Compare and contrast human lungs to fish gills.
 - » Both take in oxygen, which is necessary for survival; lungs get oxygen from the air, whereas gills get oxygen from the water.

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.
- 5. Evaluative.** *Think-Pair-Share:* What are some of the ways the various systems are working in your body at this moment?
 - » Answers may vary.

Exit Ticket



6. After hearing today's Read-Aloud and comprehension questions and answers, do you have any remaining questions?
 - You may wish to allow time for individual, group, or class research of the text and/or other resources to answer any remaining questions.
 - **Exit Ticket:** Pass out lined paper to each student. Ask them to respond to the following three questions on their paper.
 1. What is a system? (a group of parts that work together to perform a special job)
 2. How do different systems interact? (Each system works together to keep the body working properly.)
 3. Why are human bodies compared to complex machines? (Complex machines and human bodies both have many networks and parts that have to work together.)



WORD WORK: INTERCONNECTED (5 MIN.)

TEKS 3.3.D

1. In the Read-Aloud, you heard Ricardo say, "I'm in the fourth grade, and I am fascinated by the human body and its complex, interconnected systems."
2. Say the word *interconnected* with me.
3. What does the word *connected* mean?
4. *Interconnected* refers to connections or things that are related to one another.
5. What does *inter* contribute to *connected* to make *interconnected*?
6. The fish in the ocean are interconnected, so if one type becomes extinct, it has an effect on the other types of fish in the ocean.
7. What are some other things that are interconnected? Be sure to use the word *interconnected* in your responses. (Ask two or three students. If necessary, guide and/or rephrase the students' responses to make complete sentences: "_____ is interconnected with _____")
8. What's the word we've been talking about? What part of speech is the word *interconnected*?
 - Use a Synonyms and Antonyms activity for follow-up. Directions: I am going to say several words that are either synonyms or antonyms of the word *interconnected*. If the word I say is a synonym of, or has a similar meaning to, *interconnected*, say, "is a synonym of interconnected."



TEKS 3.3.D Identify, use, and explain the meaning of antonyms, synonyms, idioms, homophones, and homographs in a text.

- If the word I say is an antonym of, or means the opposite of, *interconnected*, say, “is an antonym of interconnected.”

1. **related** (*Related* is a synonym of *interconnected*.)
2. **separate** (*Separate* is an antonym of *interconnected*.)
3. **linked** (*Linked* is a synonym of *interconnected*.)
4. **joined** (*Joined* is a synonym of *interconnected*.)
5. **unrelated** (*Unrelated* is an antonym of *interconnected*.)

EXTENSION (10 MIN.)

- Revisit the KWL chart started in the introduction to record vocabulary and concepts from this unit. Remind students that this chart will be used throughout the unit for each of the different human body systems. Review the ‘K’ section of the chart and correct any inaccurate information. Students may change any information on Activity Page 1.1 based on the whole-group discussion.
- Then ask students to share what they have learned now that they have heard one Read-Aloud. Record these answers under the ‘L’ portion of the chart. As students listen to the upcoming Read-Alouds, remind them occasionally of the ‘W’ to see if they can find answers to some of the questions as the Read-Alouds are shared.
- You may have students work in groups or with a partner to record (drawing and/or writing) information learned about each human body system.
- You may wish to have some students fill in the instructional master independently. You may also choose to allow students to complete research to answer some of the ‘W’ questions.

Lesson 1: Building Blocks and Systems

Writing



Primary Focus: Students will describe the ways various systems are working in one's own body. **TEKS 3.7.B; TEKS 3.7.E; TEKS 3.12.B**

TOPIC AND CONCLUDING SENTENCES (5 MIN.)

- Post the following paragraph or project Digital Projection DP.U3.L1.1:

➤ **Projection DP.U3.L1.1**

The systems of the human body are organ systems. Each system is made up of organs, parts of the body with clearly defined functions. For example, your stomach is an organ. Your stomach works closely with other organs—your mouth, esophagus, liver, and intestines. These organs are all parts of your digestive system. Each one of these organs has a specific function to perform as part of your digestive system's overall job, which is to break down your body's food.

- Draw a box around the first sentence, “The systems of the human body are organ systems.” Draw a circle around the concluding sentence that begins “Each one of these organs has a specific function . . .” and ask students to read the paragraph silently to themselves.
- Ask students a series of questions:
 1. What is the paragraph about?
 2. What is the first sentence that talks about organs?
 3. How does the last sentence relate to the first sentence?
 4. How does the last sentence build on other details in the paragraph?
- Tell students that the first sentence is the topic sentence, because it introduces an idea or what you are going to be reading about. Tell students that the concluding sentence builds on the topic sentence, as well as the information in the paragraph, and provides a summary of the ideas in the paragraph.

✚ **TEKS 3.7.B** Write a response to a literary or informational text that demonstrates an understanding of a text; **TEKS 3.7.E** Interact with sources in meaningful ways such as notetaking, annotating, freewriting, or illustrating; **TEKS 3.12.B** Compose informational texts, including brief compositions that convey information about a topic, using a clear central idea and genre characteristics and craft.

INDEPENDENT PRACTICE: TOPIC AND CONCLUDING SENTENCES (10 MIN.)

- Individually or in pairs, instruct students to draw a box around the topic sentence of the paragraph on Activity Page 1.2 and a circle around the concluding sentence.
- Lead a brief, whole-class discussion of student responses.

PRACTICE (10 MIN.)

- On lined paper, have students respond to the following writing prompt. Ask students to include a topic sentence and concluding sentence.
What are some ways the various systems are working in your body at this moment?

» Answers may vary.

Note: Consider providing targeted systems for each pair to write about. Consider establishing that each paragraph include a minimum number of sentences.

Activity Page 1.2



Support

Work with a small group of students to identify the topic sentence and concluding sentence.

Challenge

Have students assist other peers in the class to identify the topic and concluding sentences.

Quick Write



**ENGLISH
LANGUAGE
LEARNERS**

Writing

Beginning

In a small group, work with students to answer the writing prompt.

Intermediate

With a partner, have students complete the writing prompt.

Advanced/ Advanced High

Have students complete the writing prompt independently.

ELPS 5.C; ELPS 5.G

Lesson 1: Building Blocks and Systems

Language



Primary Focus: Students will write words using spelling patterns and rules for regular and irregular plural nouns. **TEKS 3.2.B.iv; TEKS 3.2.B.vii**

SPELLING: REGULAR AND IRREGULAR PLURAL NOUNS (20 MIN.)

- Tell students that for this first group of spelling words, plural forms can be created by following regular spelling patterns.
- Display Spelling Chart or project Digital Projection DPU3.L1.2.

TEKS 3.2.B Demonstrate and apply spelling knowledge by (iv) spelling multisyllabic words with multiple sound-spelling patterns; (vii) spelling words using knowledge of suffixes, including how they can change base words such as dropping e, changing y to i, and doubling final consonants.

➤ **Projection DPU3.L1.2**

Regular Singular Noun	Regular Plural Noun

- When introducing the words, use these procedures:

Step 1: Introducing the Regular Singular Nouns

As you introduce each singular noun, write it on the table, pronouncing each word as you write it.

Regular Singular Noun	Regular Plural Noun
match	
night	
glass	
fox	
story	
baby	

Point out the vowel sound(s) and spelling of the word to students.

Step 2: Forming Plurals of the Regular Singular Nouns

As you introduce each plural noun, write it in the table, pronouncing each word as you write it.

Point out that for *story* and *baby*, the 'y' is changed to 'i', then the -es is added.

Regular Singular Noun	Regular Plural Noun
match	matches
night	nights
glass	glasses
fox	foxes
story	stories
baby	babies

Point out that for *match*, -es is added because *match* ends with 'ch'.

Point out that for *night*, -s is added.

Point out that for *glass* and *fox*, -es is added because *glass* ends with 'ss' and *fox* ends with 'x'.

Display the following chart on chart paper or project **Irregular Singular/Plural Noun Chart** DP.U3.L1.3.

➤ **Projection DP.U3.L1.3**

Irregular Singular Noun	Irregular Plural Noun

- When introducing the words, use these procedures:

Step 1: Introducing the Irregular Singular Nouns

Tell students that the next set of nouns are irregular, which means that the plural form of these words cannot be created using any of the patterns for the regular formation of plurals. Students must learn and memorize the correct plural form.

As you introduce each singular noun, write it in the table, pronouncing each word as you write it.

Irregular Singular Noun	Irregular Plural Noun
child	
man	
woman	
goose	
mouse	
louse	
tooth	
foot	
person	

Point out the vowel sound(s) and spellings in the word to students. For example, for the word *child*, point out the vowel sound /ie/, spelled 'i'; for the word *goose*, point out the vowel sound /oo/, spelled 'oo.'

When you reach the multisyllable words (*woman*, *person*), model for students how to chunk each word into syllables, and say and spell each word as you have done in previous lessons.

Step 2: Forming Plurals of the Irregular Singular Nouns

As you introduce each plural noun, write it in the table, pronouncing each word as you write it.

Irregular Singular Noun	Irregular Plural Noun
child	children
man	men
woman	women
goose	geese
mouse	mice
louse	lice
tooth	teeth
foot	feet
person	people

Make sure to explicitly point out that this is the plural form of the noun. Remind students that plural means more than one.

Point out that for some words, making the plural form adds a syllable (*child* is one syllable, while *children* is two syllables).

Regular Singular Noun	Regular Plural Noun
match	matches
night	nights
glass	glasses
fox	foxes
story	stories
baby	babies

Irregular Singular Noun	Irregular Plural Noun
child	children
man	men
woman	women
goose	geese
mouse	mice
louse	lice
tooth	teeth
foot	feet
person	people

Challenge Word: exercise

Challenge Word: laugh

- Explain that the Challenge Words, *exercise* and *laugh*, are used very often. They may not follow spelling patterns, and they need to be memorized.
- Explain to students that throughout this unit, *exercise* is an academic vocabulary word used as a noun but that it can also be used as a verb. Use this Challenge Word in sentences as examples for students: “Please complete this exercise to learn to spell.” “You exercise when you play soccer.”
- Write the word *laugh* on the board, and tell students it is pronounced /laf/.
- Ask students to turn to page 3 of the Individual Code Chart, find the /a/ row, and follow it across. Students will see that there is no ‘au’ listed because it is a rare spelling of the /a/ sound. Use this Challenge Word in a sentence as an example for students: “His new joke made me laugh out loud.”
- Tell students that on the assessment, you will say only the singular form of the word, and will ask students to spell both the singular and plural forms of the word. Emphasize that students will need to know whether the plural form is regular or irregular in order to spell it correctly.
- Tell students they will not have to change the form of the Challenge Words on the assessment.

- Practice the words as follows during the remaining time. Call on a student to read any word in its plural form and ask them to orally use the word in a meaningful sentence. After the student says the sentence, have them ask the class: “Did that sentence make sense?”
- If the class says, “Yes,” then the student puts a check mark in front of the word and calls on another student to come to the front and take a turn. If the class says, “No,” have the student try again, or call on another student to come to the front and use the word in a meaningful sentence. This continues until all the plural forms are used or time has run out.
- Tell students that the tables will remain on display until the assessment so that they may refer to it during the week.

~~~~~End Lesson~~~~~

### Lesson 1: Building Blocks and Systems

# Take-Home Material

- Have students complete Activity Page 1.3 and share Activity Page 1.4 with a family member.

Activity Pages  
1.3 and 1.4



## 2

# The Skeletal System: Axial Bones

## PRIMARY FOCUS OF LESSON

### Speaking and Listening

Students will identify different axial bones within the skeletal system, as well as how the bones function inside the body. **TEKS 3.1.A; TEKS 3.7.C**

### Reading

Students will read and answer comprehension questions about the body's skeletal system, including axial bones. **TEKS 3.2.A.iv; TEKS 3.6.G**

### Writing

Students will identify sentences in paragraphs, including topic and concluding sentences. **TEKS 3.11.C; TEKS 3.11.D.x**

## FORMATIVE ASSESSMENT

### Activity Page 2.2

**Classification of Animals** Correctly rearrange sentences in a paragraph, paying attention to topic, body, and concluding sentences. **TEKS 3.11.C; TEKS 3.11.D.x**

**TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.6.G** Evaluate details read to determine key ideas; **TEKS 3.11.C** Revise drafts to improve sentence structure and word choice by adding, deleting, combining, and rearranging ideas for coherence and clarity; **TEKS 3.11.D.x** Edit drafts using standard English conventions, including: punctuation marks including apostrophes in contractions and possessives and commas in compound sentences and items in a series.

## LESSON AT A GLANCE

|                                                               | Grouping                | Time    | Materials                                                       |
|---------------------------------------------------------------|-------------------------|---------|-----------------------------------------------------------------|
| <b>Speaking and Listening (70 min.)</b>                       |                         |         |                                                                 |
| Previewing Vocabulary                                         | Whole Group             | 5 min.  | <input type="checkbox"/> chart paper, chalkboard, or whiteboard |
| Introducing the Read-Aloud                                    | Whole Group             | 10 min. | <input type="checkbox"/> KWL Chart                              |
| Presenting the Read-Aloud: "The Skeletal System: Axial Bones" | Whole Group/<br>Partner | 25 min. | <input type="checkbox"/> Activity Page 1.1 (optional)           |
| Discussing the Read-Aloud                                     | Whole Group/<br>Partner | 10 min. | <input type="checkbox"/> Digital Flip Book: U3.L2.1–U3.L2.8     |
| Word Work: <i>Structure</i>                                   | Whole Group             | 10 min. |                                                                 |
| Extension                                                     | Whole Group             | 10 min. |                                                                 |
| <b>Reading (35 min.)</b>                                      |                         |         |                                                                 |
| Previewing Vocabulary                                         | Whole Group             | 5 min.  | <input type="checkbox"/> <i>How Does Your Body Work?</i>        |
| Introducing the Reading                                       | Whole Group             | 5 min.  | <input type="checkbox"/> Vocabulary Cards                       |
| Whole Group Reading: "The Skeletal System"                    | Whole Group             | 20 min. |                                                                 |
| Discussing the Reading                                        | Whole Group/<br>Partner | 5 min.  |                                                                 |
| <b>Writing (15 min.)</b>                                      |                         |         |                                                                 |
| Sequence Sentences in Paragraphs                              | Independent/<br>Partner | 15 min. | <input type="checkbox"/> Activity Pages 2.1, 2.2                |
| <b>Take-Home Material</b>                                     |                         |         |                                                                 |
| The Skeletal System                                           |                         |         | <input type="checkbox"/> Activity Pages 2.3, 2.4                |
| The Skeletal System: Reader's Theater                         |                         |         |                                                                 |

## ADVANCE PREPARATION

### Speaking and Listening

- Display the KWL charts from Lesson 1.

**Note:** This chart will be used throughout the unit.

| KWL Chart: Human Body Systems |   |   |
|-------------------------------|---|---|
| K                             | W | L |
|                               |   |   |

- Prepare to project the following digital images on the program's digital components site during the Read-Aloud: U3.L2.1–U3.L2.8.

### Reading

- Create individual Vocabulary Cards, each containing the word and definition, for the following vocabulary words: *cranium*, *expand*, *fibula*, *organs*, *pelvis*, *scapula*, *shoulder blades*, *skeletal system*, *skull*, *sternum*, *tibia*, and *vertebrae*.

### Universal Access

- Display Vocabulary Cards in the classroom during and after instruction to reinforce word meaning.
- Review digital images with students during and after instruction to reinforce ideas.
- Demonstrate the concepts of complex, interconnected systems: skeletal, muscular, nervous, digestive, excretory, circulatory, and respiratory.

## Lesson 2: The Skeletal System: Axial Bones

## Speaking and Listening



**Primary Focus:** Students will identify different axial bones within the skeletal system, as well as how the bones function inside the body. **TEKS 3.1.A; TEKS 3.7.C**

## PREVIEWING VOCABULARY (5 MIN.)

The following are core vocabulary words used in this lesson. Preview the words with the students before the lesson. Students are not expected to be able to use these words immediately, but with repeated exposure throughout the lessons, they will acquire a good understanding of most of the words. Students may also keep a “unit dictionary” notebook along with definitions, sentences, and/or other writing exercises using these vocabulary words.

**axial bones**, the bones that are located down the center, or axis, of a vertebrate’s body

**cartilage**, strong, elastic tissue that can be found in places like the tip of the nose and the top of the ear

**cranium**, the skull; the hard bones that protect the brain and give the head its shape

**spinal column**, the backbone; the series of vertebrae that extend from the neck to the tailbone

**structure**, a form or shape; something that is made up of a number of parts arranged together

Vocabulary Chart for “The Skeletal System: Axial Bones”

| Type                                   | Tier 3 Domain-Specific Words                         | Tier 2 General Academic Words |
|----------------------------------------|------------------------------------------------------|-------------------------------|
| Vocabulary                             | axial bones<br>cartilage<br>cranium<br>spinal column | structure                     |
| Multiple-Meaning Core Vocabulary Words |                                                      | structure                     |
| Sayings and Phrases                    |                                                      |                               |

**TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.7.C** Use text evidence to support an appropriate response.



## INTRODUCING THE READ-ALoud (10 MIN.)

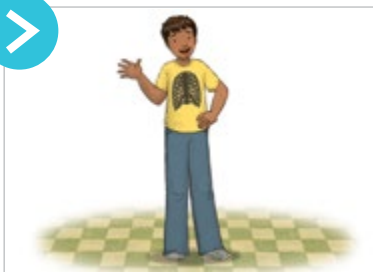
- Prepare to project the following digital images on the program's digital components site during the Read-Aloud: U3.L2.1–U3.L2.8.
- Read the title of today's Read-Aloud: "The Skeletal System: Axial Bones." Briefly review the systems discussed in the previous Read-Aloud, using any image supports, including the KWL chart, as needed. Remind students that in the previous Read-Aloud, they briefly heard about the skeletal system.
- Ask students, "What is the skeletal system made up of?"
  - » bones, the skeleton
- Have students explain why the skeletal system is important to the human body.
  - » The skeleton supports the human body, and it protects important organs in the human body.
- Remind students that in the *Classification of Animals* unit, they learned about a few ways animals are classified. One way that scientists group animals is by whether or not they have a backbone. Ask students, "What are animals with backbones called?"
  - » vertebrates
- Ask, "What are animals without backbones called?"
  - » invertebrates
- Ask students if humans and other mammals are vertebrates or invertebrates.
- Now ask students what they remember about exoskeletons, and then have a few volunteers name some animals that have this hard protective covering.
  - » beetles and other insects, crustaceans such as crabs and crayfish
- Ask students, "Do we have an exoskeleton?"
- Tell students that today they will be hearing a special term that relates to the skeletal system. Say the word *axial*, and ask students to repeat the word after you.
- Write the word *axial* on a piece of chart paper, a chalkboard, or a whiteboard. Ask students what word they see and/or hear in the word *axial*.
  - » axis
- Remind students that they may have learned about Earth's axis in several previous domains from earlier grades. Ask a volunteer to explain what an axis is.
  - » an imaginary straight line that goes through the center of an object, dividing it equally into two parts
- Tell students that the axial bones are located up and down the middle of the human body.

- Have students feel for these axial bones on their own torsos and heads, and to describe what they feel.
- Tell students to listen carefully to learn more about the axial bones in the skeletal system. Ask them to predict how the axial bones work with other bones and other parts of the body as an interconnected system.

## Support

Have students feel along the ridges of their back as they consider Ricardo's riddle.

### PRESENTING THE READ-ALoud: "THE SKELETAL SYSTEM: THE AXIAL BONES" (25 MIN.)



#### Show Image U3.L2.1 Ricardo

Hi, everybody. Ricardo here—I've got a new riddle for you:

*We are a column of bones, stacked on top of one another. Collectively, we make up your backbone. We begin with the letter 'v.' What are we?*

Today we're going to talk about the system that gives your body its structure, allowing it to stand on its own. If you've ever seen a building being built, you know that it has a framework that gives the building its shape and keeps it from toppling over. Your body has a similar structure. Who knows what keeps your body from collapsing? That's right—your skeleton!



#### Show Image U3.L2.2 The Human Skeleton

Your skeleton is made of bones. Bones can support a lot of weight, but they did not start out that way. Before you were born, your skeleton began as

cartilage, a firm rubbery tissue like the tough gristle on a piece of meat. Touch the top of your ear. What you feel is cartilage. The top of your ear will always be cartilage, but much of the cartilage in your original skeleton hardened and turned to bone.



Exchanging  
Information and Ideas

**Beginning**

Provide students with statements. Students choose if each statement is true or false, and if it is false, they correct it (e.g., “Rocks are soft/hard due to the minerals/vitamins stored inside them.”).

**Intermediate**

Provide students with sentence frames that allow them freer practice in expressing learned concepts (e.g., “Rocks are hard due to \_\_\_\_.”).

**Advanced/  
Advanced High**

Ask students a series of concept-checking questions related to new concepts (e.g., “How long will your bones grow? Why do we need calcium?”).

**ELPS 1.D; ELPS 1.E;**

**ELPS 2.G; ELPS 3.D;**

**ELPS 3.G**

By the time you were born, you had about 300 bones in your body. An adult has about 206 bones. So, where did all the extra bones go? Do bones just disappear? No, they grow and change over time. Many of them join together, like those at the end of your spine called the tailbone, and the bones in your skull.



**Show Image U3.L2.3  
Dairy Products and Metallic Calcium**

Have you ever heard the saying “hard as rock”? Rocks are hard due to the minerals stored inside them. The outside part of your bones becomes hard by storing minerals, too. Minerals

enter your body in the food you eat and the vitamins you may take. Calcium, contained in dark, leafy greens, broccoli, and dairy products, such as milk, is one of the important minerals that makes your bones as hard and strong as rock on the outside. Calcium is also needed to help blood clot, or thicken, when you accidentally cut yourself. Without it, your blood would be too thin for you to maintain good health.

At least until you reach your full height, your bones will continue to grow with you. It’s hard to imagine rock-hard bones growing, isn’t it? They cannot stretch or bend. So, how do bones grow? Well, bones are made up of living tissue. New bone tissue is being made all the time, working to replace worn-out cells and making it possible to heal broken bones.



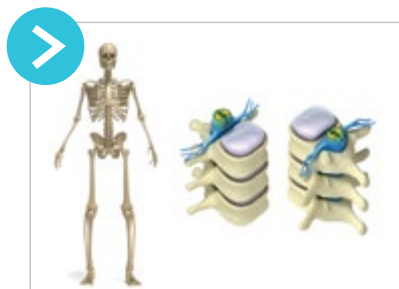
**Show Image U3.L2.4  
Bone Marrow**

Before you were born, your bones were solid, but many of them have become hollow over time, making them very light, yet still very strong. This is how

bones differ from rocks. Rocks are solid all the way through, but bones are porous, meaning they have many tiny holes through which liquids pass. Marrow, a jellylike tissue, fills these cavities of your porous

bones. Bone marrow is your body's blood cell factory. It produces blood cells to fight infection and carry oxygen throughout your body.

Bones come in many shapes and sizes. Some are long and rodlike, with knobby ends. Some are short and look like cubes, whereas others are flat. And some have their own unique shapes. Even though there are many different kinds and sizes of bones, all human skeletons look pretty much the same. Your skeletal bones are designed in specific ways to support and protect every part of your body.



### Show Image U3.L2.5 Axial Bones and Individual Vertebrae

There are three groups of bones that form your axial skeleton: the spine, skull, and ribs. The bones that support the center of your body are

called axial bones. It is also the job of the axial bones to protect the most important organs in your body. You've already learned that taxonomists classify animals in two groups, vertebrates and invertebrates. Who remembers the group in which humans are classified? Right—we're vertebrates! Vertebrates are animals with a backbone. Your backbone, or spine, is actually more than one bone. It is a column of many bones stacked on top of one another.

Bend forward and feel along the middle of your back. Do you remember those little bumps running down your back? As you may have learned in an earlier domain, these are your vertebrae, a series of bones fitted one on top of another to form the spinal column, or backbone. Cartilage separates each vertebra, filling in the spaces and cushioning them from one another. Each vertebra has a hole in it, allowing the spinal cord, an important pathway for nerves, to pass through it. Your spinal column protects your spinal cord, in addition to providing the main support for your skeleton. Your spine is only one part of your axial skeleton.

Sit up as straight and tall as you can. Now, look at your neighbor. Does the side profile of your neighbor's spine look straight? Probably



## Exchanging Information and Ideas

### Beginning

Provide students with sentence frames (e.g., "Bones are \_\_\_\_, or full of tiny holes.").

### Intermediate

Provide students with more complex sentence frames that allow them freer practice in expressing learned concepts (e.g., "\_\_\_\_ is a jelly-like tissue that fills the cavities of your \_\_\_\_.").

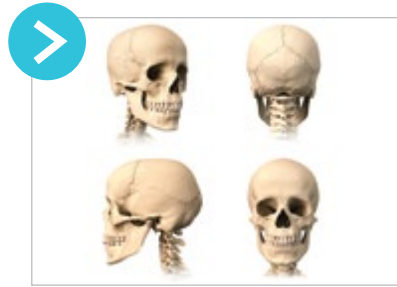
### Advanced/

### Advanced High

Ask students a series of concept-checking questions related to new concepts (e.g., "How do bones differ from rocks? Why do we need bone marrow?").

**ELPS 3.F; ELPS 3.G**

not. Your spine is curved, looking more like the letter ‘S’ than the letter ‘I.’ Can you think of any reasons why it might be better to have a slight curve in your back, rather than a completely straight back? If your back were as straight as a board, you wouldn’t be able to bend. The shape of your spine allows you much greater flexibility.



**Show Image U3.L2.6**  
**Human Skull Showing Interlocking Bones**

You’ve already heard about that fabulous tailbone at the lower end of your spine. So, what’s at the other end? Use your hand to follow your

vertebrae up your back and along your neck to your head. Feel how hard your head is. Who knows the name for the protective group of bones hidden inside your head? Right—your skull! Skull bones sit on top of your backbone, becoming the second part of your axial skeleton, that group of bones that support the center of your body.

Your skull comprises a group of bones—29 in all! Locked together, they protect your brain and some of your body’s sensory organs. The top part of your skull, shaped like a bowl and surrounding the brain, is called the cranium. Eight thin, curved bones are tightly interlocked to form this smooth cranial helmet beneath your forehead and scalp. When you were born, these eight bones still had gaps between them, allowing your brain to grow. Because these gaps don’t close completely for about two years, babies have a “soft spot” on their heads and need very careful handling.

The rest of your skull bones are facial bones, or bones in your face. Put your hands over your eyes and touch your closed lids very gently, pushing up slightly toward your eyebrows. The round openings in your skull are called eye sockets. These sockets are deep enough to protect your delicate eyes. Another hole in your skull is just the right size for your nose. Though it is sometimes closed or covered up with teeth, what is the biggest opening in your face? Right—your mouth. Cover your face with your hands and open your mouth wide. Which

**Challenge**

Ask students to think of how the skull and vertebrae interact with other parts of the body (e.g., the skull connects to the vertebrae, which extend along the body).

bone moved? Your jawbone! Your upper jaw is attached to the rest of your skull, but your lower jaw is hinged so that it can move up and down, and side to side. Pretty amazing, isn't it?



### Check for Understanding

Ask students why they think it is important for the jaw to be able to move. Possible student responses: to chew food



### Show Image U3.L2.7 Rib Cage and Flexible Skeleton

Does anyone remember the three groups of bones that form the axial skeleton down the center of your body? The spine is one. The skull is

another. The third group of axial bones is also connected to your spine. Reach behind you again and feel the bones that stretch across your back, wrapping around to the front of your body. What are these bones called? Right again—your ribs!

Ribs are curved bones that form a protective cage, called the rib cage, around your heart and lungs. Ribs come in pairs. Each rib is attached to a vertebra in the middle of your back, and the sternum, or breastbone, in the middle of your chest. Feel your chest. Can you count the number of ribs in your rib cage? How many did you count? You have 24 ribs, or 12 pairs, in all.

I just can't resist sharing a joke with you right now because it fits in so well with what you're learning:

*What did the rib cage say to the heart?*

*Give up?*

*Gotcha covered!*

Your skull and ribs both protect vital organs, organs that you cannot live without. However, your ribs are designed very differently from your skull. Whereas your skull is made of solid, interconnected bones without spaces between, there are spaces between each of your

## Support

Brainstorm with students why it is important to have so many skull bones for protection.



**ENGLISH  
LANGUAGE  
LEARNERS**

## Exchanging Information and Ideas

### Beginning

Provide students clues to help them access a key concept (for example, "This is the top part of your skull that is shaped like a bowl and surrounds the brain."). Challenge: Nominate student partners to give each other clues to make the activity more student-centered.

### Intermediate

Provide students one true and one false statement, and ask them to distinguish the correct one. If necessary, ask them to support their decision (e.g., "The round openings in your skull are called eye sockets." "The round openings in your skull are called jaws.").

### Advanced/ Advanced High

Ask students a series of concept-checking questions related to new concepts (For example, "How are the bones in your skull different now than when you were a baby?").

**ELPS 3.F**



## Exchanging Information and Ideas

### Beginning

Provide students clues to help them access a key concept (For example, “These form a protective cage around your heart and lungs.”).

### Intermediate

Provide students one true and one false statement and ask them to distinguish which one is correct. If necessary, ask them to support their decision.

### Advanced/ Advanced High

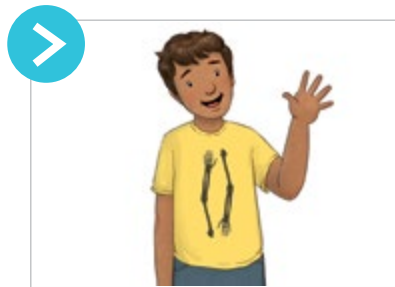
Ask students a series of concept-checking questions related to new concepts.

**ELPS 2.G; ELPS 3.F**

### Challenge

Nominate student partners to give each other clues to make the activity more student-centered.

ribs. Can anyone guess why it wouldn't work for the rib cage to be one big, solid bone? Take a deep breath, as deep as you can. Now, let the air out. What happens to your chest? Do it again and notice how your chest goes in and out with each breath that you take. Solid bone around your chest would prevent the diaphragm and lungs from expanding properly with the air you breathe. The shape of the spine, combined with the spaces in between each pair of ribs, helps the human body structure to be flexible.



### Show Image U3.L2.8 Ricardo

I'll be back tomorrow to talk more about the skeleton. Today you learned about axial bones, and tomorrow you'll hear a term that relates to another part of your skeletal system, and to

your arms and legs. I'm looking forward to the next time we meet! I'll be sure to have new riddles!

## DISCUSSING THE READ-ALoud (10 MIN.)

- Inferential.** You heard in the Read-Aloud that when you were born, you had about 300 bones in your body. What happened to the bones?
  - » Bones grow and change over time. Many of them joined together, like the skull bones and tailbone.
- Inferential.** How do bones heal and grow?
  - » They are made of marrow, living cells, and tissues that replace worn-out cells.
- Inferential.** Explain why the skeletal system is so important.
  - » The bones give the human body its structure, allowing it to stand up on its own. It also protects vital organs.
- Inferential.** Why is it important for bones to be porous? What is inside bones?
  - » Porous bones are lighter, and marrow, a jellylike tissue, fills the cavities of the bones.





## Listening Actively

### Beginning

Ask students simple concept-checking questions, starting with yes/no questions and moving into open-ended interrogative questions.

### Intermediate

Have students make true/false statements about content and ask them to quiz their partners. If the statements are false, their partner should correct the statement and support it with details.

### Advanced/ Advanced High

Encourage students to form their own concept-checking questions with which to quiz partners.

### ELPS 2.1

## Challenge

Set parameters for the kinds of questions students should create (e.g., three yes/no questions and one *wh*-question).

5. **Inferential.** Why is bone marrow important?

- » It produces blood cells that help to fight infections, carry oxygen throughout the body, and allow bones to grow.

6. **Inferential.** Why are the spaces in between your rib cage and the slight bend of your spine important?

- » They allow the skeletal system to be flexible.

## WORD WORK: STRUCTURE (10 MIN.)

1. In the Read-Aloud you heard, “Today we’re going to talk about the system that gives your body its structure, allowing it to stand on its own.”
2. Say the word *structure* with me.
3. A structure is a form or shape, or something that is made up of a number of parts arranged together.
4. A house built in an area where earthquakes are common should have a structure that resists the force of an earthquake.
5. In the Read-Aloud, you heard why it is important for the body to have a strong structure. What are some other things that could not exist without a strong structure? Be sure to use the word *structure* when you talk about it. (Ask two or three students. If necessary, guide and/or rephrase the students’ responses to make complete sentences: “Without a strong structure, \_\_\_ could not exist.”)
6. What’s the word we’ve been talking about? What part of speech is the word *structure*?
  - Use a Sharing activity for follow-up. Directions: Turn to your partner and take turns sharing ideas about the ways in which the body’s structure is similar to a building’s structure. Also take turns with your partner sharing ideas about the ways in which your body’s structure is different from a building’s structure. I will call on one or two of you to share your ideas with the class. As students share, make sure they use the word *structure* in a complete sentence.

## EXTENSION (10 MIN.)

- Review any information related to the skeletal system on the chart thus far. Ask if there is any information in the ‘K’ column that should be revised based on what was learned in the Read-Aloud.



- Reread small sections of the text aloud and/or revisit any image supports as necessary to help students check the accuracy of their responses. Then cross out the inaccurate information in the 'K' column. Make necessary revisions. Then ask if students discovered the answers to any of their questions. If so, record relevant answers in the 'L' column. Ask what else students learned from the Read-Aloud, and record these responses under the 'L' column as well. Tell students that the next time they meet, they will continue to learn about the skeletal system. Ask students if there is anything else they wonder about the skeletal system. Record responses under the 'W' section of the chart.

## Lesson 2: The Skeletal System: Axial Bones

# Reading



**Primary Focus:** Students will read and answer comprehension questions about the body's skeletal system, including axial bones. **TEKS 3.2.A.iv; TEKS 3.6.G**

### PREVIEWING VOCABULARY (5 MIN.)

- The following are vocabulary words used in this lesson. Preview the words with the students before the lesson, and refer back to them at appropriate times.
  - Display the vocabulary words on the board.
  - Divide the words into syllables.
  - Cover one syllable at a time with your hand and segment the word.
  - Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
  - Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.
  - The words also appear in the glossary in the back of the student reader.

**cranium**, skull

**expand**, to get bigger

**fibula**, the small, “outside bone” in the lower part of your leg

**TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.6.G** Evaluate details read to determine key ideas.

**organs**, parts of your body made of cells and tissues that perform a specific job

**pelvis**, hip bones

**scapula**, shoulder blade

**shoulder blades**, scapula; you have two of these triangle-shaped bones at the top of your back

**skeletal system**, your bones

**skull**, head

**sternum**, breastbone

**tibia**, shinbone

**vertebrae**, small bones that are part of the spinal column or backbone

## Challenge

Ask students to consider why the word *system* is appropriate when describing how bones work together.

## Support

Have students work in pairs or small groups to access the text and respond to comprehension questions.

**Vocabulary Chart for “The Skeletal System”**

| Type                                   | Tier 3 Domain-Specific Words                                                                                           | Tier 2 General Academic Words |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Vocabulary                             | skeletal system<br>skull<br>cranium<br>pelvis<br>vertebrae<br>sternum<br>shoulder blades<br>scapula<br>tibia<br>fibula | organs<br>expand              |
| Multiple-Meaning Core Vocabulary Words |                                                                                                                        | organs<br>expand              |
| Sayings and Phrases                    |                                                                                                                        |                               |

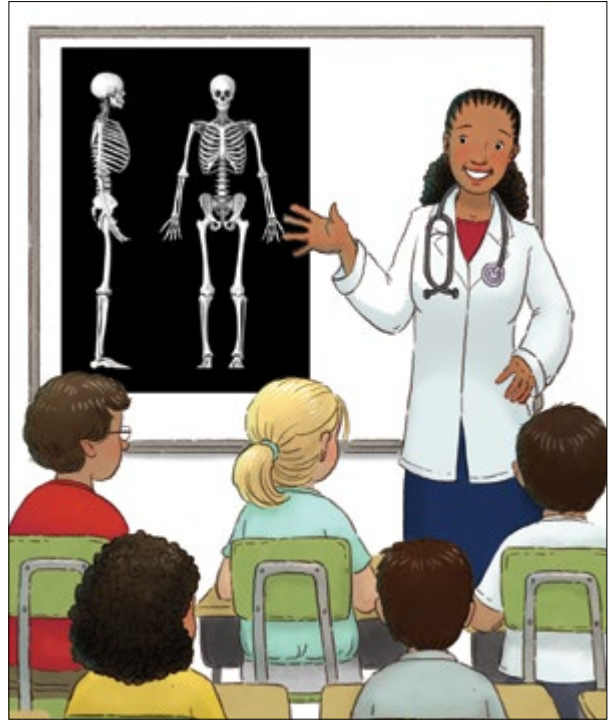
## INTRODUCING THE READING (5 MIN.)

- Remind students that so far in the unit, they have been briefly introduced to different systems in the body.
- Elicit different functions of different systems from the students.
- Tell students that the title of today's chapter is “The Skeletal System.”
- Make sure that you and your students each have a copy of the Student Reader.
- Ask students to turn to the table of contents, locate the chapter, and then turn to the first page of the chapter.

## Chapter 1 The Skeletal System

Hello! My name is Dr. Welbody. Some of you may remember me. I visited your school once before. You were in first grade then. We learned about some of the systems that keep your body working. I told you to eat healthy food so you would grow up to be big and strong. It looks like you listened to me, too! I see that you have grown a lot since then! You are getting big and tall!

I am here today to help you learn more about the body and its systems. In the next few days we will learn about three systems: the **skeletal system**, the **muscular system**, and the **nervous system**.



*Dr. Welbody presents a slide showing two views of a human skeleton.*

2

3

ENGLISH  
LANGUAGE  
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### Exchanging Information and Ideas

Provide students with scaffolded support to answer the question.

#### Beginning

The skeletal system is made up of the bones inside your \_\_\_\_\_. (body)

#### Intermediate

The skeletal \_\_\_\_ is made up of the bones inside your \_\_\_\_\_. (system/body)

#### Advanced/Advanced High

What makes up your skeletal system? (the bones inside your body)

### WHOLE GROUP READING: "THE SKELETAL SYSTEM" (20 MIN.)

#### Pages 2–3

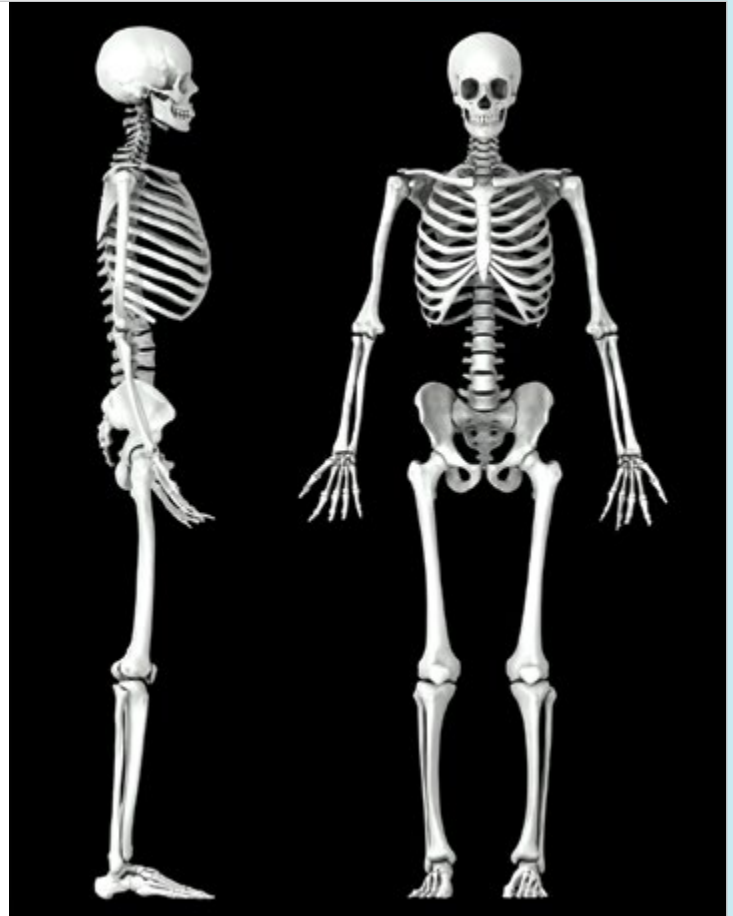
- Read the title of the chapter, "The Skeletal System," together as a class.
- Ask students to scan the page for vocabulary words. Elicit the meanings of vocabulary words *skeletal system*, *muscular system*, and *nervous system* from students based on the material covered in the previous lesson, as well as in this lesson's Read-Aloud.
- Ask students to read **page 2** to themselves to answer the following question:  
Based on Dr. Welbody's introduction, what do you think the skeletal system is about?
  - » the bones inside our body
- Lead a brief, whole-class discussion of student responses.
- Ask students to look at the picture and caption on **page 3**.
- Allow students to modify their answers to the question, and call on students to share their responses.

I'd like to begin with the **skeletal system**. The **skeletal system** is made up of bones that give your body shape.

I have a slideshow here on my computer. The first slide shows the **skeletal system**. The picture on the right shows what the **skeletal system** looks like from the front. The one on the left shows what it looks like from the side.

There are more than 200 bones in your body. When I went to medical school to learn to be a doctor, I had to learn the name of every bone in the body. I had to study very hard!

You kids don't need to be able to name every bone in the body. But you should know the names of some of the more important bones. So let's get started!



*The **skeletal system** seen from the side and from the front*

4

5

## Pages 4–5

- Have students find *skeletal system* in the glossary and read the definition together as a class.
- Ask students to read **page 4** to themselves to find the answer to the question: “What do skeletal bones do?”
  - » They give your body shape.



### Check for Understanding

Ask students how many bones they have in their body.

- » more than 200

- Have students look at the image and read the caption on **page 5**.
- Ask students to name the body parts that correspond to the different parts of the skeleton on **page 5**.
- Lead a brief, whole-class discussion of student responses.

Let's start at the top, with the **skull**. Doctors call this set of bones the **cranium**. The **skull**, or **cranium**, has a very important job. It protects your brain.

You might think the **skull** is all one big bone. But that's not the case. In fact, a human **skull** is a set of 22 bones.



*Human skull, or cranium*

6

Rub the back of your neck. Can you feel the bone that's right at the base of your neck? That's one of the bones in your spine, or spinal column. The spine is a chain of bones that runs down through your neck and back. It runs from the base of the **skull** all the way down to your hips (or **pelvis**).

The spinal column is made up of more than thirty smaller bones, stacked one on top of another. These smaller bones are called **vertebrae**. The **vertebrae** protect a bundle of nerves called the spinal cord. The spinal cord delivers nerve signals to and from the brain.

You may remember learning that animals with spines, or backbones, are called **vertebrates**. That's because their spines are made up of **vertebrae**.



*Human spinal column*

7

## Pages 6–7

- Have students find the definitions for the words *skull* and *cranium* in the glossary, and read the definitions together as a class.
- Ask students to read **page 6** to themselves to find the answer to the question: "What does the skull, or cranium, do?"
- Have students look at the image and read the caption on **page 6**.
- Have students identify the different facial features missing from the skull.
- Have students find *pelvis* and *vertebrae* in the glossary, and read the definitions together as a class.
- Ask students to read **page 7** to themselves to find the answer to the question: "What is the spinal column and what does it do?"
- When students have finished reading, restate the question and have students answer.
  - » It delivers nerve signals to and from the brain.
- Have students look at the image and read the caption on **page 7**.



**ENGLISH  
LANGUAGE  
LEARNERS**

### Exchanging Information and Ideas

Offer scaffolded sentence frames to students as they answer the question.

#### Beginning

The spinal column delivers \_\_\_\_\_  
to and from the brain.

#### Intermediate

The spinal column delivers \_\_\_\_\_  
to and from \_\_\_\_\_.

#### Advanced/Advanced High

The spinal column \_\_\_\_\_.

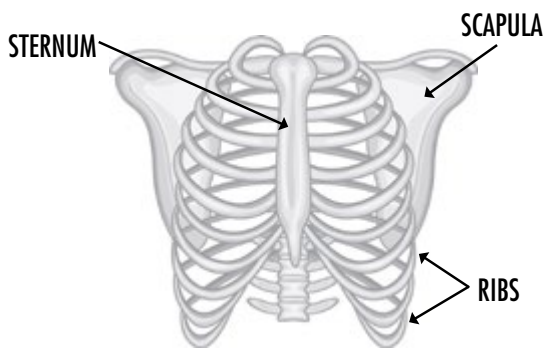
**ELPS 3.D**

My next slide shows the bones inside your chest. If you tap on your chest, right in the middle, you can feel your breastbone. It's also known as the **sternum**.

If you tap a bit to the left or the right, you may be able to feel some of your ribs. The ribs protect inner **organs** like the heart and lungs.

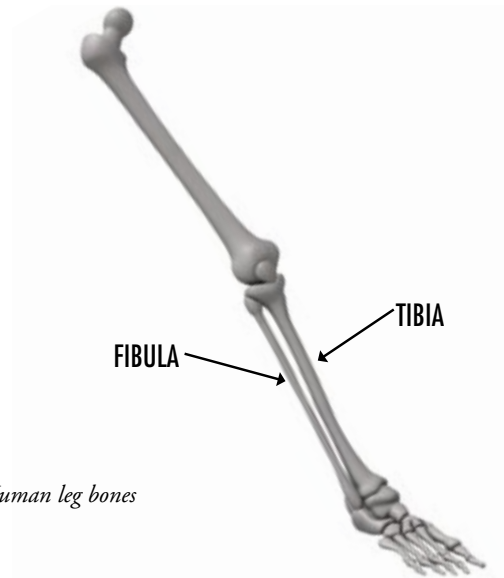
If you look at the slide, you can see why people sometimes talk about “the rib cage.” The rib bones look like the bars of a cage.

Do you see the two large bones behind the rib cage? They are shaped like triangles. There's one on each side. These are your **shoulder blades**. The medical name for the **shoulder blade** is the **scapula**.



Front view of the rib cage with *scapulae* (in back)

8



Human leg bones

The last two bones I want to tell you about are leg bones. They are called the **tibia** and the **fibula**. These are the two bones in the lower part of your leg. The **tibia** is the larger of the two.

Okay, that's a lot of bones—and a lot of names. Let's play Simon Says and see if you can remember the names. I'll be Simon.

Are you ready?

9

## Pages 8–9

- Have students find *sternum*, *organs*, *shoulder blade*, and *scapula* in the glossary, and read the definitions together as a class.
- Ask students to read **page 8** to themselves to find the answer to the question: “What is the function of the rib cage?”
- When students have finished reading, restate the question and have students answer.
  - » It protects organs like the heart and lungs.
- Ask students to fill in the blank in the sentence: The shoulder blade is also called the \_\_\_\_\_.
  - » scapula
- Have students look at the image and read the caption on **page 8**.
- Have students touch their sternum, rib cage, and shoulder blades.

- Have students find *tibia* and *fibula* in the glossary, and read the definitions together as a class.
- Ask students to read **page 9** to themselves to find the answer to the question: “Where are the *tibia* and *fibula* located?”
- When students have finished reading, restate the question and have students answer.
  - » They are two bones located in the lower part of the leg.
- Have students look at the image and read the caption on **page 9**.



**ENGLISH  
LANGUAGE  
LEARNERS**

### Foundational Skills Print Awareness

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Pull any students who are struggling with left-to-right directionality into a small group. Model for students how to track print with your finger. Have students show their left thumb and then right to orient themselves from left to right. Ask students to move their finger beneath the words from left to right as they read aloud.

**ELPS 4.B**



Simon says, tap your **skull**.

Simon says, now tap your **cranium**.

Ha! The **cranium** is the same thing as the **skull**. Did I trick any of you?

Simon says, flex your **vertebrae** by bending over and touching your **tibia**.

Simon says, take a deep breath and feel your rib cage **expand**.

Simon says, put your **pelvis** to work and sit down.

Now, reach back and see if you can touch one of your **scapulae**, or **shoulder blades**.

Wait! I didn't say Simon says! Did I catch anyone?



*Dr. Welbody plays Simon Says with students.*

### **Pages 10–11**

- Ask students to read and follow the instructions on **page 10** silently to themselves.
- Then have students work with partners to read through **page 10** and follow the instructions.
- Finally, ask students to close their books and lead them in a game of “Simon says” that reviews the different bones from today’s reading.
- Encourage students to volunteer to lead the class in “Simon says.”

## DISCUSSING THE READING (5 MIN.)

1. **Literal.** Which set of bones protects your brain?
  - » the cranium/skull
2. **Literal.** Where does the spinal column run?
  - » from your neck or base of your skull all the way down to your pelvis
3. **Literal.** What are vertebrae and what do they protect?
  - » They are the tiny bones stacked on top of each other in the spinal column, and they protect the spinal cord.
4. **Literal.** What bone is in between your ribs, in the middle of your chest?
  - » your sternum
5. **Literal.** Which bones are shaped like triangles behind your rib cage?
  - » the shoulder blades, or scapula

### Lesson 2: The Skeletal System: Axial Bones

# Writing



**Primary Focus:** Students will identify sentences in paragraphs, including topic and concluding sentences. **TEKS 3.11.C; TEKS 3.11.D.x**

## SEQUENCE SENTENCES IN PARAGRAPHS (15 MIN.)

- Remind students that they have been learning about writing paragraphs. They have learned that a good paragraph has a topic sentence that gives an idea of what the paragraph is about, additional sentences that provide details supporting the topic sentence, and a concluding sentence that wraps up, or concludes, the paragraph at the end.
- Tell students that they have a letter from Mr. Mowse. Have students read Activity Page 2.1.
- Next, ask students if they notice any problems with Mr. Mowse's letter. (Appropriate capitalization and punctuation are missing.) As a group, have students identify the errors that need to be corrected in the letter, sentence by

**TEKS 3.11.C** Revise drafts to improve sentence structure and word choice by adding, deleting, combining, and rearranging ideas for coherence and clarity; **TEKS 3.11.D.x** Edit drafts using standard English conventions, including: punctuation marks including apostrophes in contractions and possessives and commas in compound sentences and items in a series.



## Exchanging Information and Ideas

### Beginning

Access a word/phrase bank designed for the keys to these comprehension questions.

### Intermediate

Locate evidence in the Reader to support your answers.

### Advanced/ Advanced High

Use full sentences and domain-specific vocabulary to answer questions.

### ELPS 3.F

## Activity Page 2.1



### Support

Work with a small group of students to identify the topic sentence and concluding sentence.

### Challenge

Have students assist other peers in the class to identify the topic and concluding sentences.

## Activity Page 2.2



sentence, and have them make those changes on the worksheet, including the commas in the heading (between city and state and day and year).

- Have students turn to Activity Page 2.2, and tell them that the Activity Page is a copy of a two-paragraph report that Mr. Mowse created for them.
- Read the title of the worksheet and explain that a report is a piece of writing about a nonfiction topic. Tell students that Mr. Mowse started writing his report and, while he remembered some really good information about classifying animals, he had difficulty organizing his thoughts, so he needs some help from the class. Tell students that writing is difficult for Mr. Mowse, and his letter took him a long time to write.
- Tell students that the sentences on the front of the Activity Page are all from the same paragraph. There are six sentences: One is a topic sentence, one is a concluding sentence, and the rest are sentences that provide supporting details for the topic sentence. However, the sentences are not in the proper order.
- Ask students to read all of the sentences aloud as a group, thinking in particular about which sentence might be the topic sentence. After a brief discussion, have all students mark the topic sentence as 'TS.'
- Next, ask students to identify and mark the concluding sentence as 'CS.' Remind students that the concluding sentence is often a restatement of the topic sentence. Remind students that the concluding sentence is the very last sentence in a properly sequenced paragraph.
- Finally, tell students that the remaining sentences are all details supporting the topic sentence. Ask them to number the remaining sentences in a logical order so that they make sense.
- Summarize by having students reread the sentences of the paragraph in the correct order, for example, topic sentence, supporting details in proper order, and the concluding sentence.
- Complete the back of the Activity Page with the next group of sentences in the same manner.

## Lesson 2: The Skeletal System: Axial Bones

# Take-Home Material

- Have students read through Activity Page 2.3 and share Activity Page 2.4 with a family member to practice fluency.

Activity Pages  
2.3 and 2.4



## 3

# The Skeletal System: All About Bones, Part 1

## PRIMARY FOCUS OF LESSON

### Speaking and Listening

- Students will identify different appendicular bones within the skeletal system, as well as how the bones function inside the body. **TEKS 3.1.A; TEKS 3.6.G; TEKS 3.7.C; TEKS 3.13.E**

### Reading

- Students will read and answer comprehension questions about the body's skeletal system and appendicular bones. **TEKS 3.2.A.iv; TEKS 3.6.G**

### Language

- Students will spell words using spelling patterns and rules for regular and irregular plural nouns. **TEKS 3.2.B.iv**

## FORMATIVE ASSESSMENT

### Exit Ticket

**Exit Ticket** Identify joints and their functions.

- TEKS 3.7.C**

- TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.G** Evaluate details read to determine key ideas; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.13.E** Demonstrate understanding of information gathered; **TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.2.B.iv** Demonstrate and apply spelling knowledge by spelling multisyllabic words with multiple sound-spelling patterns.

## LESSON AT A GLANCE

|                                                                      | Grouping                | Time    | Materials                                                                                                                                         |
|----------------------------------------------------------------------|-------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Speaking and Listening (75 min.)</b>                              |                         |         |                                                                                                                                                   |
| Previewing Vocabulary                                                | Whole Group             | 5 min   | <input type="checkbox"/> KWL Chart<br><input type="checkbox"/> Activity Page 1.1 (optional)                                                       |
| Introducing the Read-Aloud                                           | Whole Group             | 10 min. | <input type="checkbox"/> Digital Flip Book: U3.L3.1–U3.L3.8<br><input type="checkbox"/> chart paper<br><input type="checkbox"/> Activity Page 3.1 |
| Presenting the Read-Aloud: “The Skeletal System: Appendicular Bones” | Whole Group/<br>Partner | 30 min. |                                                                                                                                                   |
| Discussing the Read-Aloud                                            | Whole Group/<br>Partner | 10 min. |                                                                                                                                                   |
| Word Work: <i>Appendages</i>                                         | Whole Group             | 10 min. |                                                                                                                                                   |
| Skeletal System Review                                               | Whole Group             | 10 min. |                                                                                                                                                   |
| <b>Reading (30 min.)</b>                                             |                         |         |                                                                                                                                                   |
| Previewing Vocabulary                                                | Whole Group             | 5 min.  | <input type="checkbox"/> <i>How Does Your Body Work?</i><br><input type="checkbox"/> Vocabulary Cards                                             |
| Introducing the Reading                                              | Whole Group             | 5 min.  | <input type="checkbox"/> Activity Page 3.2                                                                                                        |
| Whole Group Reading: “All About Bones”                               | Whole Group             | 20 min. |                                                                                                                                                   |
| <b>Language (15 min.)</b>                                            |                         |         |                                                                                                                                                   |
| Spelling: Regular and Irregular Plural Nouns                         | Independent/<br>Partner | 15 min. | <input type="checkbox"/> Activity Page 3.3                                                                                                        |
| <b>Take-Home Material</b>                                            |                         |         |                                                                                                                                                   |
| “All About Bones”                                                    |                         |         | <input type="checkbox"/> Activity Page 3.4                                                                                                        |

## ADVANCE PREPARATION

### Speaking and Listening

- Prepare the KWL charts from the previous lesson:

**Note:** This chart will be used throughout the unit

| KWL Chart: Human Body Systems |   |   |
|-------------------------------|---|---|
| K                             | W | L |
|                               |   |   |

- Prepare to project the following digital images on the program's digital components site during the Read-Aloud: U3.L3.1–U3.L3.8.

### Reading

- Create individual Vocabulary Cards, each containing the word and definition, for the following vocabulary words: *calcium*, *cast*, *cell*, *dairy*, *marrow*, *tissue*, and *x-ray*

### Universal Access

- Display Vocabulary Cards in the classroom during and after instruction to reinforce word meaning.
- Review digital images with students during and after instruction to reinforce ideas.
- Demonstrate the concepts of complex, interconnected systems: skeletal, muscular, nervous, digestive, excretory, circulatory, and respiratory.

## Lesson 3: The Skeletal System: All About Bones

## Speaking and Listening



**Primary Focus:** Students will identify different appendicular bones within the skeletal system, as well as how the bones function inside the body. **TEKS 3.1.A; TEKS 3.6.G; TEKS 3.7.C; TEKS 3.13.E**

## PREVIEWING VOCABULARY (5 MIN.)

- The following are core vocabulary words used in this lesson. Preview the words with the students before the lesson. Students are not expected to be able to use these words immediately, but with repeated exposure throughout the lessons, they will acquire a good understanding of most of the words. Students may also keep a “unit dictionary” notebook along with definitions, sentences, and/or other writing exercises using these vocabulary words.

**appendages**, smaller body parts that are attached to the main body; things that are attached to, or are a part of, a more significant or important thing

**appendicular bones**, bones that are attached to and hang from the main part of a skeleton

**femur**, the long bone found in the thigh; the thighbone

**joint**, the area where two bones come together; where two or more things come together

**ligaments**, short and tough bands of flexible tissue that connect two bones or pieces of cartilage and hold together joints

Vocabulary Chart for “The Skeletal System: Appendicular Bones”

| Type                                   | Tier 3 Domain-Specific Words             | Tier 2 General Academic Words |
|----------------------------------------|------------------------------------------|-------------------------------|
| Vocabulary                             | appendicular bones<br>femur<br>ligaments | appendages<br>joint           |
| Multiple-Meaning Core Vocabulary Words |                                          |                               |
| Sayings and Phrases                    |                                          |                               |

**TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments;  
**TEKS 3.6.G** Evaluate details read to determine key ideas; **TEKS 3.7.C** Use text evidence to support an appropriate response;  
**TEKS 3.13.E** Demonstrate understanding of information gathered.



## INTRODUCING THE READ-ALoud (10 MIN.)

- Prepare to project the following digital images on the program's digital components site during the Read-Aloud: U3.L3.1–U3.L3.8.
- Briefly review the human body systems discussed in previous Read-Alouds. Review the major body systems introduced in Lesson 1. Remind students that cells are the building blocks of life.



### Check for Understanding

Share any information you recall about the cells, tissues, and organs in the body.

- » Answers may vary.

Do our human body systems work independently, or are they interconnected?

- » They are interconnected.

Share what you remember about the bones in your skeletal system.

- » Answers may vary.

Ask students to recall what term they learned to describe the skull, spine, and rib cage.

- » axial bones

Why are the skull, spine, and rib cage called axial bones?

- » The axial bones in the human body support the center of the body.

Explain why, in addition to supporting the body, the axial bones are important.

- » They protect the most important organs in the body.

Why is the skeletal system as a whole important to the human body?

- » The skeleton is a framework that keeps the body from toppling over.

- Tell students that today they will continue to learn about the skeletal system. Revisit the 'W' section of the KWL chart, and ask students if there is anything else they wonder about the skeletal system that they would like to add before hearing the Read-Aloud.
- Tell students that today they will hear about different types of bones and joints. Ask students to predict what the largest bone in the human body is and where it is located. Ask students to predict what the strongest joint in the human body is and where it is located. You may wish to record their responses on the KWL chart and address the responses while discussing the Read-Aloud section.

- Tell students to listen carefully to learn about appendicular bones and joints, and to hear if their predictions about the largest bone and the strongest joint in the body are correct. Tell students to also listen for the key ideas, or important points, of the Read-Aloud, and let them know that they will discuss this later.

**PRESENTING THE READ-ALoud :**  
**“THE SKELETAL SYSTEM: APPENDICULAR BONES” (30 MIN.)**



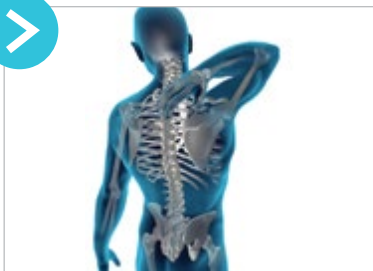
**Show Image U3.L3.1**

**Ricardo**

Hello again. Before we begin, I want to know who is able to correctly spell the big ‘v’ word that we talked about the last time we met. Who would like to try

to spell *vertebrae*? Wow! I’m impressed.

Today we’re going to talk about another big word: *appendages*. I was quite small the first time I ever heard that word. I used to cling to my mother’s leg all the time, and I would often hear her say, “Ricardo is my little appendage.” I never knew what it meant. Do you? Now, years later, it makes perfect sense to me. An appendage is something that is attached to, or that hangs from, something larger. Today, you are going to learn about the other bones in your skeletal system, the bones in the legs and arms that hang from your axial skeleton. These bones in your appendages are called appendicular bones because they “hang on” to the larger bones of the body. Let’s try saying those words together: *appendicular bones*.



**Show Image U3.L3.2**

**Highlighted Scapulae**

Let’s begin near the top of your skeleton with your arm bones. What are your arms attached to? What do they hang down from? If you answered shoulders,



## Exchanging Information and Ideas

### Beginning

Encourage students to use simple sentence frames to answer questions here and throughout the Read-Aloud. Appendages are things that are \_\_\_\_ to you.

### Intermediate

Encourage students to use detailed sentence frames to answer questions here and throughout the Read-Aloud. Appendages are things that are \_\_\_\_ to you, like a/an \_\_\_\_.

### Advanced/ Advanced High

Encourage students to use more complex sentence frames to answer questions here and throughout the Read-Aloud. Appendages are \_\_\_\_.

**ELPS 2.G; ELPS 3.D;**

**ELPS 4.I**

you are right. Your shoulders are made up of several different bones. Look at this picture to see how arm bones are connected to the axial skeleton. The large, flat, triangular bones that you see in the picture are called scapulae, or shoulder blades. They are sometimes referred to as “wings” because they stick out a little from your back. Now, look at this picture. The long bones that connect your scapulae to the top of your rib cage are called clavicles, or collarbones. Shirt collars cover your collarbones.



### Check for Understanding

What are examples of appendages?  
» Answers may vary.



### Show Image U3.L3.3 Leg Bones Attached to Skeleton

Let’s move down your body to the base of your axial skeleton. How are your legs attached to your spine? Legs need a hanger, too. Their hanger is called the

pelvis, a group of strong bones illustrated in this picture. Put your hands on your hips and feel for the bones that stick out at your sides. These are your hip bones, or pelvic bones. Your pelvic bones are large bowl-shaped bones that protect your bladder and intestines—very important organs that help your body function properly. Your pelvis is connected to your spine by the sacrum, a triangular bone that sits between the two hipbones of your pelvis.

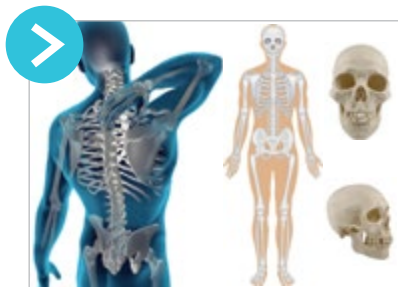


### Show Image U3.L3.4 Tibia, Fibula, and Femur

Leg bones and arm bones are a lot alike, but leg bones are thicker and longer than arm bones. In fact, the longest, heaviest, and strongest bone

in your entire body is in your leg. Does anyone know the name of this bone? It's your thighbone, or femur. Your femur is connected to your pelvis and extends all the way down to your knee. If you look at the picture, you will see two bones in the lower part of the leg. The larger of the two, the one in the front of the leg, is called the tibia, or shinbone. The thinner bone behind it is called the fibula. Both the tibia and the fibula connect the knee to the ankle.

That's a lot of information. I suspect that some of you are wondering how all these different bones are connected. Sure, they're attached to hangers, the scapulae and the pelvis, but how? Are they glued in place?



### Show Image U3.L3.5 Different Types of Joints (Movable, Immovable, Partially Movable)

The point where two bones meet is called a joint. Without joints, your body would not be able to move. There are three main types of joints in your body: movable, immovable, and partially movable. In other words, some joints can move, some can't, and some move a little bit. Let's take a closer look at all three.

The most movable joints in your body are ball-and-socket joints. Make a fist with one hand; then, wrap the fingers of your other hand around it. Your fist is like the ball in the socket of your other hand. You can move the fist around easily inside the other hand, can't you? This type of joint is found in both your hips and shoulders. Ball-and-socket joints allow you to swing your arms and legs in a full circle.



#### Check for Understanding

Where do we find ball-and-socket joints?  
» in your hips and shoulders

## Challenge

Have students consider what it would be like to walk and move without joints (e.g., it would mean walking around very stiffly and not being able to bend over).

## Support

Have students stand up and try to do activities without bending or using their movable joints.

Other movable joints, called hinge joints, work like the hinges of a door. Your jawbone has hinges. Can you think of any other hinge joints in your body, joints that move only back and forth instead of turning in a full circle? Your knees, elbows, ankles, wrists, and knuckles all have hinge joints. In fact, your knee joint, connecting your femur to your tibia and fibula, is the biggest and strongest joint in your whole body. It lets your body bend at the knees. Stand up and bend at the knees. Imagine trying to walk without those hinge joints!



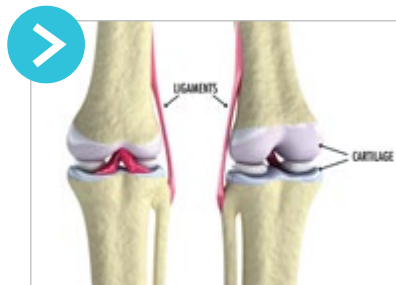
### Check for Understanding

How are joints like hinges?

- » They move back and forth instead of in a circle.

Some joints permit no movement at all. These are called immovable joints because they lock bones together, forming solid bone as hard as a turtle shell. Can you think of any axial bones that fit that description? Yes, your skull is made up of bones that are locked firmly in place, allowing no movement where the bones come together.

The third type of joint in your body is the partially movable kind, the ones that move a little bit but not nearly as much as ball-and-socket or hinge joints. Can anyone think of an example of a partially movable joint in your body? Remember when you took deep breaths and watched your chest move in and out? The joints where your ribs are joined to your breastbone are a good example of partially movable joints.



### Show Image U3.L3.6 Cartilage and Ligaments

Remember cartilage, the soft, gristly tissue found in your nose and backbone and between your vertebrae? Cartilage is found at the ends of bones

where they connect with joints as well. This smooth, elastic tissue

serves an important purpose. Rub your palms together. Do you feel the heat? If bones and joints rubbed back and forth together like this with nothing in between, your bones would soon wear out. Instead, a smooth, slippery coating of cartilage covers bones where they meet joints, protecting them and helping them to last longer.

That makes me think of a riddle:

*We are tough straps of strong, elastic tissue that bind bones together. Our name has three syllables and comes from a word meaning “to tie.” What are we?*

Cartilage protects your bones from rubbing together, but another connective tissue acts like straps, wrapping around your joints to actually hold your bones together. These thick cords are called ligaments. Some are round like ropes; others are flat like ribbons. But they are all extremely stretchy. Has anyone ever told you that he or she is double-jointed? Double-jointed people can bend their fingers farther back than other people, but they don't really have extra joints. The ligaments holding their joints together just stretch farther than normal. Is anyone here “double-jointed”?



### Check for Understanding

What is the difference between cartilage and ligaments?

- » Cartilage covers bones where they meet joints, and ligaments act like straps that actually hold your bones together.

Ligaments and other protective tissues help prevent injuries to your bones. Nevertheless, bones still get injured and wear out. Humans are very active. Walking, running, jumping, and playing puts stress on your bones. So, what happens if you break a leg, sprain an ankle, or dislocate a joint? Often, you must see a doctor, and sometimes your doctor will recommend an x-ray. Now that you have lots of information about the skeletal system, both the axial bones and the appendicular bones, let's take a look at this thing we call an x-ray.

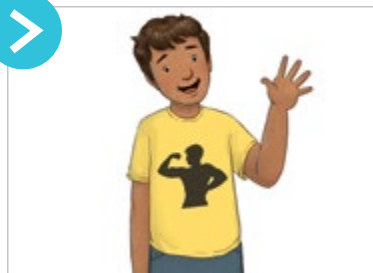


### Show Image U3.L3.7

#### X-ray

These x-rays are of various parts of a human skeleton. An x-ray is an invisible light that can travel through the soft tissues of your body, but

not through hard bone. After an x-ray passes through you, a picture is recorded on photographic film. Soft tissues appear black on the film because the x-ray passes right through them. But, wherever the x-ray is blocked by bone, white areas appear on the picture, allowing doctors to find breaks more easily. X-rays were invented as a medical tool just over 100 years ago.



### Show Image U3.L3.8

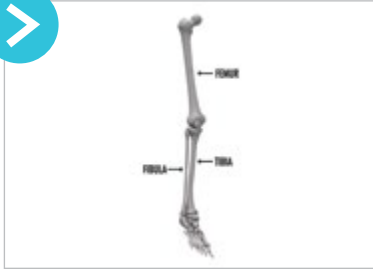
#### Ricardo

The next time we meet, we'll discuss another important body system, one that works closely with your skeletal system to move your bones. Turn now

and talk to your neighbor. See if you agree on the name of the system I'm talking about. Next time, we'll find out if you're right!

## DISCUSSING THE READ-ALoud (10 MIN.)

1. **Evaluative.** Were your predictions correct about the largest bone and the strongest joint? Why or why not?
  - » Answers may vary.



**Show Image U3.L3.4**  
**Tibia, Fibula, and Femur**



**ENGLISH  
LANGUAGE  
LEARNERS**

## Listening Actively

### Beginning

Ask students to work with a partner to review the Read-Aloud vocabulary and to make sentences using the new words.

### Intermediate

Ask students to work with a partner to make true or false statements about ideas from today's Read-Aloud. One partner decides if the statement is true or false, and, if it is false, corrects it.

### Advanced/ Advanced High

Ask students to work with a partner. The first student makes a statement about something learned in the Read-Aloud. The partner has to provide evidence or an example.

**ELPS 2.1**

## Exit Ticket



2. **Inferential.** What is the difference between the three types of joints?

- » Movable joints, like ball-and-socket joints and hinge joints, help different body parts, such as the knees and shoulders, bend easily; immovable joints lock bones in place, like the joints that connect the bones in the skull; partially movable joints, such as the rib cage, allow for some movement, but not as much movement as the movable joints.

3. **Inferential.** Why is cartilage important to the joints?

- » Cartilage covering the bones at the joints protects the bones, helping them to last longer.

4. **Inferential.** What would happen if there was no cartilage at the joints?

- » Bones would more easily become worn down.

5. **Evaluative.** Would ligaments still be able to do their job if the tissues that they are made of were not stretchy and connective?

- » Answers may vary.

6. **Evaluative.** Why do you think it is more common to break an appendicular bone than an axial bone?

- » Appendicular bones are more vulnerable because they are more exposed, used often to move about and play, etc.

7. **Evaluative.** *Think-Pair-Share:* If your body were a tree, which parts of the tree would be your appendicular bones? Which parts would be the axial bones?

- » Answers may vary but may include that appendicular would include the limbs, branches, and leaves; and axial would include the trunk.



- **Exit Ticket:** Ask students to respond in writing to the following three questions as an exit ticket formative assessment:

1. What are the three types of joints? (movable, immovable, partially movable)
2. How do the joints function? (Joints connect bones; some allow movement while others do not.)
3. How does the skeletal system interact with the rest of the body? (The skeletal system is a framework for the whole body.)

### WORD WORK: APPENDAGES (10 MIN.)

1. In the Read-Aloud you heard Ricardo say, “Today we’re going to talk about another big word: *appendages*. I used to cling to my mother’s leg all the time, and I would often hear her say, ‘Ricardo is my little appendage.’”
2. Say the word *appendages* with me.
3. Appendages are smaller body parts attached to the main body.
4. Spiders are able to crawl around quickly with their eight appendages.
5. How many appendages do insects and other animals have? What else can you think of that has appendages? Be sure to use the word *appendages* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students’ responses to make complete sentences: “A \_\_\_\_\_ has \_\_\_\_\_ appendages.”).
6. What’s the word we’ve been talking about? What part of speech is the word *appendages*?

- Acting and Sharing Activity:

- Directions: Turn to your partner and make a motion with one of your appendages. Ask your partner to describe what you are demonstrating with one of your appendages. For example, you may use your arm to pretend to wave to a friend. You would ask your partner, “What am I doing with one of my appendages?” Your partner would reply, “You are using one of your appendages to wave hello.” I will ask one or two of you to share with the class what action you were demonstrating with one of your appendages. As you share, be sure to use the word *appendages* in a complete sentence.

## SKELETAL SYSTEM REVIEW (10 MIN.)

- As a class, briefly review the skeletal system, including the terms *axial bones* and *appendicular bones*. Using Images U3.L3.1–U3.L3.8, have students identify the different bones in the skeletal system. You may also review this content by showing images from the Read-Alouds on the skeletal system again.
- Give each student a copy of Activity Page 3.1. After students have labeled the parts of the skeleton, have them circle one example of an axial bone and put a square around one example of an appendicular bone. If time allows, have students locate the different types of bones and joints on their own bodies.

**Note:** You may wish to have some students complete this activity as a class, or have students work in groups or with a partner.

## Activity Page 3.1



## Challenge

Ask students to consider how this reading builds on the Read-Aloud and the material covered in the previous lesson.

## Support

Encourage students to find answers to the discussion questions throughout the reading, with a partner, before sharing as a group.

## Lesson 3: The Skeletal System: All About Bones

# Reading



**Primary Focus:** Students will read and answer comprehension questions about the body's skeletal system and appendicular bones. **TEKS 3.2.A.iv; TEKS 3.6.G**

## PREVIEWING VOCABULARY (5 MIN.)

- The following are vocabulary words used in this lesson. Preview the words with the students before the lesson and refer back to them at appropriate times.
  - Display the vocabulary cards or write them on the board.
- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.
- The words also appear in the glossary in the back of the student reader.

**calcium**, what your bones are made of

**cast**, a hard covering that holds a broken bone in place while it heals

**TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.6.G** Evaluate details read to determine key ideas.

**cell**, the tiniest living part of the human body (cells)

**dairy**, made with milk

**marrow**, spongy inside

**tissue**, a group or layer of cells that work together as a part, or organ, in your body

**x-ray**, a powerful, invisible ray of light that can pass through objects to show the inside, such as the inside of the human body (x-rays)

| Vocabulary Chart for “All About Bones” |                                     |                                  |
|----------------------------------------|-------------------------------------|----------------------------------|
| Type                                   | Tier 3<br>Domain-Specific Words     | Tier 2<br>General Academic Words |
| Vocabulary                             | calcium<br>dairy<br>marrow<br>x-ray | cell<br>cast<br>tissue           |
| Multiple Meaning                       |                                     | cell<br>cast<br>tissue           |
| Sayings and Phrases                    |                                     |                                  |

### INTRODUCING THE READING (5 MIN.)

- Remind students that so far in the unit, they have been briefly introduced to different systems in the body, as well as axial bones.
- Elicit different functions of systems and axial bones from the students.
- Tell students that the title of today’s chapter (Chapter 2) is “All About Bones.”
- Make sure that you and your students each have a copy of the Student Reader.
- Ask students to turn to the table of contents, locate the chapter, and then turn to the first page of the chapter.

Chapter

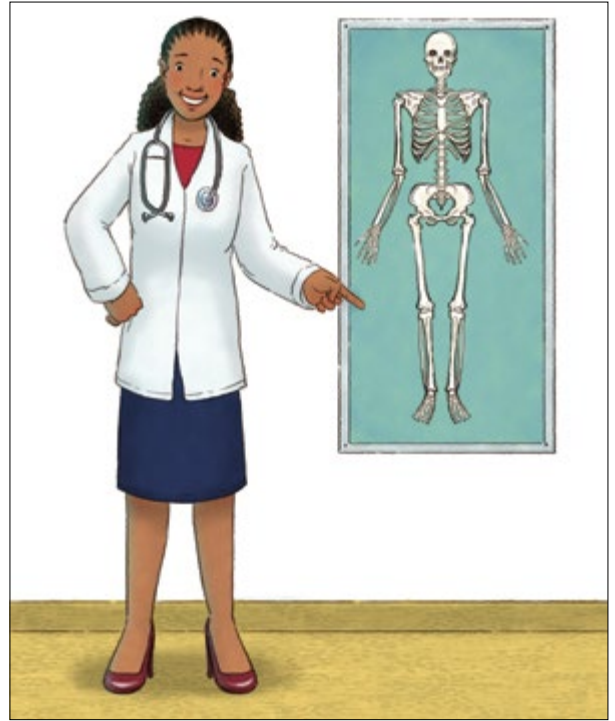
## 2 All About Bones

Last time, we learned the names of some of the bones in the body. Today, I'd like to tell you a little more about bones.

The bone I'm pointing to is the human fibula bone. The fibula, you may recall, is one of the bones in your leg.

The outer part of a bone is hard. It is made up of the same stuff as a seashell you might find at the beach. That stuff is called **calcium**.

Do you like milk? Milk and other **dairy** products like cheese have lots of **calcium** in them. They are good for your bones. One way to take good care of your bones is to eat a healthy diet with **dairy** products. Exercise is also good for your bones.



*Dr. Welbody points to the fibula.*

### WHOLE GROUP READING: "ALL ABOUT BONES" (20 MIN.)

#### Pages 12–13

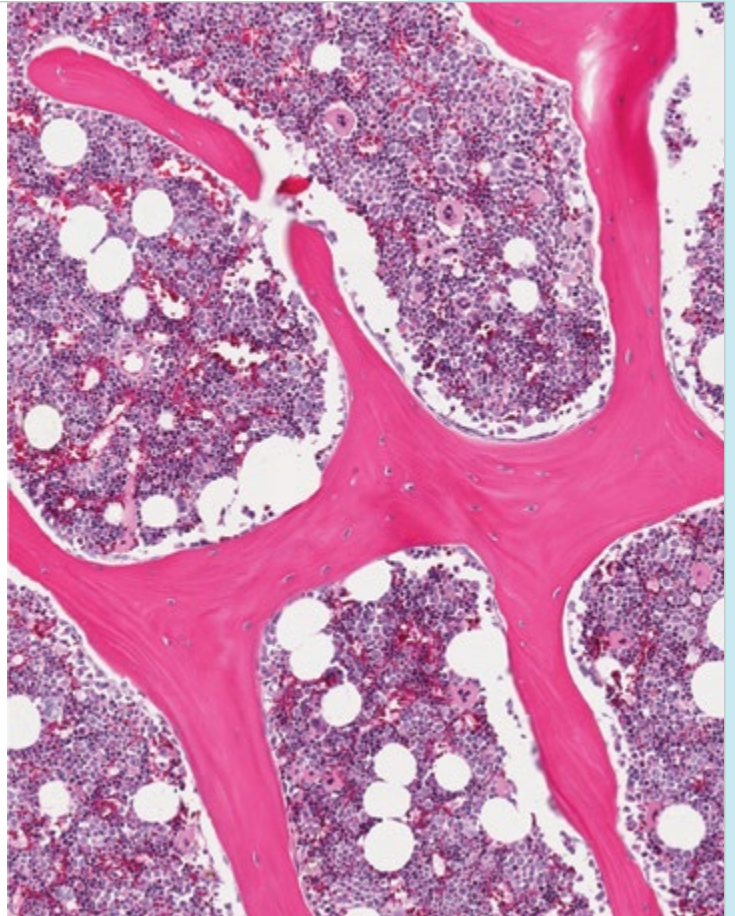
- Read the title of the chapter together as a class, "All About Bones."
- Display the image for this chapter and the Vocabulary Cards for *calcium* and *dairy*.
- Have students find *calcium* and *dairy* in the glossary and read the definitions together as a class.
- Ask students to read **pages 12–13** to themselves to find the answer to the question: "What is one good way to take care of your bones?"
- When students have finished reading, restate the question and have students read the sentence from page 12 that has the answer.
  - » One way to take good care of your bones is to eat a healthy diet that includes dairy products.

- Ask, “What are dairy products?”
  - » milk, cheese
- Direct students' attention to the image and caption on **page 13** and ask, “Which of the two bones in the lower leg is the fibula?”
  - » the smaller one

If you could look inside a bone, you'd see something called bone **marrow**. Since you can't see inside this bone, I'll show you a slide.

This slide shows bone **marrow cells**. I think you may already know a little about **cells**. Is that right? If you look at things with a strong microscope, you can see that many things are made up of tiny **cells**. Your skin is made of **cells**. So are your bones.

Here you can see some bone **marrow cells**. There are millions of **cells** like these inside your bones. The bone **marrow cells** have an important job. They are like little factories. They pump out red blood **cells**. Then, the red blood **cells** carry oxygen all around the body.



*A view of bone **marrow cells** through a microscope*

## Pages 14–15

- Display the Vocabulary Cards for *marrow* and *cell*.
- Have students find the words *marrow* and *cell* in the glossary, and read the definitions together as a class. Note for students that the plural form of the word *cell* (*cells*) is used in this chapter.
- Ask students to read **pages 14–15** to themselves to find the answer to the question: “Where in a human body do you find bone marrow cells?”
- When students have finished reading, restate the question and have students answer.
  - » inside bones
- Direct students’ attention to the image of bone marrow cells on **page 15** of the Reader and have them read the caption. Explain to students that this is an image of bone marrow that has been displayed under a microscope. Tell students that doctors are able to obtain a small amount of bone marrow from a person and examine it under a microscope.

As you get older and taller, your bones grow with you. Bones are strong. They can support a great deal of weight. However, if we put too much pressure on them, or if the pressure comes from the wrong direction, bones can break.

This next slide shows a broken bone. This is a special kind of picture called an **x-ray**.

**X-rays** are part of the invisible light spectrum. When you aim **x-ray** light at your body, some parts of the body absorb a lot of **x-rays** and some do not. Your bones are hard. They absorb a lot of the **x-ray** light. The soft **tissue** around your bones absorbs less **x-ray** light. That is why doctors like **x-rays**. We can aim **x-rays** at a part of your body and get a picture of the inside of your body. We can use **x-rays** to find out if any bones are broken. You will learn much more about **x-rays** in a later unit about light and sound.



*An **x-ray** image of a broken bone—do you see exactly where the bone is broken?*

16

Have any of you ever broken a bone?

I fix lots of broken bones each year. Would you like to know how I do it?

I start by taking **x-rays**. That's how I find out if the bone is really broken. If the **x-rays** show that a bone is broken, then I set the bone. That means I put the bone pieces back in the right place. Once the bones are in the right place, I put on a **cast**.

One of the remarkable things about the bones in your body is that they are able to heal themselves. Once a broken bone has been set, it grows back just like it was before it was broken.

Here's a boy I fixed up last summer. He broke one of the bones in his arm. I put the **cast** on to hold the bones in the right place so they would heal. He had to wear the **cast** for two months while the bones healed. Then, I cut the **cast** off for him.



He's just fine now. His bone has healed and his arm is as good as new.

*The **cast** helps the boy's broken arm heal.*

17

## Pages 16–17

- Display the Vocabulary Cards for *x-ray* and *tissue*.
- Have a student find the definitions of *x-ray* and *tissue* in the glossary and read them aloud for the class. Note for students that both *x-ray* and *x-rays* are used in this chapter.
- Ask students to read **page 16** to themselves to fill in the blank in the following sentence: "Doctors like x-rays because they can \_\_\_\_\_."
- When students have finished reading, reread the sentence and ask students to fill in the blank.
  - » get a picture of the inside of your body
- Have students look at the image and read the caption on **page 16**.
- Display the Vocabulary Card for *cast* or write the word on the board.



- Ask students to find *cast* in the glossary, and read the definition together as a class.
- Ask students to read **page 17** to themselves to find the answer to the question: “What is the remarkable thing about the bones in your body that is listed on **page 17**?”
- When students have finished reading, restate the question and have students answer.
  - » Bones are able to heal themselves.
- Ask, “What does the doctor do before putting on a cast?”
  - » The doctor puts the bones back in the right place.
- Direct students’ attention to the image and caption on **page 17**.
- With a partner, have students complete Activity Page 3.2.

## Activity Page 3.2



**ENGLISH  
LANGUAGE  
LEARNERS**

## Exchanging Information and Ideas

### Beginning

Have students work in pairs or small groups to respond to comprehension questions.

### Intermediate

Have students use complete sentences to respond to comprehension questions.

### Advanced/ Advanced High

Have students use domain-specific vocabulary and complete sentences to respond to comprehension questions.

**ELPS 3.D**





Support

Use Activity Page 3.3 as an oral or written practice page.

**ENGLISH  
LANGUAGE  
LEARNERS**



Spelling

**Beginning**

Provide these students with correct spellings of regular and irregular singular and plural nouns.

When one partner is challenging the other partner, he or she has the correct spellings and can provide support.

**Intermediate**

Provide students with a word list that includes words spelled both incorrectly and correctly. Students work in pairs to categorize the words and correct the words with spelling errors.

**Advanced/  
Advanced High**

Provide students with a gapped paragraph.

Students read the paragraph and fill in the blanks with the appropriate singular or plural, regular or irregular nouns. Consider providing a word bank at the bottom of the worksheet.

**ELPS 5.C**

**Lesson 3: The Skeletal System: All About Bones**

# Language



**Primary Focus:** Students will spell words using spelling patterns and rules for regular and irregular plural nouns. **TEKS 3.2.B.iv**

**SPELLING: REGULAR AND IRREGULAR PLURAL NOUNS (15 MIN.)**

- Tell students that they will practice writing their spelling words for the week, just like they did with last week's spelling words.
- Tell students to turn to Activity Page 3.3.
- Ask all students to read the statement in number 1 silently and to fill in the blanks. Point out to students that the singular nouns are listed in the box on the activity page, but they may need to use the plural form of a singular noun. These plural nouns are not listed on the activity page, but are listed on the table displayed in the classroom with this week's spelling words.
- When students have completed number 1, call on one student to read number 1 aloud with the blanks filled in with the spelling words.
- Discuss the proper spelling of the words in the blanks, referencing the table of this week's spelling words. Have students compare their spellings with the spellings in the table. Also, discuss the correct answers to be sure students understand why they are correct.
- Have students move on to number 2 and fill in the blanks on their own.
- Follow the previous steps to discuss the correct answers for the remaining items on the activity page.
- Remind students that on the spelling assessment, they will have to write the singular and plural forms of the spelling words.

**TEKS 3.2.B.iv** Demonstrate and apply spelling knowledge by: spelling multisyllabic words with multiple sound-spelling patterns.

### Lesson 3: The Skeletal System: All About Bones

# Take-Home Material

- Have students take home Activity Page 3.4, “All About Bones,” to read to family members.

Activity Page 3.4



## 4

# The Skeletal System: All About Bones, Part 2

## PRIMARY FOCUS OF LESSON

### Reading

- Students will close-read and answer comprehension questions about the body's skeletal system and appendicular bones. **TEKS 3.6.G; TEKS 3.7.B**

### Language

- Students will spell words using spelling patterns and rules for regular and irregular plural nouns. **TEKS 3.2.B.vi**
- Students will identify correct use of prefixes *dis-* and *mis-*. **TEKS 3.2.A.v; TEKS 3.3.C**

## FORMATIVE ASSESSMENT

### Exit Ticket

- Exit Ticket** Students respond in writing to three comprehension questions. **TEKS 3.7.B**

### Activity Page 4.5

- Practice Prefixes *dis-* and *mis-*** Determine if the sentence shows a correct example of the definition. **TEKS 3.2.A.v; TEKS 3.3.C**

- TEKS 3.6.G** Evaluate details read to determine key ideas; **TEKS 3.7.B** Write a response to a literary or informational text that demonstrates an understanding of a text; **TEKS 3.2.B.vi** Demonstrate and apply spelling knowledge by: spelling words using knowledge of prefixes; **TEKS 3.2.A.v** Demonstrate and apply phonetic knowledge by decoding words using knowledge of prefixes; **TEKS 3.3.C** Identify the meaning of and use words with affixes such as *im-* (into), *non-*, *dis-*, *in-* (not, non), *pre-*, *-ness*, *-y*, and *-ful*.

## LESSON AT A GLANCE

|                                                  | Grouping                | Time    | Materials                                                                                                       |
|--------------------------------------------------|-------------------------|---------|-----------------------------------------------------------------------------------------------------------------|
| <b>Reading (65 min.)</b>                         |                         |         |                                                                                                                 |
| Hot Seat                                         | Whole Group             | 10 min. | <input type="checkbox"/> KWL Chart<br><input type="checkbox"/> Activity Page 1.1 (optional)                     |
| Review KWL Charts                                | Whole Group             | 10 min. | <input type="checkbox"/> <i>How Does Your Body Work?</i><br><input type="checkbox"/> lined paper (exit ticket)  |
| Close Reading: "All About Bones"                 | Whole Group/<br>Partner | 30 min. |                                                                                                                 |
| Discussing the Reading                           | Whole Group/<br>Partner | 15 min. |                                                                                                                 |
| <b>Language (55 min.)</b>                        |                         |         |                                                                                                                 |
| Spelling: Regular and Irregular Plural Nouns     | Independent/<br>Partner | 15 min. | <input type="checkbox"/> Activity Page 3.3                                                                      |
| Morphology: Prefixes <i>dis-</i> and <i>mis-</i> | Whole Group/<br>Partner | 40 min. | <input type="checkbox"/> Prefix Poster (Digital Projections)<br><input type="checkbox"/> Activity Pages 4.1–4.5 |
| <b>Take-Home Material</b>                        |                         |         |                                                                                                                 |
| Order Sentences                                  |                         |         | <input type="checkbox"/> Activity Page 4.6                                                                      |

## ADVANCE PREPARATION

### Reading

- Display the KWL charts from the previous lesson
- Predetermine pairs for Close Reading

### Language

- On chart paper, create the Prefixes poster or prepare digital Projection DP.U3.L4.1.

---

A **prefix** is a syllable placed in front of a root word. Prefixes change the meaning of the root word.

---

### Universal Access

- Display vocabulary words in the classroom during and after instruction to reinforce word meaning.
- Review digital images with students during and after instruction to reinforce ideas.
- Demonstrate the concepts of complex, interconnected systems: skeletal, muscular, nervous, digestive, excretory, circulatory, and respiratory.

## Lesson 4: The Skeletal System: All About Bones, Part 2

# Reading



**Primary Focus:** Students will read and answer comprehension questions about the body's skeletal system and appendicular bones. **TEKS 3.6.G; TEKS 3.7.B**

### HOT SEAT (10 MIN.)

- Elicit from students the vocabulary words and concepts they learned in “The Skeletal System: Appendicular Bones” and their first reading of “All About Bones.”
- Write a list on the whiteboard or on chart paper.
- Once you have compiled your list of vocabulary words and concepts, make a statement about one of the words or ideas listed, such as “This material makes up the outer part of bones.” Students can guess which word or concept you reference.
- Have students work with partners, where one partner gives clues about the words or concepts on the board and the other partner guesses.
- Lead a brief, whole-class discussion of clues that students gave.
- Nominate or ask a student volunteer to come to the front of the room and stand facing the class with their back to the whiteboard.
- Write the word *scapula* on the whiteboard and ask other students to give clues in order for the student volunteer to guess the word.
- Students may suggest clues like “another word for shoulder blade” or “it is shaped like a triangle.”
- Be sure to explain to students that in this activity, they should not use gestures but should instead rely on verbal descriptions to help their classmate guess the word.
- In addition to writing the word or phrase on the board that you want students to guess, consider listing words that students cannot say as they give clues (for example, if the word is *x-ray*, you could suggest that students do not say “letter of the alphabet”).
- Consider nominating a student to choose the concept to write on the board, with teacher guidance and support provided as needed.

### Support

Consider providing clues for students about how many words and concepts you want them to add to the list.

**TEKS 3.6.G** Evaluate details read to determine key ideas; **TEKS 3.7.B** Write a response to a literary or informational text that demonstrates an understanding of a text.

### REVIEW KWL CHARTS (10 MIN.)

- Review any information related to the skeletal system, including axial and appendicular bones, on the chart thus far.
- Ask if there is any information in the 'K' column that should be revised based on the vocabulary and hot-seat review.
- Reread small sections of the text aloud and/or revisit any image supports as necessary to help students check the accuracy of their responses. Then cross out the inaccurate information in the 'K' column.
- Make necessary revisions. Then ask if students discovered the answers to any of their questions. If so, record relevant answers in the 'L' column.
- Ask what else students learned from the Read-Aloud, and record these responses under the 'L' column as well. Tell students that the next time they meet, they will continue to learn about the skeletal system.
- Ask students if there is anything else they wonder about the skeletal system. Record responses under the 'W' section of the chart.

### CLOSE READING: "ALL ABOUT BONES" (30 MIN.)

- Tell students, "Today we will be rereading the story 'All About Bones.'" Remind students that close reading involves reading and rereading a text to identify key ideas, to define words, and to make connections.
- Make sure that you and your students each have a copy of the Student Reader.
- Ask students to turn to the table of contents, locate the chapter, and then turn to the first page of the chapter.

Chapter

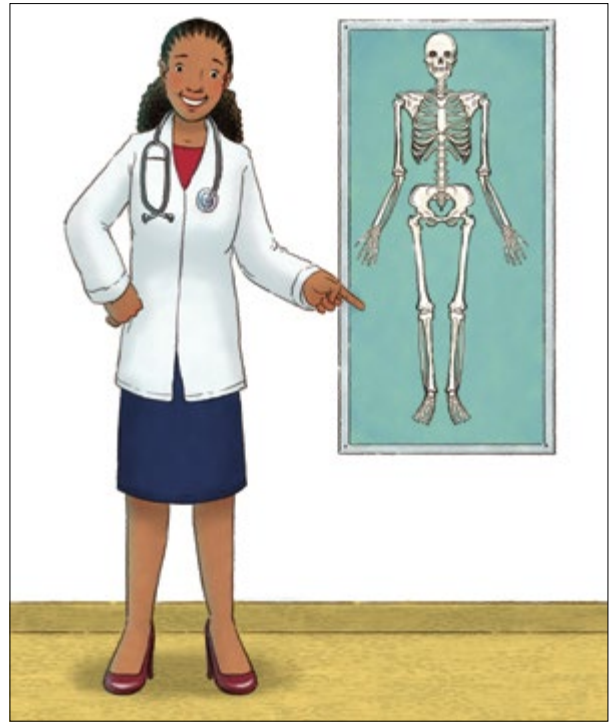
## 2 All About Bones

Last time, we learned the names of some of the bones in the body. Today, I'd like to tell you a little more about bones.

The bone I'm pointing to is the human fibula bone. The fibula, you may recall, is one of the bones in your leg.

The outer part of a bone is hard. It is made up of the same stuff as a seashell you might find at the beach. That stuff is called **calcium**.

Do you like milk? Milk and other **dairy** products like cheese have lots of **calcium** in them. They are good for your bones. One way to take good care of your bones is to eat a healthy diet with **dairy** products. Exercise is also good for your bones.



*Dr. Welbody points to the fibula.*

12

13

### Pages 12–13

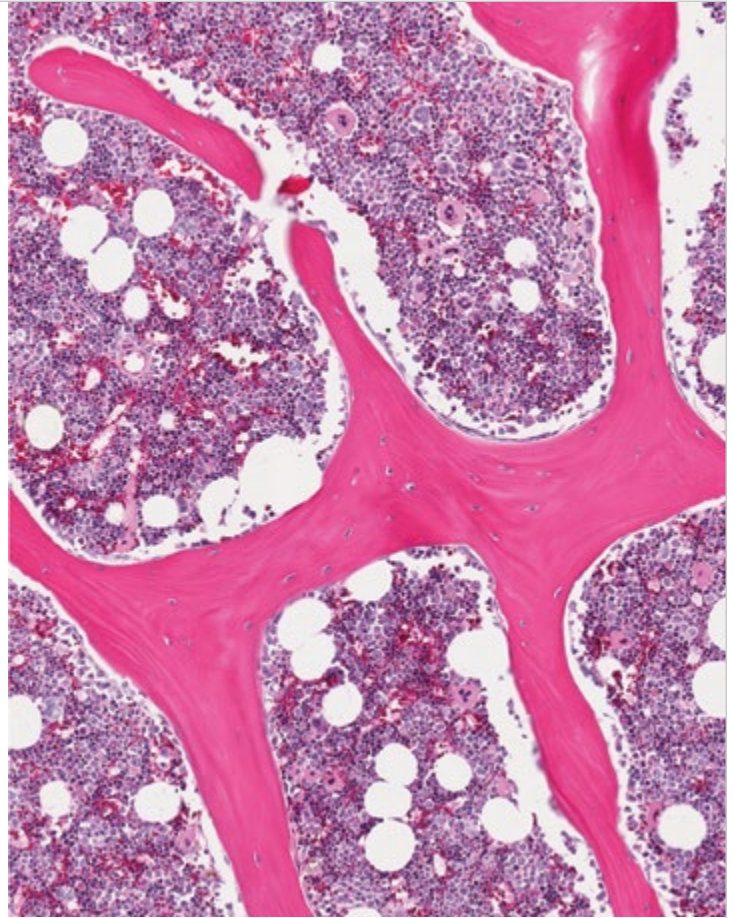
- Have students read **page 12** independently before transitioning to pairs or small groups.
- Ask students the following questions:
  - What is the fibula?
    - » It is one of the bones in your leg.
  - Which part of the bone is hard?
    - » the outer part
  - What is the hard part of the bone made out of?
    - » calcium
  - How are a seashell and a bone alike?
    - » They both have calcium.
  - What else has calcium in it?
    - » milk and dairy products, like cheese
  - How can you take care of your bones?
    - » Eat more dairy and exercise.
- Lead a brief, whole-class discussion of student responses.



If you could look inside a bone, you'd see something called bone **marrow**. Since you can't see inside this bone, I'll show you a slide.

This slide shows bone **marrow cells**. I think you may already know a little about **cells**. Is that right? If you look at things with a strong microscope, you can see that many things are made up of tiny **cells**. Your skin is made of **cells**. So are your bones.

Here you can see some bone **marrow cells**. There are millions of **cells** like these inside your bones. The bone **marrow cells** have an important job. They are like little factories. They pump out red blood **cells**. Then, the red blood **cells** carry oxygen all around the body.



*A view of bone **marrow cells** through a microscope*

### Pages 14–15

- Have students read **page 14** independently before transitioning to pairs or small groups.
- Ask the following questions:

What is inside bones?

» marrow

What are examples of things that are made up of cells?

» bones and skin

**Note:** If necessary, consider reminding students of their work with cells in Lesson 1. Remind students that cells are the tiniest living parts of the human body.

Why are bone marrow cells like factories?

» They pump out red blood cells that carry oxygen throughout the body.

- Lead a brief, whole-class discussion of student responses.

As you get older and taller, your bones grow with you. Bones are strong. They can support a great deal of weight. However, if we put too much pressure on them, or if the pressure comes from the wrong direction, bones can break.

This next slide shows a broken bone. This is a special kind of picture called an **x-ray**.

**X-rays** are part of the invisible light spectrum. When you aim **x-ray** light at your body, some parts of the body absorb a lot of **x-rays** and some do not. Your bones are hard. They absorb a lot of the **x-ray** light. The soft **tissue** around your bones absorbs less **x-ray** light. That is why doctors like **x-rays**. We can aim **x-rays** at a part of your body and get a picture of the inside of your body. We can use **x-rays** to find out if any bones are broken. You will learn much more about **x-rays** in a later unit about light and sound.



*An **x-ray** image of a broken bone—do you see exactly where the bone is broken?*

16

Have any of you ever broken a bone?

I fix lots of broken bones each year. Would you like to know how I do it?

I start by taking **x-rays**. That's how I find out if the bone is really broken. If the **x-rays** show that a bone is broken, then I set the bone. That means I put the bone pieces back in the right place. Once the bones are in the right place, I put on a **cast**.

One of the remarkable things about the bones in your body is that they are able to heal themselves. Once a broken bone has been set, it grows back just like it was before it was broken.

Here's a boy I fixed up last summer. He broke one of the bones in his arm. I put the **cast** on to hold the bones in the right place so they would heal. He had to wear the **cast** for two months while the bones healed. Then, I cut the **cast** off for him.



He's just fine now. His bone has healed and his arm is as good as new.

*The **cast** helps the boy's broken arm heal.*

17

## Pages 16–17

- Have students read **page 16** independently before transitioning to pairs or small groups.
- Ask the following questions:
  - What happens to bones as you age?
    - » You get taller and bones grow with you.
  - How do bones deal with weight?
    - » Bones are very strong and can support a lot of weight.
  - How do bones deal with pressure?
    - » If too much pressure is put on bones, they will break. They can also break if pressure comes from the wrong direction.
- Lead a brief, whole-class discussion of student responses.

- Have students read **page 17** independently before transitioning to pairs or small groups.
- Ask the following questions:
  - How can doctors find out if your bone is broken?
    - » by taking an x-ray
  - What happens if a bone is broken?
    - » The doctor has to set the bone, or put it back in the right place. Then the doctor puts on a cast.
  - What are broken bones able to do?
    - » They can heal themselves
  - How long did it take for the boy's broken arm to heal?
    - » two months
- Lead a brief, whole-class discussion of student responses.

## DISCUSSING THE READING (15 MIN.)

- Ask questions as a whole class to check for understanding.
1. **Literal.** What are some things you can do that are good for your bones?
    - » eat a healthy diet with dairy products, and exercise
  2. **Literal.** What is a remarkable thing about bones?
    - » They are able to heal themselves.
  3. **Literal.** What has to happen to a broken bone in order for it to grow back just like it was before it was broken?
    - » It has to be set.
- Have students work in pairs to collaborate and produce a written response to the following question:
4. **Inferential.** What is the key idea of the chapter?
    - » Students may not state the key idea exactly like this, but it should closely resemble the following: Bones are made of calcium and have a spongy inside called bone marrow that makes red blood cells. Bones grow, can break, and can heal on their own.
- Lead a brief, whole-class discussion of student responses.
  - Pass out lined paper; one per students.
  - **Exit Ticket:** Ask students to respond in writing to the following three questions as an exit ticket formative assessment:
    1. What do bones do? (Bones support the body.)
    2. Why are marrow cells important? (They make red blood cells.)
    3. What is the key idea of the chapter? (to show the structure and function of bones and marrow cells) **TEKS 3.7.B**

## Challenge

Have students identify examples of the topic and concluding sentences within “All About Bones.”



**ENGLISH  
LANGUAGE  
LEARNERS**

## Reading Reading/Viewing Closely

### Beginning

Access a word/phrase bank designed for the keys to these comprehension questions.

### Intermediate

Locate evidence in the Reader to support your answers.

### Advanced/ Advanced High

Use full sentences and domain-specific vocabulary to answer questions.

**ELPS 4.D**

## Exit Ticket



**TEKS 3.7.B** Write a response to a literary or informational text that demonstrates an understanding of a text.



**ENGLISH  
LANGUAGE  
LEARNERS**



Language  
Foundational  
Literacy Skills

**Beginning**

Provide these students with correct spellings of regular and irregular singular and plural nouns.

When one partner is challenging the other partner, he or she has the correct spellings and can provide support.

**Intermediate**

Provide students with a word list that includes words spelled both incorrectly and correctly. Students work in pairs to categorize the words and correct the words with spelling errors.

**Advanced/  
Advanced High**

Encourage students to work with a partner. One partner says, “I have two k-n-i-v-e-s,” spelling the word with the ‘f’ to ‘ves’ change. The partner identifies the word as “knives” and then says another sentence with another irregular plural.

**ELPS 5.C**

**Lesson 4: The Skeletal System: All About Bones, Part 2**  
**Language**



**Primary Focus:** Students will spell words using spelling patterns and rules for regular and irregular plural nouns. **TEKS 3.2.B.vi**

Students will identify correct use of prefixes *dis-* and *mis-*.  
**TEKS 3.2.A.v; TEKS 3.3.C**

**SPELLING: REGULAR AND IRREGULAR PLURAL NOUNS (15 MIN.)**

- Review the spelling words that you introduced earlier this week using the tables displayed on the board.
- Ask students to turn to Activity Page 3.3, which they completed at home earlier in the week.
- Call on one student at a time to share a Blank Busters statement with the class to see if students can fill in the blank with the correct spelling word form.
- Discuss the correct answer with the class and the correct spelling using the tables of this week’s spelling words.
- Continue in this manner for the remaining time with other students’ Blank Busters statements.
- **Challenge** Provide students with series of jumbled words that include extra “decoy” letters. The first jumble has one extra letter, the second jumble has two extra letters, etc. Make sure that students know how many extra “decoy” letters each jumbled word has. Consider a maximum number of three decoy letters.

**MORPHOLOGY: PREFIXES DIS- AND MIS- (40 MIN.)**

**TEKS 3.2.A.v;  
TEKS 3.3.C**

- Display the Prefix poster or project digital Projection DPU3.L4.1.

**Projection DPU3.L4.1**

**Prefix**

A **prefix** is a syllable placed in front of a root word. Prefixes change the meaning of the root word.

**TEKS 3.2.B.vi** Demonstrate and apply spelling knowledge by: spelling words using knowledge of prefixes; **TEKS 3.2.A.v** Demonstrate and apply phonetic knowledge by decoding words using knowledge of prefixes; **TEKS 3.3.C** Identify the meaning of and use words with affixes such as im- (into), non-, dis-, in- (not, non), pre-, -ness, -y, and -ful.

- Tell students that the two prefixes they will study this week are *dis-* and *mis-*.
- Explain that *dis-* means “not” and *mis-* means “wrong.”
- Also, tell students that this week’s root words are verbs. Ask students what verbs are.
  - » action words
- When *dis-* and *mis-* are added to verbs, the new words are also verbs.
- Write the word *agree* on the board. Briefly discuss the meaning of the word and then use it in a sentence.
  - » to have the same opinion; I agree that we should bring extra trash bags to clean up after the picnic
- Add the prefix *dis-* to *agree*, and have students read the prefix, read the new word, and then discuss the meaning of the new word.
  - » to not have the same opinion
- Ask students for examples of things they might disagree with others about.
  - » Answers may vary, but could include what game to play at recess, what movie to watch, favorite book, etc.

## Support

Have students practice spelling words by doing Look/Say/Cover/Write/Check.

- Continue in this manner for the remaining *dis-* words, using the following chart as a guide.

| Root Word | Meaning                                                            | Affixed Word | Meaning                                                                | Sentence                                                                                               |
|-----------|--------------------------------------------------------------------|--------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| obey      | (verb) to do what someone tells you to do                          | disobey      | (verb) to not do what someone tells you to do                          | Our new puppy might <i>disobey</i> us until we teach her how to behave when we call her.               |
| trust     | (verb) to believe that someone or something is honest and truthful | distrust     | (verb) to not believe that someone or something is honest and truthful | I <i>distrust</i> the race results because the timers were not working properly.                       |
| like      | (verb) to enjoy something                                          | dislike      | (verb) to not enjoy something                                          | My sister and I <i>dislike</i> asparagus but we like broccoli.                                         |
| connect   | (verb) to join together                                            | disconnect   | (verb) to separate                                                     | Dan had to <i>disconnect</i> the video game console from the television to see what was wrong with it. |
| approve   | (verb) to accept something                                         | disapprove   | (verb) to not accept something                                         | Mom said she would <i>disapprove</i> of us playing soccer unless our homework was finished.            |

- Remind students that the prefix *mis-* means *wrong*.
- Write the root word *behave* on the board or chart paper. Briefly discuss the meaning of *behave* and then use it in a sentence.
  - » to act properly; our teacher said we had to behave and show good manners during the assembly.
- Add the prefix *mis-* to *behave*, and have students read the prefix, read the new word, and then discuss the meaning of the new word.
  - » to act wrongly
- Continue in this manner for the remaining *mis-* words, using the following chart as a guide.



**Note:** You will not write the information in the shaded columns on the board, since that information is intended for use during oral instruction.

| Root Word  | Meaning                                                            | Affixed Word  | Meaning                                                           | Sentence                                                                                               |
|------------|--------------------------------------------------------------------|---------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| spell      | (verb) to write or name the letters in a word in the correct order | misspell      | (verb) to write or name the letters in a word in the wrong order  | Rachel hoped she did not <i>misspell</i> any words on her spelling test.                               |
| judged     | (verb) formed an opinion                                           | misjudged     | (verb) formed an opinion that is wrong                            | The driver <i>misjudged</i> the turn and took it too fast.                                             |
| understand | (verb) to know the meaning of                                      | misunderstand | (verb) to know the wrong meaning of                               | The teacher asks her students to tell her if they <i>misunderstand</i> anything in the science lesson. |
| placed     | (verb) put something in a certain location                         | misplaced     | (verb) put something in the wrong location                        | Dana <i>misplaced</i> her keys, and cannot drive to work until she finds them.                         |
| used       | (verb) did something with an object while performing a task        | misused       | (verb) did something wrong with an object while performing a task | My little sister <i>misused</i> the markers, and left stains all over the couch.                       |

- Ask students to turn to **Activity Pages 4.1–4.4**. These can be completed as either a teacher-guided or independent activity.
- Ask students to orally give the meanings of the following words and use the words in sentences:
  1. *disapprove* (to not accept something)
  2. *misspell* (to write or name letters in a word in the wrong order)
  3. *misused* (did something wrong with an object while performing a task)
  4. *disobey* (to not do what someone tells you to do)
  5. *disconnect* (to separate)
  6. *misuse* (to use incorrectly)
  7. *misunderstand* (to understand incorrectly; to not understand)
- Have students turn to Activity Page 4.5 and read the directions. Students will practice using words with the prefixes *dis-* and *mis-* to help them understand the meanings.

#### Activity Pages 4.1–4.4



#### Activity Page 4.5







**Morphology**  
Literacy in an Alphabetic  
Writing System

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**Beginning**

Have students work with  
Advanced students to  
complete Activity Page 4.5.

**Intermediate**

Have students work with a  
partner to use words with  
prefixes *dis-* and *mis-* in a  
dialogue.

**Advanced/  
Advanced High**

Have students work with  
Beginning students to  
complete Activity Page 4.5.

**ELPS 1.B**

**Challenge**

---

Ask students to volunteer  
other examples of words  
they know that include  
these prefixes.

**Support**

---

Have students clap the  
syllables of words before  
and after adding the  
prefixes *dis-* and *mis-*.

- Tell students that the activity page has five sentences that they must read carefully to see if they correctly provided the meaning and use of the word with either *dis-* or *mis-*. Have students write “yes” next to the correct statements and no next to the incorrect statements.
- Tell students that they will then write their own sentences, with partners if you prefer, using the three words provided, that are true (can be answered with “yes”).

## Lesson 4: The Skeletal System: All About Bones, Part 2

# Take-Home Material

- Have students take home Activity Page 4.6 to complete.

Activity Page 4.6



## 5

# The Muscular System

## PRIMARY FOCUS OF LESSON

### Speaking and Listening

Students will identify different components of the muscular system, as well as how the muscular system is part of a larger, interconnected system.

✚ **TEKS 3.1.A; TEKS 3.6.F**

### Reading

Students will read and answer comprehension questions about the body's muscular system.

✚ **TEKS 3.2.A.iv; TEKS 3.6.G**

### Writing

Students will write topic and concluding sentences.

✚ **TEKS 3.11.B.i**

### Language

Students will use spelling patterns and rules for regular and irregular plural nouns.

✚ **TEKS 3.2.B.iv; TEKS 3.2.C**

## FORMATIVE ASSESSMENT

### Activity Page 5.2

**Spelling Assessment** Use spelling patterns and

✚ rules. **TEKS 3.2.B.iv**

✚ **TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.F** Make inferences and use evidence to support understanding; **TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.6.G** Evaluate details read to determine key ideas; **TEKS 3.11.B.i** Develop drafts into a focused, structured, and coherent piece of writing by: organizing by purposeful structure including an introduction and conclusion; **TEKS 3.2.B.iv** Demonstrate and apply spelling knowledge by: spelling multisyllabic words with multiple sound-spelling patterns; **TEKS 3.2.C** Alphabetize a series of words to the third letter.

## LESSON AT A GLANCE

|                                                        | Grouping                | Time    | Materials                                                                                                                                                  |
|--------------------------------------------------------|-------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Speaking and Listening (40 min.)</b>                |                         |         |                                                                                                                                                            |
| Previewing Vocabulary                                  | Whole Group             | 5 min.  | <input type="checkbox"/> KWL Chart<br><input type="checkbox"/> Activity Page 1.1 (optional)<br><input type="checkbox"/> Digital Flip Book: U3.L5.1–U3.L5.6 |
| Introducing the Read-Aloud                             | Whole Group             | 10 min. |                                                                                                                                                            |
| Presenting the Read-Aloud: “The Muscular System”       | Whole Group/<br>Partner | 15 min. |                                                                                                                                                            |
| Discussing the Read-Aloud                              | Whole Group/<br>Partner | 5 min.  |                                                                                                                                                            |
| Word Work: <i>Voluntary</i> and <i>Involuntary</i>     | Whole Group             | 5 min.  |                                                                                                                                                            |
| <b>Reading (25 min.)</b>                               |                         |         |                                                                                                                                                            |
| Previewing Vocabulary                                  | Whole Group             | 5 min.  | <input type="checkbox"/> Vocabulary Cards<br><input type="checkbox"/> <i>How Does Your Body Work?</i>                                                      |
| Introducing the Reading                                | Whole Group             | 5 min.  |                                                                                                                                                            |
| Whole Group Reading: “The Muscular System”             | Whole Group             | 10 min. |                                                                                                                                                            |
| Discussing the Reading                                 | Whole Group             | 5 min.  |                                                                                                                                                            |
| <b>Writing (15 min.)</b>                               |                         |         |                                                                                                                                                            |
| Writing Paragraphs with Topic and Concluding Sentences | Whole Group             | 15 min. | <input type="checkbox"/> Paragraphs Chart (Digital Projections)<br><input type="checkbox"/> Activity Page 5.1                                              |
| <b>Language (40 min.)</b>                              |                         |         |                                                                                                                                                            |
| Spelling Assessment                                    | Independent             | 25 min. | <input type="checkbox"/> Activity Page 5.2<br><input type="checkbox"/> prepared index cards                                                                |
| Spelling: Practice Alphabetizing Skills                | Whole Group             | 15 min. |                                                                                                                                                            |
| <b>Take-Home Material</b>                              |                         |         |                                                                                                                                                            |
| “The Muscular System”                                  |                         |         | <input type="checkbox"/> Activity Page 5.3                                                                                                                 |

## ADVANCE PREPARATION

### Speaking and Listening

- Post and display the KWL chart.

**Note:** This chart will be used throughout the unit.

| KWL Chart: Human Body Systems |   |   |
|-------------------------------|---|---|
| K                             | W | L |
|                               |   |   |

- Prepare to project the following digital images on the program's digital components site during the Read-Aloud: U3.L5.1–U3.L5.6.

### Reading

- Prepare individual Vocabulary Cards, each containing the word and definition, for the following words: *automatically*, *digest*, *muscle*, *voluntary*, *involuntary*, *realistic*, and *stomach*.

### Writing

- On chart paper, create the Paragraphs chart or project Digital Projection DP.U3.L5.1.

## Paragraphs

A **paragraph** is a set of sentences on the same topic.

A **topic sentence** is one sentence, usually the first, that tells the key idea, or what the paragraph is mostly about.

A **concluding sentence** is one sentence, always the last, that wraps up the paragraph. It does not introduce new information. Often, it restates the topic sentence.

## Language

- Write the spelling words (only the singular form) on index cards. Fold over the card so that only the first letter shows: *baby, child, exercise, foot, fox, glass, goose, laugh, louse, man, match, mouse, night, person, story, tooth, woman.*

## Universal Access

- Display vocabulary words in the classroom during and after instruction to reinforce word meaning.
- Review digital images with students during and after instruction to reinforce ideas.
- Demonstrate the concepts of complex, interconnected systems: skeletal, muscular, nervous, digestive, excretory, circulatory, and respiratory.

## Lesson 5: The Muscular System

## Speaking and Listening



**Primary Focus:** Students will identify different components of the muscular system, as well as how the muscular system is part of a larger, interconnected system. **TEKS 3.1.A; TEKS 3.6.F**

### PREVIEWING VOCABULARY (5 MIN.)

You may wish to display some of these vocabulary words in your classroom for students to reference throughout the unit. You may also choose to have students write some of these words in a “unit dictionary” notebook, along with definitions, sentences, and/or other writing exercises using these vocabulary words.

**cardiac muscle**, muscular tissue of the heart that contracts rhythmically and continuously

**contract**, to bring together; to shorten; to tighten

**muscles**, body tissue made of long cells that can contract, or tighten, and relax to produce motion

**nerves**, bundles of fibers throughout the body that transmit sensations, information, and instructions to the brain and spinal cord

**voluntary muscles**, muscles that can be controlled by someone’s own choice

| Vocabulary Chart for “The Muscular System” |                                                          |                               |
|--------------------------------------------|----------------------------------------------------------|-------------------------------|
| Type                                       | Tier 3 Domain-Specific Words                             | Tier 2 General Academic Words |
| Vocabulary                                 | cardiac muscle<br>muscles<br>nerves<br>voluntary muscles | contract                      |
| Multiple-Meaning Core Vocabulary Words     |                                                          | contract                      |
| Sayings and Phrases                        |                                                          |                               |

**TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.F** Make inferences and use evidence to support understanding.

## INTRODUCING THE READ-ALoud (10 MIN.)

- Prepare to project the following digital images on the program’s digital components site during the Read-Aloud: U3.L5.1–U3.L5.6.
- Read the title of today’s Read-Aloud: “The Muscular System.” Briefly review the systems discussed in the previous Read-Alouds, using any image supports, including the KWL chart as needed. Remind students that in the previous Read-Aloud, they studied the skeletal system.
  1. Which system are bones in?
    - » skeletal
  2. What are the different types of joints?
    - » movable, immovable, and partially movable
  3. Explain why cartilage and ligaments are important to the skeletal system.
    - » Answers may vary.
- Review that cells are the building blocks of life. Encourage students to explain that the different types of cells make up the tissues that make up the different organs in the human body.
- Tell students that today they will be learning about the different types of muscles in the human body.
- Ask students to identify any muscles they know in their body and to share the different ways they use their muscles.
- Ask students, “Are all your muscles’ actions able to be seen?” Revisit the ‘K’ and ‘W’ sections of the KWL chart and add what students know about their muscles.
- Write any questions students have about their muscles in the ‘W’ section of the chart. Encourage students to listen carefully to the information in the Read-Aloud to correct any misunderstandings and/or to add more information to the KWL chart.
- Tell students to listen carefully to learn about their muscular system, how it is interconnected with other body systems, and the different types of muscles in the human body.



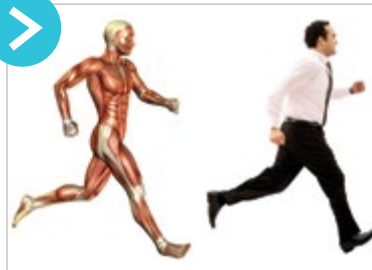


**Show Image U3.L5.1**

**Ricardo**

Hi, guys. It's me, Ricardo. Last time we were together, I told you that our next discussion would be about a system that works extremely well with your skeletal system. Did any of you predict

the name of the system we're going to talk about today? If you predicted the muscular system, you're correct! You've learned how the bones in your skeletal system are connected from head to toe. Bones form the important framework of your body, but they could not move without the help of your **muscles**.



**Show Image U3.L5.2**

**Muscles and Muscle Fibers**

What are muscles? The word *muscle* comes from the Latin word *musculus*. Muscles are made up of bundles of long, thin cells. They are controlled by signals that come from

your brain and spinal cord, which carry messages through **nerves** to every part of your body. Muscles receive these messages, telling them when to contract, or tighten, how to **contract**, and for how long. When muscles contract, they squeeze together, shortening and causing movement. Muscles are at work in your body all the time, even while you are sleeping. You have more than 650 muscles in your body, making up between one-third and one-half of your body weight.

Have students point to their biceps and triceps.



### Check for Understanding

Stand up if the statement is true, and stay seated if the statement is false.  
Muscles are made up of bundles of long, thin cells.

» True

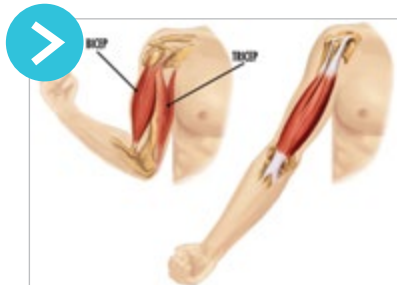
Muscles are controlled by signals from your feet.

» False

Muscles go to sleep when you go to sleep.

» False

There are three types of muscles in your body, but most of them are skeletal muscles. Your skeletal muscles work closely with your bones to give them mobility, or motion. Just as there are axial bones and appendicular bones, there are axial muscles and appendicular muscles. Which muscles do you think are axial? Right—the ones in your head, neck, and torso. And where are the appendicular muscles located? Yes! In your arms and legs.



### Show Image U3.L5.3 Arm Muscles

Most muscles work in pairs. Muscles only pull on bone; they cannot push. As your muscles pull on bone, they contract, or get shorter. In order to relax, or lengthen, muscles need a

partner to pull the bone in the opposite direction. Paired muscles never pull at the same time. One pulls, the other relaxes. One relaxes, the other pulls.

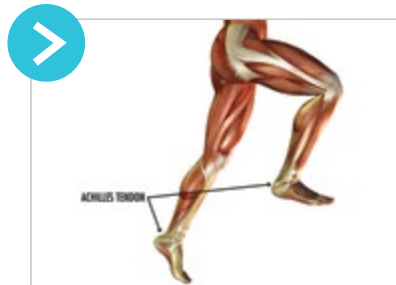
Look at this picture of the muscles in your upper arm. It shows what happens when you make a fist and bend your arm. The biceps muscle contracts and bends your elbow, while your triceps muscle relaxes. When you straighten your arm out again, your triceps muscle contracts and your biceps muscle relaxes. By working in pairs, taking

## Challenge

Have students complete further research facts about the Achilles tendon and recovery after a torn Achilles tendon.

turns pulling on your bones, skeletal muscles enable you to ride a bike, play the guitar, or climb a mountain.

Skeletal muscles come in all sorts of shapes and sizes—fat and skinny, long and circular. Because you control your skeletal muscles, deciding when and how you want to move your bones, they are called **voluntary** muscles. The movement does not happen automatically. You make a conscious decision to move the muscles attached to your bones.



### Show Image U3.L5.4 Leg Muscles and Achilles Tendon

Narrow, rope-like tissues called tendons attach bones to muscles. You can see the tendons under your skin if you flex your arm back and forth. Try it. Bend your elbow as if you wanted to show off

your muscles, and feel the tendon just under the skin on the inside of your elbow. What are other good places to view your tendons in action? Look at your neighbor's neck. Can you find the tendons as he turns his head? Can you find tendons in your arms or legs?

The muscles in your legs are the largest and strongest skeletal muscles in your body. One of these muscles is your calf muscle. Feel your calf muscle at the back of your lower leg. It is responsible for much of your movement, helping to bend your knee when you walk or run. It is attached to your heel bone by the longest and most powerful tendon in your body, the Achilles tendon.

If your Achilles tendon is cut or torn, the use of the leg for jumping and running is lost immediately until it heals. The tendon is named for an ancient Greek mythological figure who can only be injured at the ankle. Its variant, "Achilles' heel," is a figurative phrase indicating our weak spots, places where we feel most likely to be hurt, either physically or emotionally.



### Beginning

Have students share details about how the muscular system interacts with other parts of the body using simple sentence frames [e.g., “Tendons are narrow, rope-like tissues that attach bones to \_\_\_\_ (muscles).”].

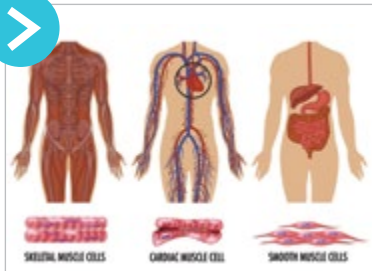
### Intermediate

Have students share details about how the muscular system interacts with other parts of the body using detailed sentence frames [e.g., “Tendons are narrow, rope-like tissues that attach \_\_\_\_ (bones) to \_\_\_\_ (muscles).”].

### Advanced/ Advanced High

Have students share details about how the muscular system interacts with other parts of the body using detailed sentence frames [e.g., “Tendons are \_\_\_\_ (narrow, rope-like tissues) that attach \_\_\_\_ (bones) to \_\_\_\_ (muscles).”].

**ELPS 2.1**



### Show Image U3.L5.5

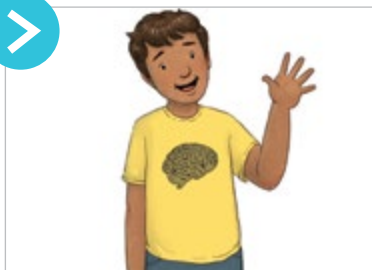
#### Types of Muscles and Muscle Cells

In addition to skeletal muscle, there is smooth muscle and **cardiac muscle**. Are you ready for another riddle?

*I am a muscle. Like music, I have a rhythm and a beat. I am protected by the rib cage. What am I?*

Does anyone know what type of muscle is contained in your heart—smooth or cardiac? Your thick, powerful heart is made of cardiac muscle, the strongest muscle in your body, found only in your heart. Unlike skeletal muscle, healthy cardiac muscle never tires. It is continually contracting and relaxing, rhythmically pumping blood around your body all day and all night. Cardiac muscle is an involuntary muscle, meaning that you do not control its movement. Your brain controls how fast your heart beats without you even thinking about it. Why do you think that is important?

Smooth muscle is the third type of muscle in your body. It is also involuntary muscle because you cannot consciously move it. It contracts exactly like skeletal muscles do, only much more slowly. Smooth muscle lines the walls of internal organs and blood vessels, and uses less energy than skeletal muscles. It squeezes and tightens, mixing and churning food in the stomach. It lines your lungs and blood vessels, too.



### Show Image U3.L5.6

#### Ricardo

The next time we meet, we'll talk about the system that controls all your other body systems. This system controls both the voluntary and involuntary muscles in your body, and much more.

Can you guess what system it is? We'll see if you've guessed correctly!

## DISCUSSING THE READ-ALoud (5 MIN.)

1. **Inferential.** Why is the muscular system important to the body?
  - » It helps the body move and do other things that we can't see, like the stomach and intestines digesting food and the heart pumping blood. It is the framework of the human body, together with the skeletal system.
2. **Inferential.** In the Read-Aloud, you heard that muscles work in pairs. What does that mean?
  - » Because muscles only pull on bone, one muscle needs another muscle to pull a bone in the opposite direction when it wants to move. One muscle pulls while the other relaxes. The paired muscle relaxes while the other pulls.
3. **Inferential.** How do the skeletal muscles work closely with the skeleton to help us move?
  - » Skeletal muscles are attached to the bones in the skeleton, the body's framework. Skeletal muscles are voluntary, so when we make the decision to move, it is the skeletal muscles that help the skeleton move.

## WORD WORK: VOLUNTARY AND INVOLUNTARY (5 MIN.)

1. In the Read-Aloud, you heard, "Because you control your skeletal muscles, deciding when and how you want to move your bones, they are called voluntary muscles." You also heard, "Cardiac muscle is an involuntary muscle, meaning that you do not control its movement."
2. Say the words *voluntary muscles* and *involuntary muscles* with me.
3. *Voluntary muscles* are those that can be controlled by someone's own choice; *involuntary muscles* are those that are not controlled by choice.
4. I use the voluntary muscles in my legs to jump high in the air, but my heart is an involuntary muscle because I don't do anything to make it contract—it does that on its own!
5. What are some examples of voluntary muscles? Can you think of examples of involuntary muscles? Be sure to use the words *voluntary muscles* and *involuntary muscles* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students' responses to make complete sentences: "\_\_\_\_\_ is an example of a voluntary muscle, and \_\_\_\_\_ is an example of an involuntary muscle.")

6. What are the words we've been talking about? What part of speech are the words *voluntary muscles* and *involuntary muscles*?
- Use a Word Parts activity for follow-up. Write the words *voluntary* and *involuntary* on a piece of chart paper, a chalkboard, or a whiteboard.
  - Ask students, "What is the difference between the words *voluntary* and *involuntary*?"
    - » the prefix *in-*
  - "How does adding the prefix *in-* to *voluntary* change that word?"
    - » It makes it mean the opposite of *voluntary*.
  - Directions: I am going to say a word and ask you to tell me what it means. If you do not know, I will help you. Then I would like you to add the prefix *in-* to the word and tell me what that new word means.

**visible:** able to be seen; *invisible* means not able to be seen

**accurate:** correct, or free from mistakes; *inaccurate* means not correct

**complete:** having all the necessary parts; *incomplete* means missing something

**flexible:** able to move and bend easily; *inflexible* means not easily moved or bent

**edible:** able to be eaten; *inedible* means not able to be eaten

## Lesson 5: The Muscular System

# Reading



**Primary Focus:** Students will read and answer comprehension questions about the body's muscular system. **TEKS 3.2.A.iv; TEKS 3.6.G**

### PREVIEWING VOCABULARY (5 MIN.)

- The following are vocabulary words used in this lesson. Preview the words with the students before the lesson, and refer back to them at appropriate times.

**automatically,** done without thinking about it

**digest,** to break down food in the stomach so it can be used by your body (**digesting**)

**involuntary,** automatic; your heart is an example of an involuntary muscle

**TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.6.G** Evaluate details read to determine key ideas.

**realistic**, real, accurate, or true

**stomach**, belly

- Display the vocabulary words on the board.
- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.
- The words also appear in the glossary in the back of the Reader.

| <b>Vocabulary Chart for “The Muscular System”</b> |                                         |                                                        |
|---------------------------------------------------|-----------------------------------------|--------------------------------------------------------|
| <b>Type</b>                                       | <b>Tier 3<br/>Domain-Specific Words</b> | <b>Tier 2<br/>General Academic Words</b>               |
| Vocabulary                                        | stomach                                 | realistic<br>involuntary<br>automatically<br>digesting |
| Multiple Meaning                                  |                                         | automatically<br>digesting                             |
|                                                   |                                         |                                                        |
| Sayings and Phrases                               |                                         |                                                        |

### **INTRODUCING THE READING (5 MIN.)**

- Remind students that so far in the unit, they have been briefly introduced to different systems in the body.
- Elicit different functions of different systems from the students.
- Tell students that the title of today’s chapter is “The Muscular System.”
- Make sure that you and your students each have a copy of the Reader.
- Ask students to turn to the table of contents, locate the chapter, and then turn to the first page of the chapter.

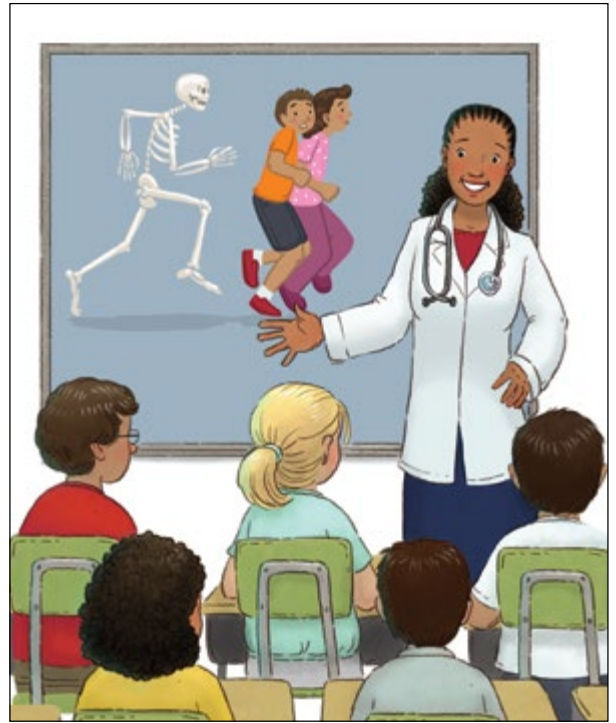
## Chapter 3 The Muscular System

Have you ever seen a movie or a TV show in which skeletons chase people? I saw a cartoon like that the other day. These kids were trying to solve a mystery but they were having problems. Every time they went out to look for clues, a skeleton would pop out of a grave and chase them around.

Well, as a doctor, I have to tell you: that's just not very **realistic**. Bones don't move all by themselves. In fact, bones don't go anywhere at all without **muscles**.

When I bend my arm, I do it by using **muscles**. I tighten the **muscles** in my arm and the **muscles** make the bones and the rest of the arm move.

When you kick a ball, it's the same thing. You tighten the **muscles** in your legs in order to move your leg bones.



*Can a skeleton chase you?*

18

19

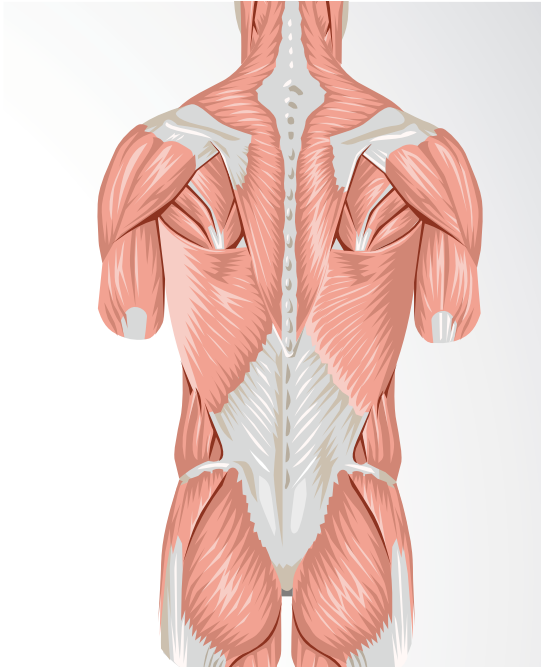
### WHOLE GROUP READING: "THE MUSCULAR SYSTEM" (10 MIN.)

#### Pages 18–19

- Read the title of the chapter, "The Muscular System," together as a class.
- Hold up the Vocabulary Cards for *realistic* and *muscle*. Ask students to find the words in the chapter and then to read definitions from the glossary together as a class.
- Tell students to read **pages 18–19** to themselves to find out why muscles are needed to make bones move.
- When students have finished reading, ask them to answer the following question: What do muscles do and why are they important?
  - » Muscles are tightened to make the bones move. Without muscles, bones could not move.
- Make sure students look at the image and caption on **page 19**.



This slide shows you some of the **muscles** in the muscular system. You can see that there are lots of **muscles** in our bodies. There are about 650 **muscles** in the human body, in fact. About half of your body's weight comes from **muscles**!



*Your body has about 650 **muscles**.*

20



***Muscles** help us run.*

**Muscles** are important to us for many reasons. Can you think of some?

**Muscles** help us run and jump. They allow us to stand up and sit down. We use **muscles** when we lift heavy objects. We also use them when we chew our food and when we smile. We even use **muscles** when we breathe.

21

## Pages 20–21

- Ask students to read **page 20** to themselves to fill in the blank in the following sentence: "There are about \_\_\_\_\_ muscles in our bodies."
- When students have finished reading, reread the sentence and have students fill in the blank. (650)
- Direct students' attention to the caption and image on **page 20**.
- Ask students to read **page 21** to themselves.  
In what ways are muscles important to us?
  - » Answers may vary, but could include that muscles help us run and jump, stand up and sit down, lift heavy objects, chew our food, smile, and breathe.
- Direct students' attention to the caption and image on **page 21**.

Doctors divide **muscles** into two groups: **voluntary muscles** and **involuntary muscles**. **Voluntary muscles** are **muscles** that you can make move and control. **Involuntary muscles** are **muscles** that you can't control. **Involuntary muscles** work without you even thinking about them. These **muscles** work **automatically**.

The **muscles** that help you move your arms and legs are **voluntary muscles**. When you want to pick up a box, you think about it and then tighten the **muscles** in your arms so you can lift the box. You can also control the **muscles** in your legs when you want to make your body run or jump.



*You move the **voluntary muscles** in your legs to make your body run.*



*A human **stomach***

The **muscles** in your heart, however, are **involuntary muscles**. They keep your heart beating, whether you are awake or asleep. You don't have to think, "It's time to beat again, heart!" These **muscles** work **automatically**.

There are **involuntary muscles** in your stomach, as well. Your **stomach** muscles keep **digesting** your food without you reminding them to do the job.

## Pages 22–23

- Hold up the Vocabulary Cards for *voluntary*, *involuntary*, and *automatically*. Ask students to find the words in the chapter and then to read definitions from the glossary together as a class.
- Ask students to read **page 22** to themselves.  
What is the difference between voluntary and involuntary muscles?
  - » Voluntary muscles are ones that you can move by your own will. Involuntary muscles are ones that work automatically.
- Have students read the caption and look at the image on **page 22** to find an example of voluntary muscles working.
- Hold up the Vocabulary Cards for *stomach* and *digest*. Ask students to find the words in the chapter and then to read definitions from the glossary together as a class.

- Ask students to read **page 23** to fill in the blank in the sentence: “Your body uses \_\_\_\_\_ muscles in order to make your stomach digest food.”
- When students have finished reading, reread the statement and have students fill in the blank.
  - » involuntary
- Direct students' attention to the caption and image on **page 23**.

## DISCUSSING THE READING (5 MIN.)

1. **Literal.** What parts of your body make your bones move?
  - » muscles
2. **Literal.** Do the muscles in your body weigh a lot or a little?
  - » a lot; about half of your body weight is from muscle
3. **Literal.** What are examples of voluntary and involuntary actions?
  - » Answers may vary, but could include the following for involuntary: breathing, your heart beating, digesting food; for voluntary, answers could include pedaling a bike, running, lifting a box.
4. **Inferential.** What is the key idea of the chapter?
  - » Students may not state the key idea exactly like this, but their answer should closely resemble the following: Muscles enable movement. There are two kinds of muscles, voluntary and involuntary.

### Lesson 5: The Muscular System

# Writing



✚ **Primary Focus:** Students will write topic and concluding sentences. **TEKS 3.11.B.i**

## WRITING PARAGRAPHS WITH TOPIC AND CONCLUDING SENTENCES (15 MIN.)

- Display the Paragraph chart or project digital Projection DP.U3.L5.1. Remind students that they have been learning about writing paragraphs. They have learned that a good paragraph has a topic sentence that gives the key idea, or what the paragraph is mostly about. A good paragraph also includes sentences that provide details that support the topic sentence.

### ➤ Projection DP.U3.L5.1

#### Paragraphs

A **paragraph** is a set of sentences on the same topic.

A **topic sentence** is one sentence, usually the first, that tells the key idea, or what the paragraph is mostly about.

A **concluding sentence** is one sentence, always the last, that wraps up the paragraph. It does not introduce new information. Often, it restates the topic sentence.

✚ **TEKS 3.11.B.i** Develop drafts into a focused, structured, and coherent piece of writing by: organizing by purposeful structure including an introduction and conclusion.



Reading  
Reading/Viewing Closely

### Beginning

Encourage students to collaborate with a partner to respond to the discussion questions.

### Intermediate

Encourage students to respond to questions using full sentences.

### Advanced/ Advanced High

Encourage students to work with a partner to create comprehension questions to ask each other.

**ELPS 2.I; ELPS 4.F;**

**ELPS 4.G; ELPS 4.I**

### Challenge

Have students brainstorm the most recent ways they used involuntary and voluntary muscles.

### Support

Have students flex different muscles in their bodies.

### Activity Page 5.1





Writing  
Selecting Language  
Resources

**Beginning**

Have students work with a partner to complete the first topic and concluding sentence.

**Intermediate**

Have students compare their finished work with a partner, allowing time for revisions, if necessary.

**Advanced/  
Advanced High**

Have students work with a partner to write a new paragraph that includes a topic and concluding sentence.

**ELPS 5.F**

**Challenge**

Have students write a paragraph about one of the systems discussed thus far in the unit.

**Support**

Consider showing students models of topic and concluding sentences to accompany Activity Page 5.1 (prepared in advance).

**Activity Page 5.2**



- Read aloud the Paragraph Chart to the class.
- Ask students to turn to Activity Page 5.1. Explain that this activity page has two paragraphs that are missing topic and concluding sentences.
- Read the first paragraph aloud with students, noting particularly the subject of the paragraph. Then, ask them to brainstorm ideas for an appropriate topic sentence for the beginning of the paragraph. Remind students that the topic sentence tells the key idea, or what the paragraph is mostly about.
- If needed, help rephrase student ideas. Review the list of ideas, eliminating any that may not be appropriate topic sentences. Then, tell students to write a topic sentence on their worksheet.
- Reread the entire paragraph with the topic sentence.
- Tell students that a good paragraph also includes a concluding sentence at the end of the paragraph. A good concluding sentence wraps things up and often is a restatement of the topic sentence.
- Ask students to suggest ideas for a concluding sentence for this paragraph. Review the ideas with students, and then ask them to write a good concluding sentence at the end of the paragraph.
- Ask students to complete the next paragraph independently. If time permits, ask students to read the final paragraph with the topic and concluding sentences they have written.

**Lesson 5: The Muscular System**

# Language



**Primary Focus:** Students will use spelling patterns and rules for regular and irregular plural nouns. **TEKS 3.2.B.iv; TEKS 3.2.C**

**SPELLING ASSESSMENT (25 MIN.)**

- Have students turn to Activity Page 5.2 for the spelling assessment.
- Using the chart on the next page, call out each singular noun one at a time in the following manner: say the word, use it in a sentence, and then say the word once more.
- Tell students that at the end, you will go back through the list once more.

**TEKS 3.2.B.iv** Demonstrate and apply spelling knowledge by: spelling multisyllabic words with multiple sound-spelling patterns; **TEKS 3.2.C** Alphabetize a series of words to the third letter.

|           |                                        |
|-----------|----------------------------------------|
| 1. woman  | 10. louse                              |
| 2. baby   | 11. night                              |
| 3. child  | 12. man                                |
| 4. mouse  | 13. match                              |
| 5. fox    | 14. goose                              |
| 6. tooth  | 15. story                              |
| 7. person | <b>Challenge Word:</b> <i>exercise</i> |
| 8. foot   | <b>Challenge Word:</b> <i>laugh</i>    |
| 9. glass  |                                        |

- After you have called out all of the words, including the Challenge Words, go back through the list slowly, reading each word just once more.
- Ask students to write the following sentences as you dictate them:
  1. He helped his children brush their teeth before bed.
  2. The woman lost her glasses, so she could not read the stories.
- Then, ask students to go back and write the plural form of each singular noun. Allow students 5–10 minutes to complete this portion of the spelling assessment.
- After students have finished, collect pens, if used.
- Tell students that you will now show them the correct spelling for each word so they can correct their own work using a pencil.
- Say and write each word on the board. Instruct students to correct their work by crossing out any incorrect spelling, then copying and writing the correct spelling next to it.
- Continue through all the words and then on to the dictated sentences.

**Note:** You may find it helpful to use the template provided at the end of this lesson to analyze students' mistakes. This will help you understand any patterns that are beginning to develop, or that are persistent among individual students.



## SPELLING: PRACTICE ALPHABETIZING SKILLS (15 MIN.)

TEKS 3.2.C

- Using the previously prepared spelling cards folded over to reveal just the first letter, tape the words on the board randomly. Tell students that you will now review how to alphabetize the spelling words and Challenge Words on the board to the third letter.
- Ask students, “Look at the first letter on each card taped on the board. Of all the letters displayed on the board, which one comes first in the alphabet?” Students should respond ‘b’. Tape this card, still folded, to the board at the top of a column that you will create of the words.
- Ask students, “Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?” Students should respond ‘c’. Tape this card, still folded, to the board below the card with the ‘b’ displayed.
- Ask students, “Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?” Students should respond ‘e’. Tape this card, still folded, to the board below the card ‘c’.
- Ask students, “Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?” Students should respond ‘f’. Students should notice that there are two cards with the letter ‘f’ displayed. Unfold and then refold each card to reveal the second letter, e.g., the ‘o’ in fox and the ‘o’ in foot. Students should notice that there are two cards with the second letter ‘o’. Unfold and then refold each card to reveal the third letter. Ask students which of these two letters, ‘x’ or ‘o’, comes first. They should respond ‘o’. Tape the ‘foo’ card, still folded, to the board below the ‘e’ displayed. Then, tape the ‘fox’ card below the card with ‘foo’ displayed.
- Ask students, “Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?” Students should respond ‘g’. Students should notice that there are two cards with the letter ‘g’ displayed. Unfold and then refold each card to reveal the second letter, e.g., the ‘l’ in glass and the ‘o’ in goose. Ask students which of these two letters, ‘l’ or ‘o’, comes first. They should respond ‘l’. Tape the ‘gl’ card, still folded, to the board below the card with ‘fox’ displayed. Then, tape the card with ‘go’ below the ‘gl’ card.



TEKS 3.2.C Alphabetize a series of words to the third letter.



- Ask students, “Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?” Students should respond ‘l’. Students should notice that there are two cards with the letter ‘l’ displayed. Unfold and then refold each card to reveal the second letter, e.g., the ‘a’ in laugh and the ‘o’ in louse. Ask students which of these two letters, ‘a’ or ‘o’, comes first. They should respond ‘a’. Tape the ‘la’ card, still folded, to the board below the card with ‘go’ displayed. Then, tape the card with ‘lo’ below the ‘la’ card. Ask students, “Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?” Students should then notice that there are three cards with the letter ‘m’ displayed. Unfold and then refold each card to reveal the second letter, e.g., the ‘o’ in mouse and the ‘a’ in man and match. Ask students which of these two letters, ‘o’ or ‘a’, comes first. They should respond ‘a’. Unfold and then refold both of these cards to reveal the third letter, e.g., the ‘n’ in man and the ‘t’ in match. Ask students which of these two letters, ‘n’ or ‘t’, comes first. Students should respond ‘n’. Tape the card with ‘man’ displayed to the board below the ‘lo’ card. Then, tape the ‘mat’ card below ‘man’. Finally, tape the ‘mo’ card below the card with ‘mat’ displayed.
- Continue in this way until you have alphabetized all of the cards.
- When you have completed this, unfold all the cards so that the entire word is visible.
- Read the words aloud with students and state explicitly that all the spelling words are now in alphabetical order on the board.

|          |        |
|----------|--------|
| baby     | man    |
| child    | match  |
| exercise | mouse  |
| foot     | night  |
| fox      | person |
| glass    | story  |
| goose    | tooth  |
| laugh    | woman  |
| louse    |        |



## Language Literacy in an Alphabetic System

### Beginning

Have students line themselves up in alphabetical order according to the first letter of their last name.

### Intermediate

Have students work in pairs with half of a set of alphabet flashcards (in random order). Students work in pairs to put the cards they have in correct order.

### Advanced/

#### Advanced High

Have students work with a partner to play a card game. Place a stack of alphabet cards (out of order) face down. Students turn the first card over and then guess if the next card will be a letter before or after the face-up card.

### ELPS 1.C

### Challenge

Have students stand in a circle. Have the first student say a word that begins with ‘a’, the next student a word with ‘b’, etc.

### Support

Consider asking students to hum the alphabet song as they work with alphabetizing.



**Lesson 5: The Muscular System**

# Take-Home Material

**Activity Page 5.3**

- Have students take home Activity Page 5.3 to read to a family member.

**SPELLING ANALYSIS DIRECTIONS**

- Students are likely to make the following errors:
  - For irregular plurals, writing the plural form incorrectly since there is no pattern to follow
  - For some regular plurals, adding *-s* instead of *-es*
  - For some regular plurals, not changing 'y' to 'i' before adding *-es*
- While any of the above student-error scenarios may occur, you should still be aware that misspellings may be due to many other factors. You may find it helpful to record the actual spelling errors that the student makes in the analysis chart. For example:
  - Is the student consistently making errors on specific vowels? Which ones?
  - Is the student consistently making errors at the end of the words?
  - Is the student consistently making errors on particular beginning consonants?
- Did the student write words for each feature correctly?
- Also, examine the dictated sentences for errors in capitalization and punctuation.

Spelling Analysis Chart

Name

1. woman
2. women
3. baby
4. babies
5. child
6. children
7. mouse
8. mice
9. fox
10. foxes
11. tooth
12. teeth
13. person
14. people
15. foot
16. feet
17. glass
18. glasses
19. louse
20. lice
21. night
22. nights
23. man
24. men
25. match
26. matches
27. goose
28. geese
29. story
30. stories

**Challenge Word:** exercise

**Challenge Word:** laugh

## 6

# Joints and Muscles

## PRIMARY FOCUS OF LESSON

### Reading

Students will read and answer comprehension questions about joints and muscles, and consider how they interact with other systems in the body.

✚ **TEKS 3.2.A.iv; TEKS 3.7.C**

### Language

Students will correctly change 'f' to 'v' and add -es in plural nouns.

✚ **TEKS 3.2.B.vii; TEKS 3.11.D.iii**

### Writing

Students will create a piece of writing that includes a topic and concluding

✚ sentence. **TEKS 3.12.B**

## FORMATIVE ASSESSMENT

### Activity Page 6.1

**Joints and Muscles.** Answer questions about joints

✚ and muscles. **TEKS 3.7.C**

✚ **TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.2.B.vii** Demonstrate and apply spelling knowledge by: spelling words using knowledge of suffixes, including how they can change base words such as dropping e, changing y to i, and doubling final consonants; **TEKS 3.11.D.iii** Edit drafts using standard English conventions, including: singular, plural, common, and proper nouns; **TEKS 3.12.B** Compose informational texts, including brief compositions that convey information about a topic, using a clear central idea and genre characteristics and craft.

## LESSON AT A GLANCE

|                                           | Grouping                    | Time    | Materials                                                                                                     |
|-------------------------------------------|-----------------------------|---------|---------------------------------------------------------------------------------------------------------------|
| <b>Reading (75 min.)</b>                  |                             |         |                                                                                                               |
| KWL Charts                                | Partner/<br>Whole Group     | 10 min. | <input type="checkbox"/> KWL Chart<br><input type="checkbox"/> Activity Page 1.1 (optional)                   |
| Introducing the Reading                   | Whole Group                 | 5 min.  | <input type="checkbox"/> <i>How Does Your Body Work?</i><br><input type="checkbox"/> Activity Page 6.1        |
| Previewing Vocabulary                     | Whole Group                 | 10 min. | <input type="checkbox"/> Vocabulary Cards<br><input type="checkbox"/> Individual Code Charts (from Unit 1)    |
| Whole Group Reading: “Joints and Muscles” | Whole Group                 | 20 min. |                                                                                                               |
| Discussing the Reading                    | Whole Group/<br>Independent | 30 min. |                                                                                                               |
| <b>Language (20 min.)</b>                 |                             |         |                                                                                                               |
| Introducing Spelling Words                | Whole Group                 | 20 min. | <input type="checkbox"/> Spelling Chart (Digital Projections)                                                 |
| <b>Writing (25 min.)</b>                  |                             |         |                                                                                                               |
| Topic and Concluding Sentences            | Independent/<br>Partner     | 25 min. | <input type="checkbox"/> Paragraphs Chart (Digital Projections)<br><input type="checkbox"/> Activity Page 6.2 |
| <b>Take-Home Material</b>                 |                             |         |                                                                                                               |
| “Joints and Muscles”                      |                             |         | <input type="checkbox"/> Activity Pages 6.3, 6.4                                                              |
| Family Letter                             |                             |         |                                                                                                               |

## ADVANCE PREPARATION

### Reading

- Prepare Vocabulary Cards for the following words: *joint, cushion, cartilage, flexible, connective, model, ligament, tendon, Achilles, Achilles tendon, warrior, invulnerable, Trojan, and vulnerable*. Have students take out their Individual Code Charts from Unit 1.
- Display KWL from previous lesson.

**Note:** This chart will be used throughout the unit.

| KWL Chart: Human Body Systems |   |   |
|-------------------------------|---|---|
| K                             | W | L |
|                               |   |   |

### Language

- On chart paper, create the **Spelling Chart** or prepare Digital Projection DP.U3.L6.1.

| Singular Noun                 | Plural Noun |
|-------------------------------|-------------|
| knife                         | knives      |
| life                          | lives       |
| wife                          | wives       |
| half                          | halves      |
| wolf                          | wolves      |
| loaf                          | loaves      |
| elf                           | elves       |
| leaf                          | leaves      |
| thief                         | thieves     |
| shelf                         | shelves     |
| self                          | selves      |
| <b>Challenge Word:</b> before |             |
| <b>Challenge Word:</b> please |             |

- Review the Language activity and determine whether or not you will want to reveal the words on the Spelling Chart progressively or all at once. If you would like to reveal them progressively, prepare a cover sheet as needed.

## Writing

- Display Paragraphs chart or prepare Digital Projection DP.U3.L5.1. (From Lesson 5)

| <b>Paragraphs</b>                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A <b>paragraph</b> is a set of sentences on the same topic.                                                                                                               |
| A <b>topic sentence</b> is one sentence, usually the first, that tells the key idea, or what the paragraph is mostly about.                                               |
| A <b>concluding sentence</b> is one sentence, always the last, that wraps up the paragraph. It does not introduce new information. Often, it restates the topic sentence. |

## Universal Access

- Display vocabulary words in the classroom during and after instruction to reinforce word meaning.
- Display digital Images in the classroom during and after instruction to reinforce ideas.
- Predict: How do you think the joints and muscles interact with systems in the body?

Start Lesson

## Lesson 6: “Joints and Muscles”

# Reading



**Primary Focus:** Students will read and answer comprehension questions about joints and muscles, and consider how they interact with other systems in the body. **TEKS 3.2.A.iv; TEKS 3.7.C**

### KWL CHARTS (10 MIN.)

- Post the KWL charts that students have worked on throughout this unit.
- Have students work in pairs to decide what they should add or revise on the KWL chart.

**TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.7.C** Use text evidence to support an appropriate response.

## Support

If students struggle with this activity, consider prompting partners, small groups, and the whole class with review and comprehension questions [for example, “Which system did we learn about in the last lesson?” (muscular) “What is the difference between voluntary and involuntary muscles?” (An involuntary muscle functions automatically and a voluntary muscle functions on purpose, or not by accident.)].

- Have pairs form small groups to brainstorm their additions or revisions.
- Lead a brief, whole-class discussion of group responses about what to add or revise on the KWL chart.

---

### INTRODUCING THE READING (5 MIN.)

- Tell students that the title of today’s chapter is “Joints and Muscles.”
- Ask students to recall what they learned about muscles from the previous chapter.
- Review with students what muscles do and why they are important.
  - Muscles make bones move.
  - There are about 650 muscles in the human body.
  - About half of the body’s weight comes from muscle.
  - Voluntary muscles are ones that you can make move, while involuntary muscles work automatically.
- Ask students to turn to the table of contents, locate the chapter, and then turn to the first page of the chapter.

---

### PREVIEWING VOCABULARY (10 MIN.)

The following are vocabulary words used in this lesson. Preview the words with the students before the lesson and refer back to them at appropriate times.

- Display the vocabulary words on the board.
- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.
- The words also appear in the glossary in the back of the Student Reader.

**joint**, a connection between two bones in your body (**joints**)

**cushion**, to protect with something soft (**cushioned, cushions**)

**cartilage**, a flexible tissue that cushions the joints where your bones meet

**flexible**, bendable

**connective**, linking

**model**, smaller copy

**ligament**, a tissue connecting bones to bones

**tendon**, a tendon connecting muscles to bones

**Achilles**, a hero of the Trojan War in Greek mythology; he could only be killed by a wound just above his heel.

**Achilles tendon**, the strong tendon joining the muscles in the calf of the leg to the bone of the heel

**warrior**, soldier

**invulnerable**, safe or protected; opposite of vulnerable

**Trojan**, a person born or living in the ancient city of Troy

**vulnerable**, weak or in danger

| Vocabulary Chart for “Joints and Muscles” |                                                                           |                                                                                              |
|-------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Type                                      | Tier 3 Domain-Specific Words                                              | Tier 2 General Academic Words                                                                |
| Vocabulary                                | cartilage,<br>ligament<br>tendon<br>Achilles<br>Achilles tendon<br>Trojan | joint<br>cushion<br>flexible<br>connective<br>model<br>warrior<br>invulnerable<br>vulnerable |
| Multiple Meaning                          |                                                                           | joint<br>cushion<br>flexible<br>model                                                        |
| Sayings and Phrases                       | Achilles tendon<br>Trojan horse                                           |                                                                                              |

- Write the word *cushion* on the board.
  - Circle the letters ‘ion’.
  - Tell students that these letters represent two different phonemes, /ə/ + /n/.



- Because 'ion' is made up of two different phonemes, students will see that it is not listed on the **Individual Code Chart**.
- Write the word *session* on the board as another example of a word in which 'ion' spells the sounds /ə/ + /n/.
- Write the word *cartilage* on the board.
  - Circle the second letter 'a'.
  - Tell students that this letter represents the sound /i/.
  - Ask students to turn to **page 3** of the **Individual Code Chart**.
  - Ask them to find the /i/ row and follow it across.
  - Students will see that there is no 'a' listed. Explain to them that the 'a' spelling of /i/ is so rare that it is not included on the **Individual Code Chart**. It occurs only in very few words.
  - Write the word *bandage* on the board as another example of a word in which 'a' spells the sound /i/.
- Write the word *tendon* on the board.
  - Circle the letter 'o'.
  - Tell students that this letter represents the sound /ə/.
  - Ask students to turn to **page 3** of the **Individual Code Chart**.
  - Ask them to find the /ə/ row and follow it across.
  - Students will see that there is no 'o' listed. Explain to them that the 'o' spelling of /ə/ is so rare that it is not included on the **Individual Code Chart**. It occurs only in very few words.
  - Write the word *cannon* on the board as another example of a word in which 'o' spells the sound /ə/.
- Write the word *warrior* on the board.
  - Circle the letter 'i'.
  - Tell students that this letter represents the sound /y/.
  - Ask students to turn to **page 2** of the **Individual Code Chart**.
  - Ask them to find the /y/ row and follow it across.

- Students will see that there is no 'i' listed. Explain to them that the 'i' spelling of /y/ is so rare that it is not included on the Individual Code Chart. It occurs only in a very few words.
- Write the word *behavior* on the board as another example of a word in which 'i' spells the sound /y/.

### WHOLE GROUP READING: "JOINTS AND MUSCLES" (20 MIN.)

- Remind students that so far in their exploration of the human body, they have learned about the muscular system and the skeletal system, including appendicular and axial bones. Ask students to flex their muscles.
1. What are some examples of involuntary and voluntary muscles?
    - » The heart beating automatically is an example of an involuntary muscle. The muscles in the arms and legs that you use to pick things up and to run are examples of voluntary muscles.
  2. Point to your knee and your elbow. What do they have in common?
    - » They both bend.
- Tell students that both the elbow and the knee are joints, and that the title of today's chapter is "Joints and Muscles."



**ENGLISH  
LANGUAGE  
LEARNERS**

Language  
Foundational Skills

#### Beginning

Use an echo reading strategy by reading the word and having students repeat the words.

#### Intermediate

Have students act or draw out the word meanings.

#### Advanced/ Advanced High

Have students create their own sentences for the words.

**ELPS 1.D**

#### Support

Encourage students to consider how their responses to questions are supported by details taken directly from the reading.

## Chapter 4 Joints and Muscles

Does anyone know what we call the place where two bones come together?

It's called a **joint**.

You have lots of **joints** in your body. Your elbow is a **joint**. So is your shoulder. So is your knee.



*Dr. Welbody points to an image of knee joints.*

### Pages 24–25

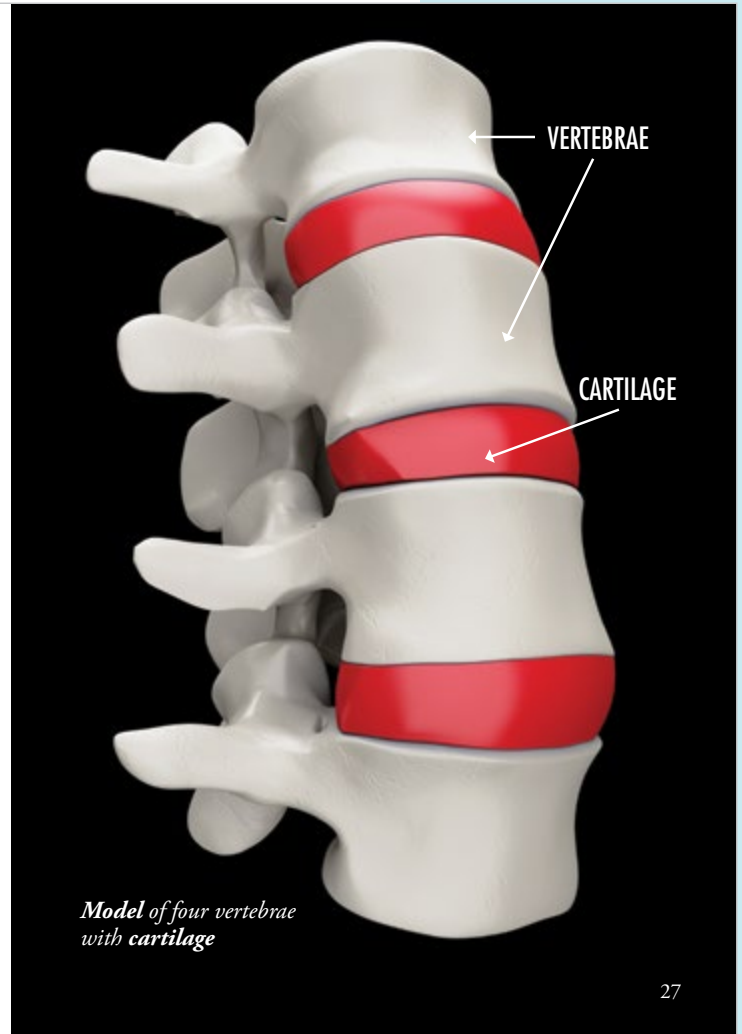
- Read the title of the chapter together as a class, “Joints and Muscles.”
- Call out and display the Vocabulary Card for the word *joint*.
- Have students scan page 28 to notice that both *joint* and *joints* are used in this chapter.
- Have students find *joint* in the glossary, and read the definition together as a class.
- Ask students to read **pages 24–25** to themselves.
- What are some joints in your body?
  - » elbow, shoulder, knee
- Have students look at the image and read the caption on **page 25**.

Many **joints** are cushioned by **cartilage**. **Cartilage** is a **flexible, connective** tissue. It is not as hard as bone, but it is stiffer and less **flexible** than muscle.

Do you remember when we learned about the vertebrae—the bones that make up your spinal column? Well, we have **cartilage** between each of the thirty or so vertebrae in our spinal column. The **cartilage** cushions the vertebrae and keeps them from rubbing or banging against each other. The **cartilage** is shown in red in the **model** on the next page.

You also have **cartilage** in your ears. Grab the top of your ear and bend it down a little. Now, let it go. Do you feel how your ear snaps back into place when you let go of it? It's the **cartilage** that makes your ear do that.

26



27

## Pages 26–27

- Call out and display the Vocabulary Cards for the words *cushion*, *cartilage*, *flexible*, and *connective*.
- Have students find *cushion*, *cartilage*, *flexible*, and *connective* in the glossary, and read the definitions together as a class. Note for students that the form of the word *cushion* (*cushioned*) is used in this chapter.
- Ask students to read **pages 26–27** to themselves to fill in the blank in the sentence: “Cartilage is found between bones. Its function is to \_\_\_\_\_ the bones so they will not bang against each other.”
- When students have finished reading, reread the sentence and have students fill in the blank.
  - » cushion
- Have students look at the image and read the caption on **page 27**, noting the words *vertebrae* and *cartilage*.

## Challenge

Which joints do you use the most in your body? How?

- » Student responses may vary. But be sure students answer “how.”

Some of the most important tissues in your body are located at the **joints**.

A **ligament** is a kind of tissue that connects one bone with another. Most of your **joints** contain **ligaments**. You have **ligaments** in your knee, in your neck, and in your wrists.

This slide shows **ligaments** in your knee. Can you see how the **ligaments** connect your thigh bone to the bones in your lower leg?



*Back view (left) and front view (right) of the right knee showing **ligaments** in red*

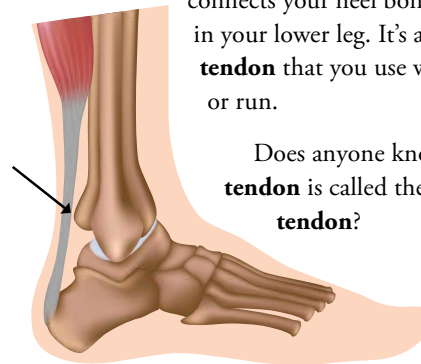
28

**Ligaments** connect bones to other bones. **Tendons** connect muscles to bones.

I said earlier that the muscular system and the skeletal system are connected. Well, **tendons** link these two systems. **Tendons** connect muscles to bones and allow you to move your bones.

One of the most famous **tendons** in the body is called the **Achilles** [ə-KIL-eez] **tendon**. Does anyone know where the **Achilles tendon** is?

That's right! The **Achilles tendon** is in the back of your leg, just above the heel. The **Achilles tendon** connects your heel bone to the muscles in your lower leg. It's an important **tendon** that you use when you walk or run.



*The **Achilles tendon***

Does anyone know why this **tendon** is called the **Achilles tendon**?

No? Well, then, I guess I had better tell you the story.

29

## Pages 28–29

- Call out and display the vocabulary card for the word *ligament*. Note for students that both the words *ligament* and *ligaments* are used in this chapter.
- Have students find *ligament* in the glossary, and read the definition together as a class.
- Ask students to read **page 29** to themselves to fill in the blank in the sentence: “Ligaments connect bones to \_\_\_\_\_.”
- When students have finished reading, reread the sentence and have students fill in the blank.
  - » bones
- Direct students' attention to the images and the caption on **page 29**.
- Call out and display the Vocabulary Cards for the words *tendon*, *Achilles*, and *Achilles tendon*. Note for students that both the words *tendon* and *tendons* are used in this chapter.

- Have students find *tendon*, *Achilles*, and *Achilles tendon* in the glossary, and read the definitions together as a class.
- Ask students to read **page 29** to themselves.
- What is the function of the Achilles tendon?
  - » The Achilles tendon connects your heel bone to the muscles in your lower leg.
- Ask students to look at the image and read the caption on **page 29**.

The **Achilles tendon** is named for a famous Greek **warrior** named **Achilles**. You may remember hearing about the ancient Greeks when you were in second grade.

When **Achilles** was a baby, his mom tried to make sure that he would never die. She had heard that a person who had been dipped in the River Styx could not be harmed by spears or arrows. She took her son and dipped him in the river. Then, she felt better. She believed that her son was **invulnerable**. Nothing could harm him—or so she thought.

There was just one problem. When she dipped **Achilles** in the river, she held him by his heel. So this heel never got dipped in the river.

Many years later, during the **Trojan War**, a **Trojan warrior** shot an arrow at **Achilles**. The arrow landed right above **Achilles's** heel—the very spot that had not been dipped into the River Styx. **Achilles** died from his wound.

So now you know why the **Achilles tendon** is named for **Achilles**. This **tendon** was the one spot where the mighty **warrior** was **vulnerable** and could be wounded.



*Achilles, the Greek warrior*

## Pages 30–31

- Call out and display the Vocabulary Cards for the words *warrior*, *invulnerable*, *Trojan*, and *vulnerable*.
- Have students find *warrior*, *invulnerable*, *Trojan*, and *vulnerable* in the glossary, and read the definitions together as a class.
- Ask students to read **pages 30–31** to themselves.



### Check for Understanding

Why is the Achilles tendon named for the Trojan warrior Achilles?

- » Achilles's mother dipped Achilles in the River Styx in order to render him invulnerable. She held him by his heel, so the tendon at the back of Achilles's ankle was not dipped in the river. Achilles was shot with an arrow in that tendon, and ultimately died.

- Have students look at the image and read the caption on **page 31**.

## DISCUSSING THE READING (30 MIN.)

**Note:** Discussion questions should be limited to 15 minutes so students have time to complete Activity Page 6.1.

- Literal.** Which is more flexible, muscle or cartilage, and why?
    - » Muscle. Cartilage is not as hard as bone, but it is stiffer and less flexible than muscle.
  - Literal.** What does cartilage do in your spinal cord, and why is that important?
    - » Cartilage cushions the vertebrae and keeps them from rubbing or banging against each other. Cartilage keeps the vertebrae from damaging each other and/or the spinal cord.
  - Literal.** Where would you find cartilage in your ear?
    - » in the part of your ear that is on the outside of your head
  - Literal.** What are ligaments and why are they important?
    - » They are a kind of tissue that connects bones together. They also hold joints together.
  - Literal.** What are tendons and what do they do?
    - » tough bands of tissue that connect muscles to bones
  - Literal.** What would happen if you didn't have tendons?
    - » Answers may vary, but could include that your body would have a hard time moving since your muscles would not be connected to your bones, which is how bones are able to move.
  - Inferential.** What is the key idea of this chapter?
    - » Students may not exactly state the key idea like this, but it should closely resemble the following: Joints are where two bones are joined together, and they are cushioned by cartilage. Tendons connect muscles to bones.
- Have students complete Activity Page 6.1 independently.

## Activity Page 6.1



**ENGLISH  
LANGUAGE  
LEARNERS**

Reading  
Reading/  
Viewing Closely

### Beginning

Make statements and ask students if they are true or false. If the statement is false, students have to correct the statement (e.g., "Cartilage helps bones rub against each other." "False. Cartilage is between bones so they do not rub against each other.")

### Intermediate

Pair students with a partner who can support the student in rereading the text if necessary and answering the questions.

### Advanced/ Advanced High

Encourage students to create their own concept-checking questions to ask partners.

**ELPS 4.F; ELPS 4.G**



## Lesson 6: Joints and Muscles

# Language




**Primary Focus:** Students will correctly change 'f' to 'v' and add -es in plural

 nouns. **TEKS 3.2.B.vii; TEKS 3.11.D.iii**

### INTRODUCING SPELLING WORDS (20 MIN.)

- Display the Spelling Chart or project Digital Projection DP.U3.L6.1. If you have decided to reveal the words progressively, make sure to use the cover sheet you prepared.

|    | Singular Noun                        |    | Plural Noun |
|----|--------------------------------------|----|-------------|
| 1  | knife                                | 12 | knives      |
| 2  | life                                 | 13 | lives       |
| 3  | wife                                 | 14 | wives       |
| 4  | half                                 | 15 | halves      |
| 5  | wolf                                 | 16 | wolves      |
| 6  | loaf                                 | 17 | loaves      |
| 7  | elf                                  | 18 | elves       |
| 8  | leaf                                 | 19 | leaves      |
| 9  | thief                                | 20 | thieves     |
| 10 | shelf                                | 21 | shelves     |
| 11 | self                                 | 22 | selves      |
| 23 | <b>Challenge Word:</b> <i>before</i> |    |             |
| 24 | <b>Challenge Word:</b> <i>please</i> |    |             |

 **TEKS 3.2.B.vii** Demonstrate and apply spelling knowledge by: spelling words using knowledge of suffixes, including how they can change base words such as dropping e, changing y to i, and doubling final consonants; **TEKS 3.11.D.iii** Edit drafts using standard English conventions, including: singular, plural, common, and proper nouns.

- When introducing the words, use these procedures:

### Step 1: Introducing the Singular Nouns

- Tell students that this week, they will be working with more nouns and their plural forms. While there is a pattern to follow to make these words plural, these words are rare.
- Tell students that for this week’s assessment, they will be responsible for writing the singular and plural forms of the nouns.
- As you introduce each of the spelling words, point it out in the table, pronouncing it as you point out or reveal it.
- Point out the vowel sound(s) and spellings in the word to students.

### Step 2: Forming Plurals of the Singular Nouns

- Tell students that the right side of the table shows the plural form of each singular noun.
- Explain the rules for making these nouns plural. For words that end in ‘fe’, change the ‘f’ to ‘v’, drop the ‘e’, and then add –es. For words that end with ‘f’, the ‘f’ must be changed to ‘v’ before adding –es.
- Explain to students that the Challenge Words *before* and *please* are words that are used very often. They may not follow spelling patterns, and need to be memorized. Use the Challenge Words in sentences as examples for students: “You need to eat your dinner before you have ice cream.” “Please let me go to the park.”
- Tell students they will not need to change the form of the Challenge Words on the assessment.
- Practice the words during the remaining time. Call on a student to read any word in its plural form, and ask them to orally use the word in a meaningful sentence. After the student says the sentence, have them ask the class: “Did that sentence make sense?” If the class says, “Yes,” then the student puts a check mark in front of the word and calls on another student to come to the front and take a turn. If the class says, “No,” have the student try again or call on another student to come to the front and use the word in a meaningful sentence. This continues until all the plural forms are used or time has run out.
- Tell students that the table will remain on display until the assessment so that they may refer to it during the week.



#### Beginning

Provide these students with correct spellings of the words. When one partner is challenging the other partner, he or she has the correct spellings and can provide support.

#### Intermediate

Provide students with a word list that includes words spelled both incorrectly and correctly. Students work in pairs to categorize the words and correct the spelling errors.

#### Advanced/ Advanced High

Provide students with a gapped paragraph. Students read the paragraph and fill in the blanks with the appropriate spelling words. Consider providing a word bank at the bottom of the worksheet.

**ELPS 1.C; ELPS 2.B**

#### Challenge

Provide students with series of jumbled words that include extra “decoy” letters. The first jumble has one extra letter, the second jumble has two extra letters, etc. Make sure that students know how many extra “decoy” letters each jumbled word has. Consider a maximum number of three decoy letters.

## Lesson 6: Joints and Muscles

# Writing



**Primary Focus:** Students will create a piece of writing that includes a topic and concluding sentence. **TEKS 3.12.B**

### TOPIC AND CONCLUDING SENTENCES (25 MIN.)

#### Support

Have students practice spelling words by doing Look/Say/Cover/Write/Check.

- Remind students that in previous lessons, they worked on finding the topic sentence and concluding sentence for a paragraph, and writing their own with partners.
- Reread with the students the Paragraph chart that you created, or project digital Projection DP.U3.L5.1.

#### ➤ Projection DP.U3.L5.1

| Paragraphs                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A <b>paragraph</b> is a set of sentences on the same topic.                                                                                                               |
| A <b>topic sentence</b> is one sentence, usually the first, that tells the key idea, or what the paragraph is mostly about.                                               |
| A <b>concluding sentence</b> is one sentence, always the last, that wraps up the paragraph. It does not introduce new information. Often, it restates the topic sentence. |

- Tell students that today, they will work on writing a paragraph as a class. Tell students that a topic sentence will be provided. They will write supporting detail sentences and a concluding sentence.
- Write the following sentence on the board: “I like winter.”
- Remind students that all the sentences in the paragraph must be about liking winter.
- Remind students that the last sentence should wrap up, or conclude, the paragraph and should not have new information.
- Take a few minutes to generate possible sentences about winter from students.
- As each sentence is suggested, ask students, “Does this sentence say something about liking winter?”

#### Activity Page 6.2



**TEKS 3.12.B** Compose informational texts, including brief compositions that convey information about a topic, using a clear central idea and genre characteristics and craft.

- Record these sentences on the board. Help students sequence the order in which the sentences should be written by numbering the sentences on the board.
- After you have five to six sentences to choose from, write the sentences in paragraph form either on the board, document camera surface, or overhead projector. If one of the sentences could serve as a wrap-up for the paragraph, write it last. If not, have students write a good concluding sentence. As you write, point out to students when you are indenting, using capital letters, correct punctuation, etc.
- Summarize this exercise by noting that all the sentences are about the topic sentence, i.e., liking winter, and that the last sentence wraps up or concludes the paragraph without introducing new information.
- Using the Paragraph poster you displayed in advance, remind students that they have been learning about writing paragraphs. They have learned that a good paragraph has a topic sentence that gives the key idea, or what the paragraph is mostly about. A good paragraph also includes sentences that provide details that support the topic sentence.
- Ask students to turn to Activity Page 6.2. Explain that this activity page includes a topic sentence.
- Then, ask them to brainstorm ideas for appropriate details that might be included in the paragraph.
- Tell students that a good paragraph also includes a concluding sentence at the end of the paragraph. A good concluding sentence wraps things up and often is a restatement of the topic sentence.
- Ask students to suggest ideas for a concluding sentence for this paragraph. Review the ideas with students.
- If needed, help rephrase student ideas. Review the list of ideas, eliminating any that may not be appropriate.

**Note:** (bold) Collect Activity Page 6.2 as they will be used again in Lesson 9.

~~~~~End Lesson~~~~~

Lesson 6: Joints and Muscles

Take-Home Material

- Have students take home Activity Page 6.3 to read to an adult and Activity Page 6.4 to share with an adult.



Writing

Beginning

Have students discuss winter in small groups before writing.

Intermediate

Have students write a minimum of five sentences to include in their paragraph.

Advanced/ Advanced High

Have students write independently and share their work with a peer reviewer.

ELPS 5.G

Challenge

Have students complete Activity Page 6.2 independently and create a title to go with their paragraph.

Support

If students struggle, work with a small group to complete Activity Page 6.2. Continue to direct students back to ideas on the whiteboard.

Activity Pages
6.3 and 6.4



7

The Nervous System

PRIMARY FOCUS OF LESSON

Speaking and Listening

- Students will describe the nervous system as part of a larger, interconnected system. **TEKS 3.1.A; TEKS 3.6.B; TEKS 3.7.C**

Reading

- Students will read and answer comprehension questions about the nervous system. **TEKS 3.2.A.iv; TEKS 3.6.G**

Language

- Students will form and use irregular plural nouns. **TEKS 3.11.D.iii**

- Students will identify the meaning of the common prefixes *un-*, *non-*, *re-*, *pre-*, *dis-*, and *mis-*. **TEKS 3.1.E; TEKS 3.2.A.v**

FORMATIVE ASSESSMENT

- Activity Page 7.1 **The Nervous System** Answer comprehension questions about reflexes. **TEKS 3.6.G**

- TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.B** Generate questions about text before, during, and after reading to deepen understanding and gain information; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.6.G** Evaluate details read to determine key ideas; **TEKS 3.11.D.iii** Edit drafts using standard English conventions, including: singular, plural, common, and proper nouns; **TEKS 3.1.E** Develop social communication such as conversing politely in all situations; **TEKS 3.2.A.v** Demonstrate and apply phonetic knowledge by: decoding words using knowledge of prefixes.

LESSON AT A GLANCE

| | Grouping | Time | Materials |
|--|-------------------------|---------|--|
| Speaking and Listening (50 min.) | | | |
| Previewing Vocabulary | Whole Group | 5 min. | <input type="checkbox"/> Digital Flip Book: U3.L7.1–U3.L7.7
<input type="checkbox"/> KWL Chart
<input type="checkbox"/> Activity Page 1.1 (optional) |
| Introducing the Read-Aloud | Whole Group | 10 min. | |
| Presenting the Read-Aloud: “The Nervous System” | Whole Group | 20 min. | |
| Discussing the Read-Aloud | Whole Group/
Partner | 10 min. | |
| Word Work: <i>Consciously</i> and <i>Unconsciously</i> | Whole Group | 5 min. | |
| Reading (35 min.) | | | |
| Previewing Vocabulary | Whole Group | 5 min. | <input type="checkbox"/> Vocabulary Cards
<input type="checkbox"/> <i>How Does Your Body Work?</i>
<input type="checkbox"/> Activity Page 7.1 |
| Introducing the Reading | Whole Group | 5 min. | |
| Whole Group Reading: “The Nervous System” | Whole Group | 15 min. | |
| Discussing the Reading | Independent | 10 min. | |
| Language (35 min.) | | | |
| Review Spelling Words | Whole Group | 10 min. | <input type="checkbox"/> Activity Pages 7.2, 7.3, 7.4 |
| Morphology: Review Prefixes <i>un-</i> , <i>non</i> , <i>re-</i> , <i>pre-</i> , <i>dis-</i> , and <i>mis-</i> | Whole Group | 25 min. | |
| Take-Home Material | | | |
| Review Prefixes | | | <input type="checkbox"/> Activity Page 7.5 |

ADVANCE PREPARATION

Speaking and Listening

- Prepare to project the following digital images on the program's digital components site during the Read-Aloud: U3.L7.1–U3.L7.7.
- Display the KWL chart.

Note: This chart will be used throughout the unit.

| KWL Chart: Human Body Systems | | |
|-------------------------------|---|---|
| K | W | L |
| | | |

Reading

- Prepare Vocabulary Cards for the following words: *cell body*, *dendrite*, *reflex*, and *flinch*.

Language

- Predetermine partners to play the Board Games.

Universal Access

- Display vocabulary words in the classroom during and after instruction to reinforce word meaning.
- Display digital images in the classroom during and after instruction to reinforce ideas.
- Predict: How does the nervous system interact with the skeletal and muscular systems?

Lesson 7: The Nervous System

Speaking and Listening



Primary Focus: Students will describe the nervous system as part of a larger, interconnected system. **TEKS 3.1.A; TEKS 3.6.B; TEKS 3.7.C**

PREVIEWING VOCABULARY (5 MIN.)

The following are core vocabulary words used in this lesson. Preview the words with the students before the lesson. Students are not expected to be able to use these words immediately, but with repeated exposure throughout the lessons, they will acquire a good understanding of most of the words.

- Display the vocabulary words on the board.
- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.

command, control; power

consciously, done on purpose; deliberately

coordinates, to make different things work together effectively as a whole

receptors, organs or nerve endings that receive information from inside and outside the body and send that information to the brain

reflex, an action that happens almost instantly, often without the brain sending a message to perform the action

Vocabulary Chart for “The Nervous System”

| Type | Tier 3
Domain-Specific Words | Tier 2
General Academic Words |
|---------------------|------------------------------------|----------------------------------|
| Vocabulary | consciously
receptors
reflex | command
coordinates |
| Multiple Meaning | | command
coordinates |
| Sayings and Phrases | | |

TEKS 3.1.A Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.B** Generate questions about text before, during, and after reading to deepen understanding and gain information; **TEKS 3.7.C** Use text evidence to support an appropriate response.

Challenge

Ask students to share what they know about the nervous system.

Support

Allow time for students to recall previously learned information with a partner before sharing with the whole class.

INTRODUCING THE READ-ALoud (10 MIN.)

- Remind students that the various human body systems are interconnected.



Check for Understanding

How are the skeletal system and the muscular system interconnected?

- » Answers may vary.

Name the other systems you have heard about that are interconnected with the muscular system.

- » the nervous system and the digestive system

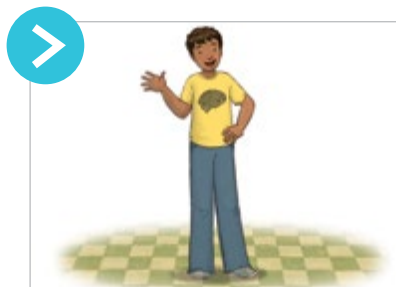
Share what you remember about the different types of muscles and where they are located in the human body.

- » Answers will vary, but may include details about the skeletal muscle, cardiac muscle, and smooth muscle.

What is the difference between voluntary and involuntary muscles? Can you name examples of each?

- » Voluntary muscles are muscles that are consciously moved, like our leg muscles, and involuntary muscles are muscles we don't really think about, like our heart.

- Review that cells are the building blocks of life.
- Encourage students to explain that the different types of cells make up the tissues that are part of the different organs in the human body.



Show Image U3.L7.1

Ricardo

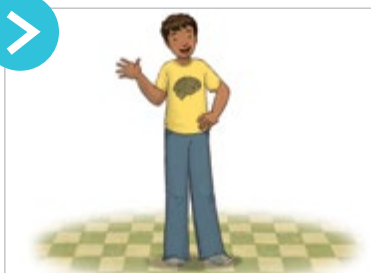
Remind students that the system they are going to learn about today is the system that controls all the other body systems.

Ask students to look at Ricardo's T-shirt again, and then have a few volunteers share their predictions.

- After students have shared, be sure to point out that it is indeed a brain on Ricardo's T-shirt if this observation has not been made.
- Tell students that they will be learning about the nervous system in the next two Read-Alouds, and they will hear about how the nervous system is closely interconnected with the other systems in the human body.

- Tell students that the word *nervous* in this context has nothing to do with feeling anxious, worried, or scared about something.
What does the nervous system control?
» the brain and the spinal cord
- Revisit the 'K' and 'W' sections of the KWL chart and add what students know about the nervous system. Write any questions students have about their nervous system in the 'W' section of the chart. Encourage students to listen carefully to the information in the Read-Aloud to correct any misunderstandings and/or to add more information to the KWL chart.
- Tell students to listen carefully to learn about the nervous system and how it commands the interconnected human body systems.
- Also tell them to listen to learn why the brain on Ricardo's T-shirt is the symbol for the nervous system.
- Tell students to listen for any new and interesting facts about the nervous system to add to the KWL chart.

PRESENTING THE READ-ALoud : "THE NERVOUS SYSTEM" (20 MIN.)



Show Image U3.L7.1

Ricardo

Stand up and stretch with me a moment before we begin. Put your hands on your hip bones and bend forward as far as you can. Now, straighten back up slowly, one

vertebra at a time. Ah, that's better. Now, I'm ready to get started. Are you? As you sit back down again, think about the body systems you used to move just now.

Did you use your skeletal system? You bet! How about your muscular system? Absolutely! Your muscles helped move your bones when you stood up and bent down. But, how did your muscles move? What told them what to do? Your brain! And your brain is part of a very important system. Does anyone know what that system is called? Yes—the nervous system!

Support

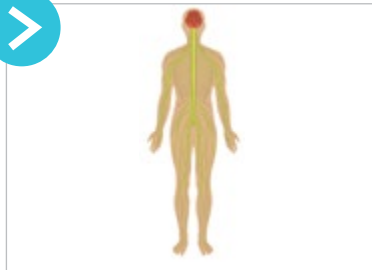
Point to the brain and the spinal cord in the image as you read the following sentences. So the skeletal and nervous systems are closely interconnected.



Check for Understanding

How do your muscles and bones work together?

- » Your muscles helped move your bones, like when you stood up and sat down.



Show Image U3.L7.2 Nervous System

The nervous system is your body's **command** system, the one that sends orders to all parts of your body. It is your communication system, carrying messages that control all other

systems. The central nervous system includes the brain and the spinal cord. Without these central controllers, none of your body's other functions would happen.

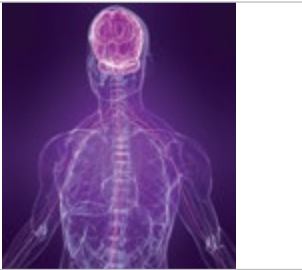
Your brain is a soft mass of tissues protected by your skull, a rigid helmetlike structure of bones encasing the brain. The spinal cord, the main nerve pathway between your brain and the rest of your body, looks like a long, thick rope. It extends from the base of your skull, or brain stem, to your tailbone. Stretching down the back, this ropelike cord weaves its way through openings in your back's bony vertebrae. Your spinal cord is protected by your spinal column, this flexible column of vertebrae.



Check for Understanding

Why do you think it's important that the vertebrae of the backbone protect the spinal cord?

- » Answers may vary but may include that the spinal cord should be protected because it sends messages from the brain to the rest of the body.



Show Image U3.L7.3 Nerve network

A network of nerves links your brain and spinal cord to muscles and sense organs all over your body. Each nerve is a bundle of fibers, tiny threadlike cells encased in thin, fatty tissue.

These bundles of specialized cells carry messages to and from the brain. These messages travel faster than the blink of an eye!

Some nerve cells collect messages from your brain and carry them to your muscles. This is what happened when you stood and bent over a few minutes ago. You **consciously** controlled your own actions with your brain. First, you made the conscious decision to stand, and your brain received that decision. Then, electrical signals were sent out from your brain, along nerve fibers, to your muscles, telling them to tighten or contract. For every movement that you make, your brain **coordinates** the timing of muscle contractions, telling your muscles when to tighten, how much to tighten, and for how long. Your nervous system works with your bones and muscles to follow your brain's commands.

Support

Review the definition of interconnected. Discuss with students how the nervous system is interconnected with the skeletal and muscular system.



Check for Understanding

How is bending over a conscious action?

- » Answers will vary. Bending over requires a series of decisions that you make, starting with the decision to stand.

How does the nervous system work with the skeletal and muscular systems?

- » Answers will vary. Your nervous system interacts with bones and muscles to follow commands that the brain gives out.

Challenge

How is a reflex different from bending over?

- » Answers may vary. A reflex is a response you cannot control, versus the conscious decision to stand up and bend over.

**ENGLISH
LANGUAGE
LEARNERS**



Speaking and Listening

Ask students to use sentence frames to respond to the challenge question.

Beginning

A reflex is something you ____ control. (cannot)

Intermediate

A reflex is something you ____ control. Bending over is something you ____ control. (cannot, can)

Advanced/ Advanced High

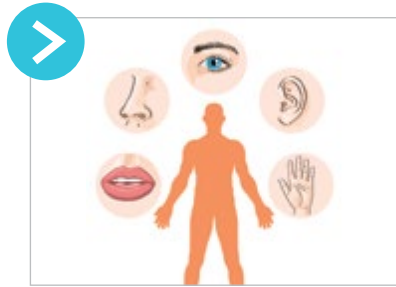
A reflex is ____, and bending over ____.

ELPS 3.D; ELPS 3.F

Challenge

What else is going on under your skin that seems involuntary, or automatic?

- » Digestion, heart rate, and sleep patterns are all automatically controlled by the brain and spinal cord. Your emotions, moods, and memories are controlled and managed by the nervous system, too. The body's command center, with its network of nerves, is always working, even while you sleep.



Show Image U3.L7.4 Five Senses

Some nerve cells collect messages from parts of your body and from your environment and the world around you. These nerve cells are called

receptors. Receptors collect messages through your eyes, ears, nose, tongue, and skin. Each of your five senses works with your brain to help you understand the world around you. Eyes pick up light and color and send pictures to the brain to help you see. Ears pick up vibrations from sound waves, carrying them to the brain to help you hear. Sensory cells in the nose react to chemicals in the air, sending messages to the brain to help you smell. Cells on the tongue react to chemicals in food, sending signals to the brain to help you taste. Receptors in your skin detect many different sensations, alerting your brain and spinal cord to feelings of pain, heat, cold, pressure, and touch.

Many times, nerve signals pass through both your brain and spinal cord, but not always. Have you ever touched a hot iron or a hot pot on the stove? What happened? Most likely, you jerked your hand away from the heat very quickly, almost **unconsciously**. The nerves in your fingers sent signals to your spinal cord, but this time you did not need your brain at all. Your spinal cord sent a message to your arm muscles, telling them to contract and pull back. This super quick reaction to an emergency situation is called a **reflex** action because the body acts automatically, without thinking. Some of you may remember being at the doctor's office for a checkup when the doctor or nurse tapped your knee gently with a hard rubber tool called a plexor. Other common reflex actions are flinching and sneezing.



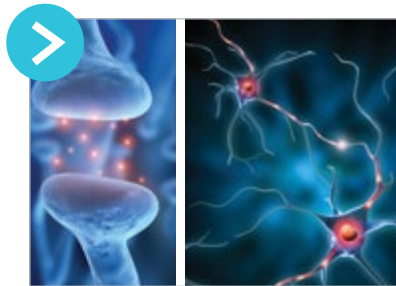
Check for Understanding

Who can tell me what your leg does when the rubber taps it?

- » It jerks upward.

Because a nerve is made up of many cells, nerves can send many messages at once. Each nerve cell sends its own message through the nerve. You've learned that some nerve cells collect messages from the brain, whereas others collect messages from the environment. Still other nerve cells collect messages from inside your body.

Inside the human body, the brain and spinal cord work together day and night, coordinating many activities that we don't really think about too often. For example, your breathing is controlled by the central nervous system.



Show Image U3.L7.5 **What the Cerebellum Does**

Hundreds of billions of microscopic cells are sending messages that go dashing about your body at amazing speeds every second. Many of these

cells are bundled up inside nerves, the body's wiring. These nerves branch out in all directions, carrying tiny electrical-chemical signals from your brain and spinal cord to the tips of your fingers and toes, to the inside of your eyes and ears, and to every other part of your body. Some nerves are much thinner than a strand of hair. Others are as thick as a bungee cord. All have an important part to play in the nervous system's nonstop communication process.

The nervous system processes almost everything you do. It helps you laugh and scratch your chin. It helps you run and walk and swim. It lets you scream with anger and shout for joy. It lets you smell tomato soup simmering on the stove, hear squirrels rustling in the leaves, and see a brilliant sunrise peeping over the hill. Thank your nervous system for that tingling feeling that you get when you jump into a cold stream, or the instant pain you feel when you prick your finger on a rose's thorn. Whether you are two or ninety-two, your nerves are a central part of everything you do.

Next time, we'll look more closely at your body's main control center, the brain. Let's pause for a riddle before I go:

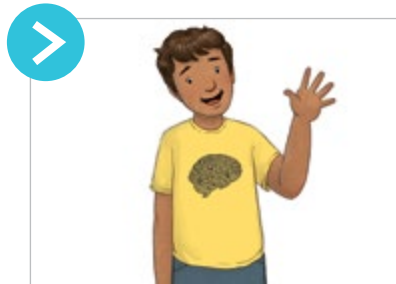
I am called a bone, but I am really a nerve. My name suggests that I have a sense of humor. What am I?



Show Image U3.L7.6
Ricardo Bumping His Funny Bone

Give up? I'm the "funny bone"! Does anyone know where the funny bone is located? It is a vulnerable nerve at the end of the elbow bone. If you hit that

nerve at the end of your elbow, the nerve sends a tingling feeling up the rest of your arm. If you injure your funny bone, the result is anything but funny. It can be very painful, causing numbness in your forearm and hand. So, as it turns out, the funny bone is not only not funny, but it's not a bone at all! Be careful the next time you're wrestling with your friends. You won't be laughing if you hit your funny bone! **Have students locate their funny bone.**



Show Image U3.L7.7
Ricardo

Well, I'll be back next time to tell you more about your body's command center. Can you guess what I mean when I say command center? See you later! **Point to the hint on Ricardo's T-shirt.**

DISCUSSING THE READ-ALoud (10 MIN.)

1. **Inferential.** What is the part of the axial skeleton that encases the brain? Why is it important for the brain to be protected by these bones?
 - » The skull protects the brain. The brain is vulnerable. Damage to the brain is very serious and can affect the functions of all of the systems of the human body.
2. **Inferential.** What is the purpose of the network of nerves in the nervous system?
 - » The nerves link the brain and the spinal cord to muscles and other organs all over the body, sending signals throughout the body.

3. **Evaluative.** At the beginning of the Read-Aloud, you stood up and stretched. Describe what happened between your brain, your muscles, and your bones.
 - » Once the conscious, voluntary decision to stand up was made, electrical signals were sent from the brain down the spinal cord, along the nerves, to the muscles involved in standing. These signals coordinated the timing of the muscles to contract and told them how long to contract, helping the bones to move.
4. **Evaluative.** Could your brain be the command center of your body if you had no receptors? Explain why or why not.
 - » No. Receptors are nerve cells that collect messages from inside the body and through the five senses, and send these messages to the brain. The brain is then able to help the body process how to react and understand the world around you.


Think-Pair-Share **TEKS 3.6.B**

Asking questions after a Read-Aloud is one way to see how much everyone has learned. Think of a question you can ask your neighbor about the Read-Aloud that starts with the word *what*. For example, you could ask, “What do nerves do in the nervous system?” Turn to your neighbor and ask your “what” question. Your neighbor will write your question on an index card and then read it back to you. Be sure to suggest corrections to clarify your meaning if your question doesn’t sound the way you intended. Next, your neighbor will respond to your question. Listen to your neighbor’s response. Now switch places and have your neighbor ask a new “what” question, which you will write down, read back, and respond to. I will call on several of you to share your questions and answers with the class.

- » Answers may vary.

WORD WORK: CONSCIOUSLY AND UNCONSCIOUSLY (5 MIN.)

1. In the Read-Aloud, you heard, “You made voluntary decisions, consciously controlling your own actions with your brain.” You also heard, “Most likely, you jerked your hand away from the heat very quickly, almost unconsciously.”
2. Say the words *consciously* and *unconsciously* with me.
3. *Consciously*, similar to *voluntarily*, means done on purpose or deliberately; *unconsciously*, similar to *involuntarily*, means done without awareness or control.
4. I was so consciously focused on listening carefully to the teacher that I unconsciously dropped my pencil.
What kinds of things have you done consciously or unconsciously? What were they? Be sure to use the words *consciously* and *unconsciously* when you tell about them.
 - » Answers may vary. If necessary, guide and/or rephrase the students’ responses to make complete sentences: “I consciously . . .” and “I unconsciously . . .”

 **TEKS 3.6.B** Generate questions about text before, during, and after reading to deepen understanding and gain information.



Speaking and Listening
Listening Actively

Beginning

Ask students simple yes/no questions, e.g., “Is your skull connected to your brain?”

Intermediate

Have students provide the domain words when provided clues.

**Advanced/
Advanced High**

Encourage students to answer questions using complete sentences and domain vocabulary.

ELPS 2.1; ELPS 3.D

What are the words we’ve been talking about? What part of speech are the words *consciously* and *unconsciously*?

» Answers may vary.

- Use a Word Parts activity for follow-up. Write the words *consciously* and *unconsciously* on a piece of chart paper, a chalkboard, or a whiteboard. Ask a student volunteer to circle the prefix *un-* and define its meaning. Ask students, “How does adding the prefix *un-* to *consciously* change that word?” (It makes it mean the opposite of *consciously*.) Directions: I am going to say a word and ask you to tell me what that word means. If you do not know, I will help you. Then I would like you to add the prefix *un-* to the word and tell me what that new word means.

1. **expected**

» something that you think or know is going to happen; *unexpected* means something that happened without notice or warning

2. **healthy**

» free from illness; *unhealthy* means ill

3. **fortunately**

» luckily; *unfortunately* means unluckily

4. **popular**

» liked by many people; *unpopular* means not generally well-liked

5. **kindly**

» helpfully, considerately; *unkindly* means harshly or cruelly

Lesson 7: The Nervous System

Reading



Primary Focus: Students will read and answer comprehension questions about the nervous system. **TEKS 3.2.A.iv; TEKS 3.6.G**

PREVIEWING VOCABULARY (5 MIN.)

The following are vocabulary words used in this lesson. Preview the words with the students before the lesson and refer back to them at appropriate times.

- Display the vocabulary words on the board.

TEKS 3.2.A.iv Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.6.G** Evaluate details read to determine key ideas.

- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.
- The words also appear in the glossary in the back of the student reader.

cell body, the center of the cell

dendrite, a path along which nerves send messages to the brain

reflex, reaction

flinch, to draw back suddenly, which is an example of a reflex

| Vocabulary Chart for “The Nervous System” | | |
|---|---------------------------------|----------------------------------|
| Type | Tier 3
Domain-Specific Words | Tier 2
General Academic Words |
| Vocabulary | cell body
dendrite | reflex
flinch |
| Multiple Meaning | | |
| | | |
| Sayings and Phrases | | |

INTRODUCING THE READING (5 MIN.)

- Remember to use academic vocabulary words when appropriate: *assess*, *compare*, *contrast*.
- Tell students that the title of today’s chapter is “The Nervous System.”
- Ask students to recall what they learned about joints and ligaments from the previous chapter.
- Review characteristics of joints and ligaments with students:
 - Joints are cushioned by cartilage, which is a flexible, connective tissue.
 - Ligaments connect bones to bones.
 - Tendons connect muscles to bones.
 - The Achilles tendon is named for a Greek warrior named Achilles who was wounded in the back of his foot, where he was vulnerable.
- Ask students to turn to the table of contents, locate the chapter, and then turn to the first page of the chapter.

Support

Encourage students to find answers to the discussion questions throughout the reading, with a partner, before sharing as a group.

Chapter 5 The Nervous System

The skeletal system is made up of bones. The muscular system is made up of muscles. The nervous system is made up of—you guessed it—nerves!

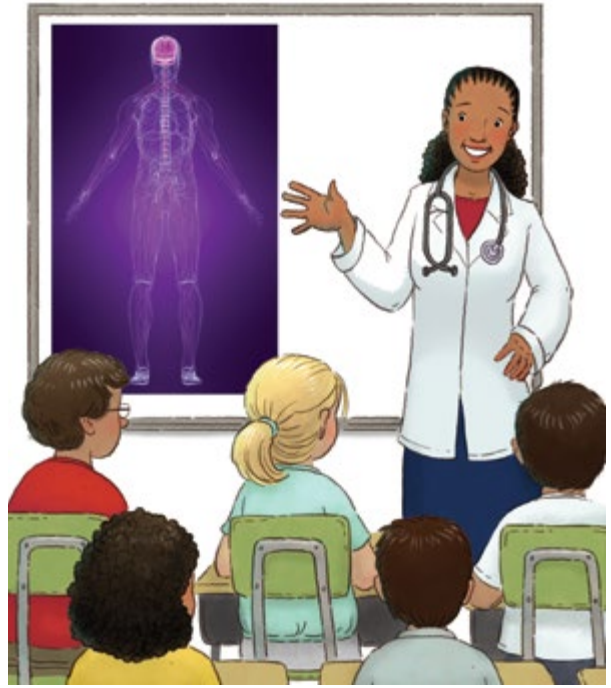
You have about 200 bones in your body. You have about 650 muscles to help you move those bones around. How many nerves do you think you have?

A thousand? Nope. You have more than that.

Ten thousand? That's still too low. Try again.

A million? Believe it or not, that's still too low.

You have about a billion nerves in your body.



Dr. Welbody points to an image of the nervous system.

WHOLE GROUP READING: “THE NERVOUS SYSTEM” (15 MIN.)

Pages 32–33

- Read the title of the chapter together as a class, “The Nervous System.”
- Ask students to read **pages 32–33** to themselves to find the answer to the question:
“Does the human body have more bones, muscles, or nerves?”
- When students have finished reading, restate the question and have students answer.
 - » There are about 200 bones, 650 muscles, and a billion nerves in your body, so the human body has more nerves.
- Direct students’ attention to the image and caption on **page 33**.

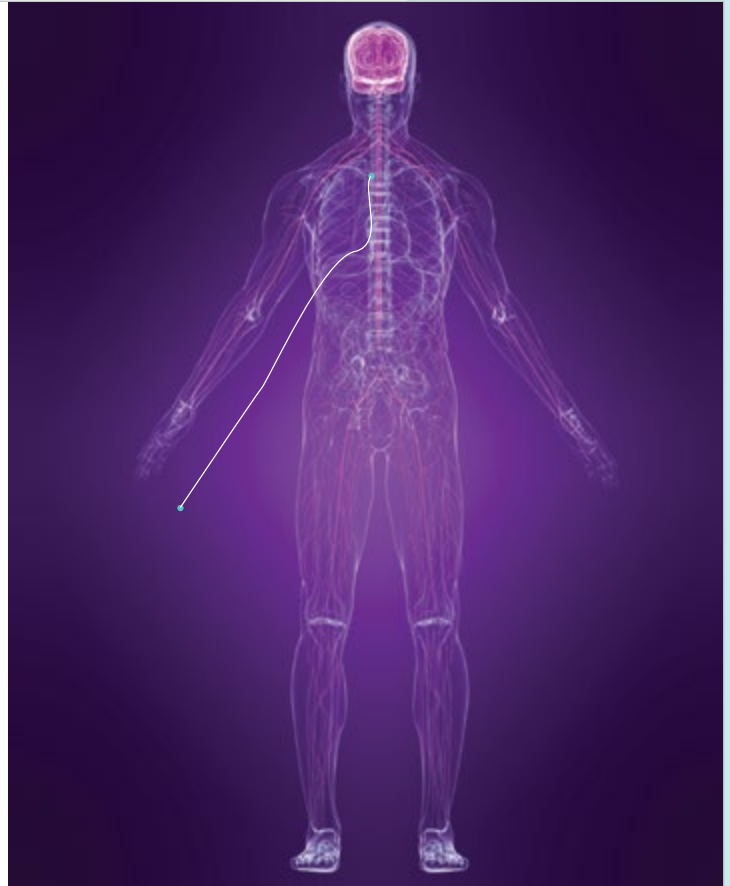
Your nerves allow you to keep track of what's happening in the world around you. The nerves send messages to the brain. Then, the brain tells your body how to act.

Have you ever walked outside and felt a chill that sent you back inside to get a coat? What happened was the nerves in your skin sent a message to your brain. The message was, "It's cold out here!"

Have you ever touched something hot? Chances are you pulled your hand away pretty quickly. That's because your nerves sent a message to your brain.

Nerves are important for our sense of touch. Without nerves, we couldn't feel heat or cold. We couldn't touch things and find out if they are smooth or rough.

Nerves are important for our other senses, too. Without nerves, we couldn't see or hear. We couldn't smell or taste our food.



The nervous system with a signal traveling along the nerves to the brain

Pages 34–35

- Ask students to read **pages 34–35** to themselves to find the answer to the question:

What do nerves do to help us keep track of what's happening in the world around us?

- When students have finished reading, restate the question and have students answer.

- » Nerves send messages to the brain so the brain can tell your body how to act.

Name some things you could not do if your body had no nerves.

- » Answers may vary but could include: feel heat or cold, see or hear, or smell or taste food.

- Ask students to look at the image and read the caption on page 35, noting the path messages take to get to the brain.

The nerves in your body are made up of nerve cells. A single nerve contains many nerve cells.

Here is an illustration of nerve cells. You can see that nerve cells have long stringy parts that lead away from the center. The center of the cell is called the **cell body**. The stringy parts that lead away from the **cell body** are called **dendrites**.

You can think of the **dendrites** as being like roads. Imagine that you want to send a letter to your aunt who lives in another town. Someone will have to put the letter in a car or truck and drive it to your aunt's house. You might do this yourself. You might pay the post office to do it. When one of the nerves in your body wants to send a message to your brain, it sends the message out along the **dendrites**. The message travels along the **dendrites**, much as a car or truck travels along a road. Each of the little green dots in the picture is a message traveling along a **dendrite**.



*The stringy parts that lead away from the **cell body** are called **dendrites**.*

Pages 36–37

- Hold up the Vocabulary Cards for *cell body* and *dendrite*. Ask students to locate the words in their chapter and then to read definitions from the glossary together as a class.
- Ask students to read **pages 36–37** to themselves and then fill in the blank in the following sentence: “When one of the nerves in your body wants to send a message to your brain, it sends the message out along the _____.”
- When students have finished reading, reread the sentence and have students fill in the blank.
 - » dendrites
- Have students look at the image and read the caption on **page 37**.

Has your family doctor ever tapped you on the knee with a little rubber hammer? Did you ever wonder why he did that?

What your doctor is doing is checking your **reflexes**—which is another way of checking your nerves.

A **reflex** is something the body does without us even thinking about it. If someone jumps out of a closet at you, you may **flinch**. You will tighten up the muscles in your body, just in case the person is trying to hurt you. This is a **reflex**. When you pull away from a hot stove, that is also a **reflex**.

When your doctor taps your knee, he's looking for a **reflex** reaction. If your leg moves a little, that's a sign that your nervous system is working as it should.



*The doctor checks a boy's **reflexes**, which is another way to check his nerves.*

38

39

Pages 38–39

- Hold up the Vocabulary Cards for the words *reflex* and *flinch*. Ask students to locate the words in their chapter and then to read definitions from the glossary together as a class.
- Ask students to read **pages 38–39** to themselves.



Check for Understanding

Why does a doctor tap your knee with a hammer during a checkup?

- » The doctor is checking your reflexes. If your leg moves a little, that's a sign your nervous system is working as it should.

- Ask students to look at the image and read the caption on **page 39**.

Challenge

Why are there so many more nerves than muscles and bones in your body?

» Answers will vary. Be sure students answer “why.”

**ENGLISH
LANGUAGE
LEARNERS**



Reading
Reading/Viewing Closely

Beginning

Read true or false statements about the nervous system. If students believe the statement is false, they must change the statement to be true.

Intermediate

Pair students and have them collaborate to answer the questions, based on combined knowledge or a rereading of the text.

Advanced/ Advanced High

Encourage students to answer questions in complete sentences.

ELPS 2.1; ELPS 4.F

Activity Page 7.1



DISCUSSING THE READING (10 MIN.)

- Have students complete Activity Page 7.1 independently.

Lesson 7: The Nervous System

Language



Primary Focus: Students will form and use irregular plural nouns. **TEKS 3.11.D.iii**

Students will identify the meaning of the common prefixes *un-*, *non-*, *re-*, *pre-*, *dis-*, and *mis-*. **TEKS 3.1.E; TEKS 3.2.A.v**

REVIEW SPELLING WORDS (10 MIN.)

- Tell students that they will practice writing their spelling words for the week, just like they did with last week’s spelling words.
- Tell students to turn to Activity Page 7.2.
- Ask all students to read the statement in number 1 silently and to fill in the blanks. Point out to students that the singular nouns are listed in the box on the worksheet, but they may need to use the plural form of a singular noun. These plural nouns are not listed on the worksheet, but are listed on the table displayed in the classroom with this week’s spelling words.
- When students have completed number 1, call on one student to read number 1 aloud with the blanks filled in with the spelling words.
- Discuss the proper spelling of the word in the blanks, referencing the table of this week’s spelling words. Have students compare their spellings with the spellings in the table. Also, discuss the correct answers to be sure students understand why they are correct.
- Have students move on to number 2 and fill in the blanks on their own.
- Follow the previous steps to discuss the correct answers for the remaining items on the activity page.
- Remind students that on the spelling assessment, they will have to write the singular and plural forms of the spelling words.
- Lead a brief, whole-class discussion of student responses.

TEKS 3.11.D.iii Edit drafts using standard English conventions, including: singular, plural, common, and proper nouns;
TEKS 3.1.E Develop social communication such as conversing politely in all situations; **TEKS 3.2.A.v** Demonstrate and apply phonetic knowledge by: decoding words using knowledge of prefixes.

- Tell students this table will remain on display until the assessment so that students may refer to it during the week.
- Tell student that their spelling assessment will be in Lesson 10. Encourage them to practice their words at home.

MORPHOLOGY: REVIEW PREFIXES UN-, NON-, RE-, PRE-, DIS-, AND MIS- (25 MIN.)

- Tell students that they will review prefixes learned so far in third grade, which are *un-*, *non-*, *re-*, *pre-*, *dis-*, and *mis-*.
- Write the word *even* on the board.
- Ask students to read the word. Discuss its meaning and ask students to name the part of speech. (the same in size, length, or amount; adjective)
- Add the prefix *un-* to *even*, and have students read the new word.
- Ask students what *uneven* means and what part of speech it is. (not the same in size, length, or amount; adjective)
- Ask students what adjectives are. (words that describe nouns)
- Follow the same procedures for the following words: *well*, *necessary*.
- Write the word *living* on the board.
- Ask students to read the word. Discuss its meaning and ask students to name the part of speech. (alive; adjective)
- Add the prefix *non-* to *living*, and have students read the new word.
- Ask students what *nonliving* means and what part of speech it is. (not alive; adjective)
- Follow the same procedures for the following words: *threatening*, *absorbent*.
- Write the word *fill* on the board.
- Ask students to read the word. Discuss its meaning and ask students to name the part of speech. (to make something full; verb)
- Add the prefix *re-* to *fill*, and have students read the new word.
- Ask students what *refill* means and what part of speech it is. (to make something full again; verb)
- Ask students what a verb is. (an action word)
- Follow the same procedures for the following words: *name*, *tell*.

Activity Page 7.2



**ENGLISH
LANGUAGE
LEARNERS**

Language
Foundational Skills

Beginning

Have students work with a partner and alternate spelling words. One student spells the word and the partner identifies it. Switch roles and do this for the remainder of the list.

Intermediate

Have students work with a partner and alternate spelling words. If one student says the singular noun, the partner spells the plural. If one student says the plural noun, the partner spells the singular.

Advanced/ Advanced High

Have students create their own sentences for the words.

ELPS 5.C

- Write the word *set* on the board.
- Ask students to read the word. Discuss its meaning and ask students to name the part of speech. (to arrange; verb)
- Add the prefix *pre-* to *set*, and have students read the new word.
- Ask students what *preset* means and what part of speech it is. (to arrange before; verb)
- Follow the same procedures for the following words: *pay*, *print*.
- Write the word *connect* on the board.
- Ask students to read the word. Discuss its meaning and ask students to name the part of speech. (to join together; verb)
- Add the prefix *dis-* to *connect*, and have students read the new word.
- Ask students what *disconnect* means and what part of speech it is. (to separate; verb)
- Follow the same procedures for the following words: *like*, *obey*.
- Write the word *used* on the board.
- Ask students to read the word. Discuss its meaning and ask students to name the part of speech. (did something with an object to perform a task; verb)
- Add the prefix *mis-* to *used*, and have students read the new word.
- Ask students what *misused* means and what part of speech it is. (did something wrong with an object to perform a task; verb)
- Follow the same procedures for the following words: *judged*, *spell*.
- Ask students to turn to Activity Pages 7.3 and 7.4.
- Pair off students.
- Remind students that they played Frisky Beavers in second grade.
- Explain the rules needed to play Frisky Beavers, and model how to play the game:
 1. Roll the die.
 2. Move the number of spaces on the die.
 3. Read the word on the space.
 4. Use the word in a sentence. (If students don't know the meaning of the word, advise them to look it up in one of the classroom dictionaries.)

Activity Pages
7.3 and 7.4



5. Write the word on the chart.
 6. Write the part of speech for the word in the sentence they created on the chart.
- Also, remind students of good sportsmanship rules:
 - Take turns.
 - Speak politely.
 - Be a good winner or loser.
 - Give your classmate help if needed.
 - For whole-class feedback, have students provide examples of language their partners used during the game. **TEKS 3.1.E**

~~~~~  
End Lesson  
~~~~~

Lesson 7: The Nervous System

Take-Home Material

- Have students complete Activity Page 7.5 for homework.

Activity Page 7.5



 **TEKS 3.1.E** Develop social communication such as conversing politely in all situations.

Pausing Point 1

Note to Teacher

This is the halfway mark of *The Human Body: Systems and Senses* unit. Students have been introduced to seven of the human body's systems, and they have studied in further depth the skeletal system, the muscular system, and the nervous system. It is highly recommended that you pause here and spend a day reviewing, reinforcing, or extending the material taught thus far.

You may have students do any combination of the activities listed below. The activities may be done in any order. You may also choose to do an activity with the whole class or with a small group of students who would benefit from the particular activity.

CORE CONTENT UP TO THIS PAUSING POINT

Students will:

- Briefly describe and/or review seven of the systems of the human body
- Explain that the human body includes the following systems and identify the function of each: skeletal, muscular, and nervous
- Identify cells as the basic building blocks of all living things and explain that most cells are too small to be seen without a microscope
- Explain the relationship between cells, tissues, organs, and systems
- Explain that each system is made up of different types of cells (bone cells, muscle cells, nerve cells, blood cells, etc.)
- Explain that one of the systems of the human body is the skeletal system and that it has two parts
- Recall that there are 206 bones in the human body
- Explain briefly the composition of bones
- Identify examples of axial bones and explain their functions
- Identify examples of appendicular bones and explain their functions
- Identify three different types of joints and give examples of each: movable, immovable, and partially movable
- Describe how doctors are able to see and treat the skeletal system using an x-ray

- Explain the importance and purpose of cartilage
- Identify skeletal, smooth, and cardiac as three types of muscles in the human body and describe their functions
- Compare and contrast involuntary and voluntary muscles
- Explain that skeletal muscles work closely with bones to give the human body mobility
- Demonstrate familiarity with the legend of the Achilles heel/tendon
- Identify the brain and spinal cord as the control center of the body
- Identify nerves as messengers that transmit information from all parts of the body through the spinal cord to the brain
- Explain how the skeletal, muscular, and nervous systems are interconnected
- Explain that the five senses work with the brain to process information about our surroundings
- Describe a reflex action as a quick, unconscious action and explain its purpose in protecting the human body

ACTIVITIES

Human Body System Review

Materials: Image U3.PP1.1

- Project Image U3.PP1.1 (Human Body Systems) to review the seven body systems that are reviewed in the first Read-Aloud. Ask students to identify each system and discuss its purpose. Encourage students to use domain-related vocabulary.

KWL Chart

Materials: Activity Page PP.1; trade books

- Review with students the KWL chart you have filled out thus far, encouraging students to use domain-related vocabulary. For the 'W' section, you may choose to allow students to conduct research to answer some of the questions they have about the human body that have not been answered.

Letters to Dr. Welbody and Ricardo

- Tell students to look at the 'W' section and pick out one or two items they find the most interesting. Then have students write letters to Dr. Welbody and/or Ricardo, asking her/him for information or advice on their chosen items from

the 'W' section. Students may also share with Dr. Welbody or Ricardo a fact or two they think is interesting about the human body.

Note: You may wish to review with students the parts of a letter before they begin to write to Dr. Welbody. You may also choose to act as Dr. Welbody and/or Ricardo and answer students' letters.

Digital Projection Review

- Project images from any Read-Aloud again, and have students retell the Read-Aloud using the images.

Image Review


Materials: Choose any image from the lessons thus far

- Project an image from any lesson presented thus far. Ask students if they can remember the image and summary of the key content from the lesson. For example, project Image U3.L1.3: The Skeletal System. Ask students what they remember about this image. Students may say that the skeletal system protects important organs.
- Proceed to another image when the correct answer has been given.

Note: You may wish to put students in small groups so student can discuss the image and their response.

Unit-Related Trade Book or Student Choice; Summarizing the Key Idea

Materials: Trade book; chart paper, chalkboard, or whiteboard

- Read an additional trade book to review the skeletal, muscular, and nervous systems. You may also choose to have students select a Read-Aloud to be heard again.
- Ask students why they think the class is reading this book. If students have selected a Read-Aloud to hear again, ask why they have selected that one. Explain that the answers to these questions have to do with setting a purpose, or a reason, for reading. Setting a purpose can help readers answer questions and find information. It can also help readers know when they are not finding  what they need and might need to read further. **TEKS 3.5; TEKS 3.6.A**
- You may wish to have students take notes and create an outline to summarize the key idea of a particular topic in the trade book or Read-Aloud. Be sure to guide students in this important method of gathering information.

 **TEKS 3.5** Self-select text and read independently for a sustained period of time; **TEKS 3.6.A** Establish purpose for reading assigned and self-selected texts.

- You may wish to model how to actively listen and take notes by doing the following activity with students:
 - In preparation for this activity, pick out two or three core vocabulary words from the Read-Aloud you plan to reread, and write them on chart paper, a chalkboard, or a whiteboard.
 - Begin by asking a few volunteers to share what they would say the key idea is regarding the Read-Aloud you are about to reread. This discussion is meant as a review and warm-up for active listening. Point out the core vocabulary words you have chosen and have students read them together chorally. Tell students that as you are rereading, they should be carefully listening, especially when you get to one of the words on the board.
 - Tell students that as you read, they will be jotting down notes—words or short phrases that best express the key idea. Be sure to tell them that they should not be writing in complete sentences. You may wish to model and have students follow an outline style. As you read, you may want to slow down or even pause after reading the Guided Listening Supports that follow the core vocabulary words you have chosen.
 - When you are finished rereading the Read-Aloud, have a few volunteers share one or two notes they have taken. Be sure to give feedback to help shape effective notes, and allow students to record any modifications you guide them through.
 - Now have students summarize in two or three sentences the key idea for this Read-Aloud using the three core vocabulary words in their sentences.

Simon Says

- As a class, play Simon Says to reinforce vocabulary learned thus far for the different parts of the skeletal and muscular systems. You may wish to conduct a review prior to playing the game to refresh students' memories and to enhance participation.

Song: “Dry Bones”

- Find a recording of the song “Dry Bones.” Have students listen to the song once or twice, and encourage them to point to the various body parts mentioned in the song. After listening to the song, have students discuss the more technical names for the bones they learned about in the Read-Alouds; e.g., the “head bone” as the skull or cranium; the “back bone” and “neck bone” as the spine or spinal column; the “thigh bone” as the femur; the “knee bone” as a hinge joint.

- Ask students, “The skull and spine are both called what types of bones?” (axial bones) Ask, “What is another name for the bones in the legs and arms that “hang onto” the axial skeleton?” (appendicular bones) Reinforce how the different body parts mentioned in the song are interconnected. Explain that the bones inside our bodies are not actually dry. Ask students why they think that is.

Note: If your school has a music teacher, you may want to collaborate with the teacher to teach this song to your students.

Key Vocabulary Brainstorming

Materials: Chart paper, chalkboard, or whiteboard

- Give students a key domain concept or vocabulary word such as *cells*. Have them brainstorm everything that comes to mind when they hear the word, such as “building blocks for living things, microscopic, billions,” etc. Record their responses on a piece of chart paper, a chalkboard, or a whiteboard for reference.

Multiple-Meaning Word Activity: Organ

Show Image U3.L1.7: The Excretory System

- Complete a Sentence in Context activity with the word *organ*.
1. In Lesson 1, you heard, “Your skin, the largest organ of the body, excretes sweat through its many pores.” This organ is a part of the body that performs a specific function.
 2. Even though skin has a specific function just as each of the other organs in your body do, who can tell me what the main difference is? (Most of your organs are on the inside of your body, but skin is on the outside.) [Have a student point to the organs in the image—the skin, kidneys, and bladder.]
 3. The word *organ* can have another meaning. An organ is also a keyboard instrument with many pipes; it makes music when someone plays the keyboard and uses foot pedals to pump air through the pipes. An organist is a person who plays the organ. An organ is played in very much the same way that a piano is played. The organist presses the keys on the keyboard with his or her fingers, while at the same time pressing the pedals with his or her feet.
 4. Organs in your body and organs that play music are both nouns, because they are things. Which is living, and which is nonliving?

5. With your neighbor, make a sentence for one of the meanings of *organ* and another sentence using the word *organist*. Remember to be as descriptive as possible and use complete sentences. I will call on some of you to share your sentences. [Call on a few student pairs to share one or all of their sentences. Have them point to the image if their sentence is about organs in the body. You may also choose to have students draw an illustration to depict the word *organ*.]

Riddles for Core Content

- Ask students riddles such as the following to review core content:
 - I am the building block for all living things, and there are over 200 types of me in the human body. What am I? (a cell)
 - I am a part of the body's systems and have clearly defined functions. Examples of me include the stomach, the liver, and the intestines. What am I? (an organ)
 - I am a strong, elastic tissue. I can be found in places like the tip of your nose and the top of your ear. What am I? (cartilage)
 - I am the system that helps to give your body structure, and I work to protect your organs. What am I? (the skeletal system)
 - I am the area where two bones come together. What am I? (a joint)
 - I am a very strong muscle. I contract rhythmically without you having to control the speed of the beat. What am I? (the heart)
 - I am the system that includes nerves, the brain, and the spinal cord. What am I? (the nervous system)

Class Book: The Human Body: Systems and Senses

Materials: Drawing paper, drawing tools

- Tell the class or a group of students that they are going to make a class book to help them remember what they have learned thus far in this domain. Have students brainstorm important information about the muscular, skeletal, and nervous systems. Have each student choose one idea to draw a picture of, and ask them to write a caption for the picture. Bind the pages to make a book to put in the class library for students to read again and again. You may choose to add more pages upon completion of the entire domain before binding the book.

Writing Prompts

Students may be given an additional writing prompt such as the following:

- The most interesting thing I've learned thus far is _____ because . . .
- The nervous/muscular/skeletal system is important for survival because . . .
- I would like to learn more about _____ because . . .
- I would compare and contrast the nervous, muscular, and skeletal systems by . . .
- Using as a model the myth and figurative expression you learned about Achilles and the Achilles tendon, write a myth that explains the funny bone.

Nerves at Work

Materials: Rulers

- Tell students that nerves are crucial for speedy reaction time. Ask students, "Can you think of situations where it is important to have a quick reaction?" Review with students that a reflex is involuntary and does not involve the brain; today they will be testing their voluntary reactions.
- One student will hold the ruler vertically at its uppermost end between their thumb and index finger. The other student will put their thumb and index finger spread about two inches apart at the lowest end of the ruler. Without a signal, the student holding the ruler will let it go. The other student will try to catch the ruler between their thumb and index finger. The speed of the reaction can be relatively measured by looking at the number on the ruler where the student's thumb and index finger caught the falling ruler. If some students have a difficult time catching the ruler, tell the person holding it to give the other student a signal when the ruler will be dropped. Give students several turns dropping and trying to catch the ruler.

Guest Presenter

- Invite the school nurse to come to the class and read a book or give a presentation on a topic related to the first five Read-Alouds in this domain. Parents or guardians who work in the health care profession (doctors, nurses, nurses' aides) would also be good sources.

8

The Nervous System and the Brain, Part 1

PRIMARY FOCUS OF LESSON

Speaking and Listening

Students will describe the relationship between the nervous system and the brain using language that pertains to sequence and cause/effect.

✚ **TEKS 3.1.A; TEKS 3.6.G**

Reading

Students will read and answer comprehension questions about the spinal cord and the brain.

✚ **TEKS 3.2.A.iv; TEKS 3.7.C**

Language

Students will identify and use the meaning of the common prefixes *un-*, *non-*,

✚ *re-*, *pre-*, *dis-*, or *mis-*. **TEKS 3.2.A.v**

FORMATIVE ASSESSMENT

Activity Page 8.1 **Your Brain Signal** Identify answers to comprehension questions. **TEKS 3.7.C**

Activity Page 8.2 **Review Prefixes *un-*, *non-*, *re-*, *pre-*, *dis-*, and *mis-***
✚ Identify correct prefixes **TEKS 3.2.A.v**

✚ **TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.G** Evaluate details read to determine key ideas; **TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.2.A.v** Demonstrate and apply phonetic knowledge by: decoding words using knowledge of prefixes.

LESSON AT A GLANCE

| | Grouping | Time | Materials |
|---|---|---------|---|
| Speaking and Listening (55 min.) | | | |
| Previewing Vocabulary | Whole Group | 5 min. | <input type="checkbox"/> KWL Chart (from Lesson 1)
<input type="checkbox"/> Digital Flip Book: U3.L8.1–U3.L8.7 |
| Introducing the Read-Aloud | Whole Group | 10 min. | <input type="checkbox"/> Activity Page 1.1 (optional)
<input type="checkbox"/> globe |
| Presenting the Read-Aloud: “The Nervous System and the Brain” | Whole Group | 20 min. | |
| Discussing the Read-Aloud | Whole Group/
Partner | 10 min. | |
| Think-Pair-Share | Whole Group/
Partner | 5 min. | |
| Word Work: <i>Hemispheres</i> | Whole Group/
Partner | 5 min. | |
| Reading (50 min.) | | | |
| Previewing Vocabulary | Whole Group | 5 min. | <input type="checkbox"/> <i>How Does Your Body Work?</i>
<input type="checkbox"/> Activity Page 8.1 |
| Introducing the Reading | Whole Group | 5 min. | <input type="checkbox"/> Vocabulary Cards |
| Whole Group Reading: “The Spinal Cord and the Brain” | Whole Group | 20 min. | |
| Discussing the Reading | Whole Group/
Partner/
Independent | 20 min. | |
| Language (15 min.) | | | |
| Morphology: Review Prefixes <i>un-</i> , <i>non-</i> , <i>re-</i> , <i>pre-</i> , <i>dis-</i> , and <i>mis-</i> | Whole Group | 15 min. | <input type="checkbox"/> Activity Page 8.2 |
| Take-Home Material | | | |
| “The Spinal Cord and Brain” | | | <input type="checkbox"/> Activity Page 8.3 |

ADVANCE PREPARATION

Speaking and Listening

- Prepare Vocabulary Cards for the following words: *brain stem*, *hemispheres*, *cerebrum*, *cerebellum*, and *accurate*.
- Prepare to project the following digital images on the program's digital components site during the Read-Aloud: U3.L8.1–U3.L8.7.
- KWL chart from Lesson 1
- globe

Reading

- Write each vocabulary word on a piece of paper: *paralyzed*, *hollow*, *concussion*, *medulla*, and *cerebral cortex*.

Universal Access

- Display vocabulary words in the classroom during and after instruction to reinforce word meaning.
- Project Digital Images in the classroom during and after instruction to reinforce ideas.
- Predict: How do you think the nervous system and the brain are connected? Do you think they work together?

Lesson 8: “The Nervous System and the Brain”

Speaking and Listening 

Primary Focus: Students will describe the relationship between the nervous system and the brain using language that pertains to sequence and cause/effect.

 **TEKS 3.1.A; TEKS 3.6.G**

PREVIEWING VOCABULARY (5 MIN.)

The following are core vocabulary words used in this lesson. Preview the words with the students before the lesson. Students are not expected to be able to use these words immediately, but with repeated exposure throughout the lessons they will acquire a good understanding of most of the words. You may wish to display the vocabulary words in your classroom for students to reference. Students may also keep a “unit dictionary” notebook, along with definitions, sentences, and/or other writing exercises using these vocabulary words.

- Display the vocabulary words on the board.
- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.

brain stem, the central trunk of the human brain that continues down to the spinal cord

hemispheres, halves of a sphere; halves of Earth; halves of the cerebrum

cerebrum, the dominant part of the human brain found in the front of the skull that has two sections and is responsible for regulating most thought processes and voluntary actions in the body

cerebellum, the part of the human brain that is found at the bottom and back of the skull and that helps control muscle activity

accurate, careful; free of mistakes or errors

 **TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.G** Evaluate details read to determine key ideas.

| Vocabulary Chart for “The Nervous System and the Brain” | | |
|---|---|----------------------------------|
| Type | Tier 3
Domain-Specific Words | Tier 2
General Academic Words |
| Vocabulary | brain stem
hemispheres
cerebrum
cerebellum | accurate |
| Multiple Meaning | | |
| | | |
| Sayings and Phrases | | |

INTRODUCING THE READ-ALOUD (10 MIN.)

- Project the following digital images during the Read-Aloud: U3.L8.1–U3.L8.7.
- Display KWL Chart from Lesson 1.
- Remind students that the various human body systems are interconnected.
- Ask students to share what they learned in the previous lesson about how the nervous system is interconnected with the other human body systems.
- Briefly review the skeletal and muscular systems, referring to the KWL chart as needed.
- Ask students to explain what the phrase command center means in reference to the nervous system.
- Review conscious and unconscious/reflex actions, and voluntary and involuntary actions.
- Ask students to share examples of each type of action. Review that cells are the building blocks of life.
- Encourage students to explain that different types of cells make up the tissues that make up the different organs in the human body.
- Tell students that today they are going to learn about the different parts of the brain.
- Ask students to share what they know about the human brain, and ask if they have any questions about the brain and the nervous system.
- Project and Revisit the ‘K’ and ‘W’ sections of the KWL chart and add what students know about the brain and the parts of the brain.
- Write any questions students have about the brain in the ‘W’ section of the chart.
- Encourage students to listen carefully to the information in the Read-Aloud to correct any misunderstandings and/or to add more information to the KWL chart.

PRESENTING THE READ-ALoud: “THE NERVOUS SYSTEM AND THE BRAIN” (20 MIN.)

Support

Allow time for students to recall previously learned information with a partner.



Show Image U3.L8.1

Ricardo

Hi! I've got lots of fascinating facts to share with you today, so I'm hoping that my brain is in good working order. There's a lot to remember. Raise your hand if you have a brain. Whew! I'm

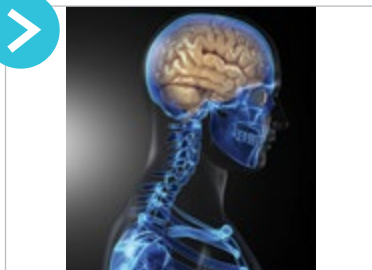
glad all hands went up. Yes, of course you have a brain. All vertebrates have brains. Who remembers what else all vertebrates have? Right! A backbone! You know that you have a backbone; you've been testing out those wonderfully flexible spines that support your bodies and protect your spinal cords.



Check for Understanding

How would your life be different if you didn't have a backbone?

» Answers will vary.



Show Image U3.L8.2

The human brain encased in the skull

Point to the brain stem, the cranium, and the skull in the image as you read the following sentences:

You've learned that your nervous system is a complex network with two essential organs; your spinal cord and your brain. Your spinal cord is connected to your brain by the **brain stem**, the central trunk of the brain. Your brain itself is very soft, but it is well protected by your cranium, or braincase. This strong eggshell-shaped part of your skull is formed from eight interlocking bones, wedged together like the pieces of a jigsaw puzzle.

Support

Explain that blood vessels carrying, or circulating, oxygen, water, and other important nutrients to the brain and throughout the body are a part of the circulatory system. So, the nervous system and the circulatory system are interconnected.

Inside your skull, your brain floats in a clear liquid that cushions it and keeps it from banging against your skull. Your brain is covered in grooves and folds, resembling a huge walnut. About the size of a cantaloupe or a grapefruit, this jellylike, pinkish-gray blob has blood vessels running all through its wrinkled mass. They carry oxygen, water, and other important nutrients to the brain.



Checking for Understanding

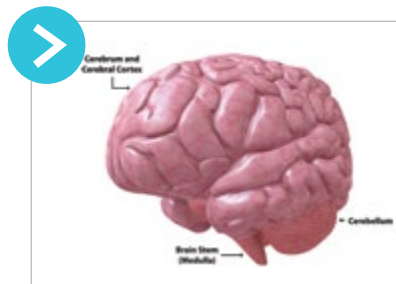
Why does our brain float in a clear liquid? What could happen to our brains if that liquid wasn't there?

- » Answers may vary. The clear liquid protects our brain from hitting our skull if we hit our head. If the liquid wasn't there, we could have a serious brain injury.

The brain, when fully grown, weighs about three pounds. That may seem pretty small and light for such a big body, but humans have larger brains than animals when compared with their body size. So, even though the brains of elephants and whales are actually larger than human brains, their brains are smaller than ours compared with the enormous size of their bodies.

Support

Show a length of 3 inches with your thumb and forefinger.



Show Image U3.L8.3

Cerebrum, Cerebellum, Medulla

Point to the cerebrum, cerebellum, and medulla in the image as you read the following sentences: There are three main sections of the brain. They are

the **brain stem**, the **cerebrum**, and the **cerebellum**. Each part of the brain has an important function. Your **brain stem**, about as thick as your thumb, is approximately three inches long. It helps to relay messages between your brain and spinal cord. The bottom third of your **brain stem**, the part that blends into the top of your spinal cord, is called the **medulla**. The **medulla** is responsible for many of your body's involuntary, or

automatic, muscle movements. The **medulla** makes sure that your lungs are receiving oxygen by controlling your breathing and making sure your heart is beating. The **medulla** helps you swallow and break down the food in your digestive system.

So, the nervous system and the digestive system are interconnected.

The **medulla** controls your coughs and sneezes and hiccups, as well as your sleeping and dreaming. It also controls the movement of your head and neck.



Check for Understanding

What would happen if you didn't have a **medulla**?

- » Answers will vary. Instead of your body doing things automatically, you would have to think about and get your body to perform everything you want it to do.

The **cerebrum** is the largest part of your brain, filling the whole upper part of your skull. Language, memory, thought, sensations, and decision making are housed in your **cerebrum**. Your **cerebrum** is “the thinking brain,” and the part of the **cerebrum** that does most of the thinking is called the **cerebral cortex**. Your cortex is the deeply wrinkled outer surface of the **cerebrum**. The more that it is used, the thicker it becomes. In other words, people who use their brains to think a lot develop thicker cortexes. Do you think your cortex is getting any thicker? It is—you are learning a lot each day!



Show Image U3.L8.4 Brain Hemispheres

Let's look more closely at the cerebrum. The **cerebrum** is divided into two halves, or **hemispheres**.

Support

(Point to the left and the right hemispheres in the image.) Who can point to the axis of the brain? Remember, an axis goes through the center of an object, dividing it into two parts, or hemispheres.

Challenge

Invite students to brainstorm other things they've learned about that have an axis.

Support

Point to the cerebellum in the image.

The two **hemispheres** of the brain, the left **hemispheres** and the right **hemispheres**, are linked to one another by thick nerve fibers. Interestingly, the nerves that connect your **cerebrum** to the rest of your body cross over to the opposite side as they enter your brain. This means that each hemisphere largely controls the muscles of the opposite side of the body.

Place your left hand on your head and wave your right arm. The left side of your **cerebrum** controls muscles on the right side of your body. Now, place your right hand on your head and wave your left arm. The right side of your **cerebrum** controls muscles on the left side of your body.

One **hemispheres** is more developed than the other in most people. If you use the right side of your body more—that is, you kick with your right foot and you hold your pencil in your right hand—the left **hemispheres** is dominant, or in control. It is the left **hemispheres** that is mostly associated with language, math, and reading.

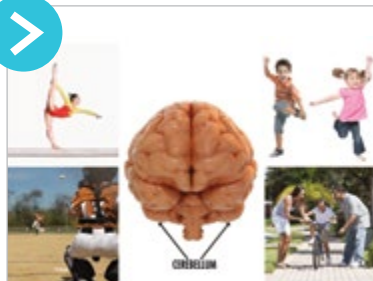
If, however, you use the left side of your body more—that is, you kick with your left foot and you hold your pencil in your left hand—the right **hemispheres** is dominant. The right **hemispheres** is mostly associated with imagination, music, and shapes.



Check for Understanding

Which **hemispheres** of your brain do you think is more dominant?

» Answers may vary



Show Image U3.L8.5

What the Cerebellum Does

The third part of the brain, in addition to the **brain stem** and the **cerebrum**, is called the **cerebellum**, meaning “little brain.”

Tucked under your **cerebrum** in the back of your brain, your **cerebellum** resembles your **cerebrum** with two **hemispheres** of its own. Your **cerebellum** is the control center for balance and coordination. It is constantly adjusting the way your body moves. As you practice any physical activity, such as dancing, your cerebellum receives messages about your body's actions and positions. It sends commands back to your muscles, adjusting your movements. As your **cerebellum** gradually becomes more **accurate** in its corrections, you begin to notice improvements in your dancing, or whatever activity you are trying to perfect. For example, if you have learned to ride a bike, chances are you didn't master it all at once. It took practice. Your **cerebellum** was in charge of your balance and coordination, making small adjustments with each improvement until you could peddle quickly and furiously on your own without even thinking about it.

Let's try an experiment to demonstrate what the **cerebellum** does. Close your eyes and reach your arms out to your sides so your body makes the shape of a 'T'. Slowly, bring your arms forward, touching the fingertips together. You may open your eyes now. Was that easy for you? Your **cerebellum** coordinated your movements for you. If you damaged your **cerebellum**, you would not be able to do this simple exercise. No matter how hard you tried, your hands would jerk around without any control.



Check for Understanding

How would your life be different without a **cerebellum**?

» Answers may vary. You would be unable to control your body.



Show Image U3.L8.6 **Human Brain**

Now, let's put all the parts of your brain together. Look at this picture of the brain. See if you can identify the three parts: the **brain stem**, the **cerebrum**, and the **cerebellum**.

Challenge

Have student volunteers to identify each part of the brain in the image.

I'm going to ask you three riddles to test your knowledge and see how well your brain is working. Ready?

I am the largest part of the brain, divided into two hemispheres. I am sometimes called "the thinking brain." What am I?

» cerebrum

*I am only three inches long, but without me the spinal cord would not be connected to the brain. One of my parts is called the **medulla**. What am I?*

» brain stem

*I look a lot like the **cerebrum**, with two **hemispheres** of my own, but I am much smaller. Without me, you would not be able to balance on one leg. What am I?*

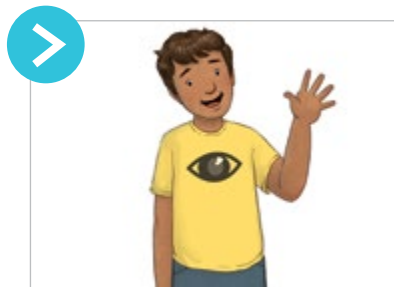
» cerebellum

Great job, everyone!

Your brain is not very big, and yet it is more powerful than the strongest computer ever created. All other systems of the body are **dependent** upon this complex three-pound organ that lives inside your skull. Your brain is the center of your memory, thoughts, and feelings. Your brain is in command of your whole body. When your brain stops working, the rest of your body will stop working as well.

Support

Who can predict what else may be hidden within the skull by looking at Ricardo's T-shirt?



Show Image U3.L8.7

Ricardo

Well, I think I remembered everything I wanted to tell you today. Next time, we'll look inside your skulls some more to see what else is tucked away

within those bones in addition to the brain. See you then!

DISCUSSING THE READ ALOUD (10 MIN.)



ENGLISH
LANGUAGE
LEARNERS

Speaking and Listening
Listening Actively

Beginning

Ask students simple yes or no questions, i.e., “Is your brain protected by your skull?”

Intermediate

Have students provide the unit words when asked definition questions, i.e., “What is the word that describes the two halves of your brain?”

Advanced/ Advanced High

Encourage students to answer questions using complete sentences and unit vocabulary.

ELPS 2.1



Show Image U3.L8.6

Human Brain

1. **Literal.** What are the three sections of the brain?

- » the brain stem, the lower part of which is also called the medulla; the cerebrum; and the cerebellum (Have a volunteer point to the three parts of the brain.)

2. **Inferential.** What is the medulla, or lower part of the brain stem, responsible for controlling? What are some things it controls?

- » the body’s many involuntary and automatic movements: breathing, heartbeat, sneezing, etc.

3. **Inferential.** What is the cerebrum responsible for controlling and managing?

- » language, memory, thought, sensations, and decision making

4. **Inferential.** You heard in today’s Read-Aloud that the cerebrum is divided into two hemispheres. What does each hemisphere control?

- » Each hemisphere controls the muscles of the opposite side of the body. If you use one side of your body more—for instance, if you are right-handed or left-handed—the hemisphere on the opposite side is more developed.

THINK-PAIR-SHARE (5 MIN.)

- I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

1. **Evaluative.** Which hemisphere of your cerebrum is more developed?

Explain why.

- » Answers will vary.

2. **Evaluative.** Explain why it is important to wear a helmet when you play sports or ride a bike. Be sure to name at least two parts of the brain in your answer.

- » Answers will vary.

WORD WORK: HEMISPHERES (5 MIN.)

1. In the Read-Aloud you heard, “The cerebrum is divided into two halves, or hemispheres.”
2. Say the word *hemispheres* with me.
3. Hemispheres are halves of a sphere or sphere-like object, such as halves of Earth or halves of the cerebrum.
4. (Point to the United States on a globe.) The United States is located in the Northern Hemisphere, which is the northern half of Earth when separated horizontally at the equator into the Northern Hemisphere and Southern Hemisphere.
5. Earth can also be separated vertically into the Western Hemisphere and Eastern Hemisphere. (Point to places on the globe as students name them.) Name a place in the world (a continent, country, city, or town), and let’s see in which of the hemispheres that place is located. Be sure to use the word *hemispheres* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students’ responses to make complete sentences: “ _____ is located in the _____ Hemisphere.”)
6. What’s the word we’ve been talking about? What part of speech is the word *hemispheres*?

Sharing Activity

- Directions: Turn to your partner and take turns sharing spherical things or other things that can be divided into hemispheres. I will call on one or two of you to share your answers with the class. As you share, be sure to use the word *hemispheres* in a complete sentence.

Lesson 8: The Nervous System and the Brain

Reading



Primary Focus: Students will read and answer comprehension questions about the spinal cord and the brain. **TEKS 3.2.A.iv; TEKS 3.7.C**

PREVIEWING VOCABULARY (5 MIN.)

The following are vocabulary words used in this lesson. Preview the words with the students before the lesson and refer back to them at appropriate times.

TEKS 3.2.A.iv Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.7.C** Use text evidence to support an appropriate response.

- Display the vocabulary words on the board.
- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.
- The words also appear in the glossary in the back of the student reader.

cerebellum, a part of the brain located under the cerebrum, divided into two halves; It helps with voluntary movement of muscle groups and balance

cerebrum, the largest part of the brain, divided into two halves; It sits on top of the cerebellum and controls thoughts, emotions, and all the senses

hemisphere, one-half of a round object

paralyzed, unable to act, move, or feel a part or parts of the body

hollow, empty inside

concussion, brain injury

medulla, brain stem

cerebral cortex, the “gray matter” of the cerebrum that processes sensory information and controls muscle function

| Vocabulary Chart for “The Spinal Cord and Brain“ | | |
|--|---|----------------------------------|
| Type | Tier 3
Domain-Specific Words | Tier 2
General Academic Words |
| Vocabulary | cerebellum
cerebrum
hemisphere
paralyzed
concussion
medulla
cerebral cortex | hollow |
| Multiple Meaning | | |
| Sayings and Phrases | | |

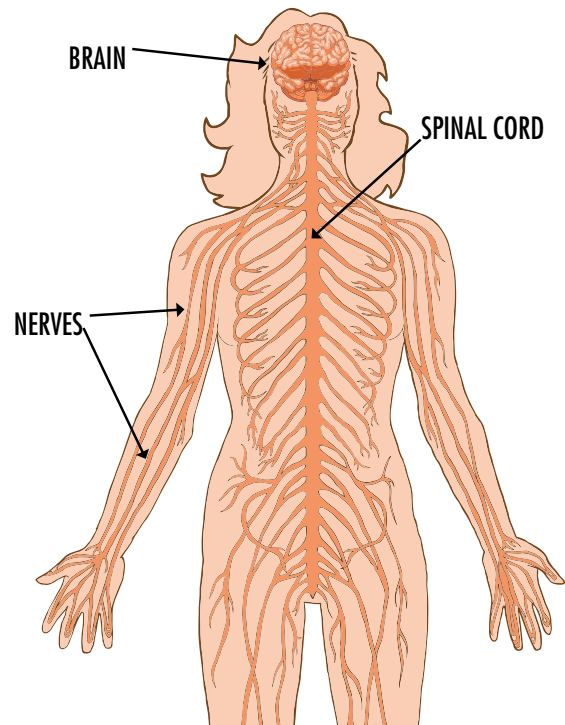
INTRODUCING THE READING (5 MIN.)

- Remind students that so far in their exploration of the human body, they have learned about the skeletal system, the muscular system, and the nervous system.
- Ask students to close their eyes, tap gently on their skulls, and remember what it is that makes up the skeletal system.
 - » bones
- Ask students to name some parts of their heads.
 - » Answers may vary, but could include eyes, ears, nose, hair, brain.
- Ask students if they remember what dendrites are.
 - » Dendrites are paths that messages travel along to get to the brain.
- Tell students that the title of today’s chapter is “The Spinal Cord and Brain.”
- Make sure that you and your students each have a copy of the Student Reader.
- Ask students to turn to the table of contents, locate the chapter, and then turn to the first page of the chapter.

Chapter 6 The Spinal Cord and Brain

You've got a lot of nerves! Really, you do!

You have nerves in your fingers. You have nerves in your toes. There are nerves all over your body. But there are two parts of your body that are especially important for your nervous system. One is the spinal cord. The other is the brain.



Your brain, spinal cord, and nerves

40

41

WHOLE GROUP READING : “THE SPINAL CORD AND BRAIN” (20 MIN.)

Pages 40–41

- Read the title of the chapter together as a class, “The Spinal Cord and Brain.”
- Ask students to scan the page for vocabulary words. (There are none.)
- Ask students to read **pages 40–41** to themselves and to fill in the blanks in the following sentence: “Two very important parts of your body that are a part of your nervous system are the _____ and _____.”
- When students have finished reading, reread the sentence and have students answer. (spinal cord, brain)
- Have students look at the image and read the caption on **page 41**.

Support

Encourage students to find answers to the discussion questions, throughout the reading, with a partner, before sharing as a group.

I told you a little about the spinal cord earlier, when we were looking at the skeletal system. I told you that the bones that make up your spine—the vertebrae—are there to protect your spinal cord. The vertebrae are **hollow** and long strings of nerves run through the **hollow** parts of the bones. The nerves that make up the spinal cord run all the way up your back and neck. They end up in the brain.

If I were to have a serious accident and damage my spinal cord, I might end up **paralyzed**—unable to move my legs and/or my arms. I might need to use a wheelchair to get around, like the boy in this photograph.

You see, the brain uses the spinal cord as a sort of super-highway to send messages out to the rest of the body. If the spinal cord is broken, or damaged, the messages can't get through to the arms and legs.



These children have experienced change to their spinal cords, which impacts how they move.

Pages 42–43

- Have students find *hollow* and *paralyzed* in the glossary, and read the definitions together as a class.
- Ask students to read **pages 42–43** to themselves to find the answer to the question: “Why are vertebrae hollow?”
- When students have finished reading, restate the question and have students answer.
 - » to protect the spinal cord
- Ask, “What might happen if you were in an accident that hurt your spinal cord?”
 - » You could be paralyzed.
- Have students look at the image and read the caption on **page 43**.
- Have students find *concussion* in the glossary, and read the definition together as a class.

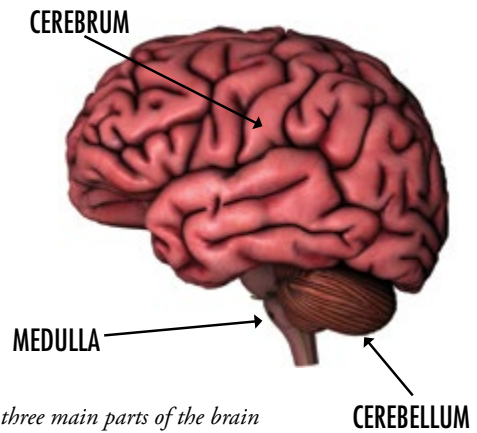
The spinal cord leads right to the center of your nervous system—your brain. It's the brain that receives messages from the nerves. It's the brain that sends messages out to your muscles. Even though the brain weighs only 2–3 pounds, it is the most important organ for life.

The brain is protected by the skull. Inside the skull, there are three layers of fiber and fluid protecting the brain. So, the brain is really well-protected. But it can still be harmed. Ask a football player who's had a **concussion**. Getting a **concussion** is like bruising the brain. Ouch!



The human brain

44



The three main parts of the brain

The brain is divided into three main parts: the **medulla**, the **cerebellum**, and the **cerebrum**. Each part has its own job to do.

The **medulla**, or “brain stem,” is located at the base of the skull in the back, right where the spinal cord meets the brain.

The **medulla** controls the important involuntary actions of the body, like breathing, heartbeat, and digestion.

45

Pages 44–45

- Ask students to read **page 44** to themselves to find the answer to the question: “What protects the brain?”
- When students have finished reading, restate the question and have students answer.
 - » the skull and three layers of fiber and fluid
- Ask, “What might happen if you were in an accident that hurt your brain?”
 - » You could have a concussion.
- Have students look at the image and read the caption on **page 44**.



Check for Understanding

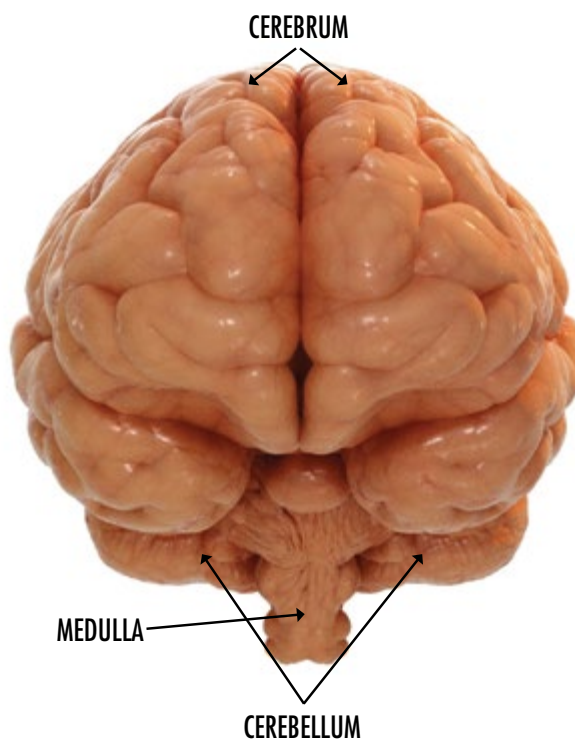
How could someone get a concussion?

- » any kind of accident where you hit your head hard—sports, car accident, fall (examples will vary)

-
- Have students find *medulla*, *cerebellum*, and *cerebrum* in the glossary, and read the definitions together as a class.
 - Ask students to read **page 45** to themselves to find the answer to the question: “What is the function of the medulla?”
 - When students have finished reading, restate the question and have students answer.
 - » controls involuntary actions of the body, like breathing, heartbeat, and digestion
 - Have students look at the image and read the caption on **page 45**.

The **cerebellum** sits right next to the **medulla**. It is divided into two **hemispheres** or halves. The **cerebellum** has several jobs. One of them is to control voluntary movements. That means the **cerebellum** helps you walk, run, and jump.

The two **hemispheres** of the **cerebellum** control different parts of the body. The right **hemisphere** controls movement on the left side of the body. The left **hemisphere** controls movement on the right side. It might seem strange that the left side of the brain controls the right side of the body, but that's just the way we're made.



The hemispheres of the cerebrum and the cerebellum

Pages 46–47

- Have students find *hemisphere* in the glossary, and read the definition together as a class. Note for students that the word *hemispheres* is also used in this chapter.
- Ask students to read **pages 46–47** to themselves to find the answer to the question: “What is the function of the cerebellum?”
- When students have finished reading, restate the question and have students answer.
 - » controls voluntary actions of the body, like walking, running, and jumping
- Ask students to fill in the blank in the sentence: “The right hemisphere of the cerebellum controls motion on the _____ side of your body.”
 - » left
- Have students look at the image and read the caption on **page 47**.



The cerebrum of the brain

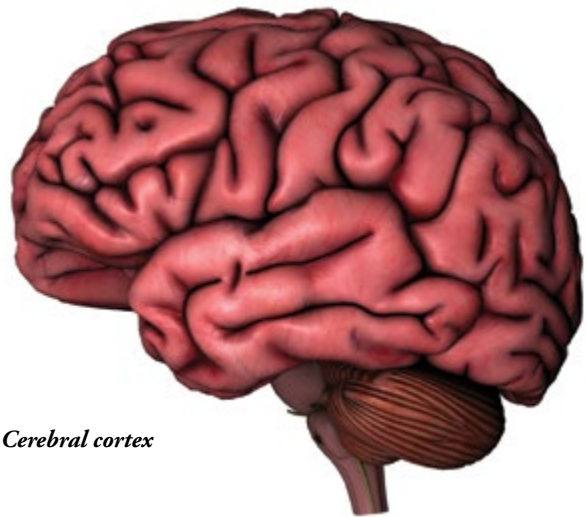
CEREBRUM

The third part of the brain is the **cerebrum**. The **cerebrum** sits on top of the **cerebellum** and the **medulla**. It is the largest part of the brain.

Each part of the **cerebrum** has a certain job to do. For example, the front part just inside your forehead controls emotions. The very back part just above the brain stem controls the sense of sight. The sense of touch is controlled by a strip of the brain running over the top of your head from ear to ear.

48

The outside part of the **cerebrum** is called the **cerebral cortex**. The **cerebral cortex** is the wrinkly part of the brain that most people think about when they think of a brain. People sometimes call this part of the brain “the gray matter.”



Cerebral cortex

49

Pages 48–49

- Ask students to scan the page for new vocabulary words. (There are none.)
- Ask students to read **page 48** to themselves to find the answer to the question: “What are some functions of the cerebrum?”
- When students have finished reading, restate the question and have students answer.
 - » controls emotions, sense of touch, and sense of sight
- Have students look at the image and read the caption on **page 48**.
- Have students find *cerebral cortex* in the glossary, and read the definition together as a class.
- Ask students to read **page 49** to themselves to find the answer to the question: “Which part of the brain is called the ‘gray matter’?”

The **cerebrum** is divided into two **hemispheres**, just like the **cerebellum**. Until recently, we did not know much about what the various parts of the **cerebrum** do. But in the past few decades, we have learned a lot.

Scientists now have even more advanced ways than just x-rays to look at and observe different organs in the body, including the brain. They use something called a PET scan to see different parts of the brain work. A scientist may ask the person having the PET scan to do something like talk or blink his or her eyes. When the person performs different actions, different parts of the brain light up on the computer screen. Scientists have learned a lot about what happens where in the brain by looking at PET scans. As you can see from this image of the brain, some of the things we do take place in the left **hemisphere**, while others happen in the right **hemisphere**.

LEFT-BRAIN FUNCTIONS

ANALYTIC THOUGHT

LOGIC

LANGUAGE

REASONING

SCIENCE AND MATH

WRITING

NUMBER SKILL

RIGHT-HAND CONTROL

RIGHT-BRAIN FUNCTIONS

ART AWARENESS

CREATIVITY

IMAGINATION

INTUITION

INSIGHT

HOLISTIC THOUGHT

MUSIC AWARENESS

3-D FORMS

LEFT-HAND CONTROL



Things that happen in each hemisphere of the cerebrum

50

51

- When students have finished reading, restate the question and have students answer.

» the outside part of the cerebrum called the cerebral cortex

- Have students look at the image and read the caption on **page 49**.

Pages 50–51

- Ask students to read **pages 50–51** to themselves to find the answer to the question: “What information does a doctor find from a PET scan?”
- When students have finished reading, restate the question and have students answer.
 - » to see how different parts of the brain work and what different parts of the brain control, such as logic, insight, number skills, and music awareness
- Have students look at the image and read the caption on **page 51**.

Challenge

Which part of the brain do you think is the most important? Why?

» Answers will vary. Be sure students answer “why.”

DISCUSSING THE READING (20 MIN.)

1. What happens if your spinal cord is injured?
 - » You can become paralyzed.
 2. What does it mean to be paralyzed?
 - » You are unable to move your arms and/or legs.
 3. What is a concussion?
 - » When you injure your brain.
 4. What does your medulla control?
 - » the involuntary actions of your body—breathing, swallowing (examples will vary)
- Have students complete Activity Page 8.1 independently.

Activity Page 8.1



ENGLISH
LANGUAGE
LEARNERS



Reading
Viewing Closely

Beginning

Ask multiple-choice distractor questions aloud and ask students to say whether it is true or false, i.e., “Your spinal cord is attached to your brain. True or false?”

Intermediate

Pair student with a partner who can support the student in rereading the text if necessary and answering the questions.

Advanced/ Advanced High

Encourage students to answer questions in complete sentences.

ELPS 4.G

Lesson 8: The Nervous System and the Brain

Language



Primary Focus: Students will identify and use the meaning of the common prefixes

un-, non-, re-, pre-, dis-, and mis-. TEKS 3.2.A.v

MORPHOLOGY: REVIEW PREFIXES UN-, NON-, RE-, PRE-, DIS-, AND MIS- (15 MIN.)

- Tell students you will give them two word choices, a root word and the root word with a prefix added. Then, you will read a sentence aloud that demonstrates the meaning of either the root word or the affixed word. Students must decide which word is demonstrated by the sentence and say the word aloud.
- Read the following to students:
 - *View* or *preview*? We were able to see the gymnasium decorated for the school dance a few hours before it started. (*preview*)
 - *Absorbent* or *nonabsorbent*? My new coat is waterproof, so rain just slides right down the surface of it. (*nonabsorbent*)
 - *Placed* or *misplaced*? I put my keys down on the kitchen counter when I walked in. (*placed*)

TEKS 3.2.A.v Demonstrate and apply phonetic knowledge by: decoding words using knowledge of prefixes.

- *Necessary or unnecessary?* Mike used a very loud voice to tell me about his vacation even though he was sitting right next to me at the table. (*unnecessary*)
 - *Load or reload?* Dad and Uncle Hank emptied the moving truck so we can take it back to the old house to put more stuff in it. (*reload*)
 - *Approve or disapprove?* Mom said my dress choice for my friend's birthday party was OK by her. (*approve*)
 - *Able or unable?* That box is too heavy to lift by myself, so I will need someone to help me. (*unable*)
 - *Select or preselect?* We picked a cat from the animal shelter and brought it home as our pet. (*select*)
 - *Verbal or nonverbal?* Jordan motioned to me from across the room that he had to leave the meeting. (*nonverbal*)
 - *Behave or misbehave?* The children were talking and laughing so loudly that the librarian had to tell them more than once to be quiet. (*misbehave*)
- Have students turn to Activity Page 8.2 and complete it independently.

~~~~~  
End Lesson  
~~~~~

Lesson 8: The Nervous System and the Brain

Take-Home Material

- Have students take home Activity Page 8.3 to practice the reading for Lesson 9.

Activity Page 8.2



Activity Page 8.3



9

The Nervous System and the Brain, Part 2

PRIMARY FOCUS OF LESSON

Reading

- Students will closely read and answer comprehension questions about the nervous system and the brain. **TEKS 3.6.G; TEKS 3.6.H**

Language

- Students will form and use irregular plural nouns. **TEKS 3.2.C; TEKS 3.11.D.iii**

Writing

- Students will identify and use parts of a paragraph, including a topic sentence, supporting details, and a concluding statement, in a written piece. **TEKS 3.11.B.i**

FORMATIVE ASSESSMENT

Activity Page 9.1

- The Spinal Cord and Brain** Answer questions about the nervous system and brain. **TEKS 3.6.G; TEKS 3.6.H**

- TEKS 3.6.G** Evaluate details read to determine key ideas; **TEKS 3.6.H** Synthesize information to create new understanding; **TEKS 3.2.C** Alphabetize a series of words to the third letter; **TEKS 3.11.D.iii** Edit drafts using standard English conventions, including: singular, plural, common, and proper nouns; **TEKS 3.11.B.i** Develop drafts into a focused, structured, and coherent piece of writing by: organizing with purposeful structure including an introduction and conclusion.

LESSON AT A GLANCE

| | Grouping | Time | Materials |
|--|-----------------------------|---------|--|
| Reading (75 min.) | | | |
| Reviewing Vocabulary | Whole Group | 15 min. | <input type="checkbox"/> <i>How Does Your Body Work?</i>
<input type="checkbox"/> Activity Page 9.1 |
| Introducing the Reading | Whole Group | 5 min. | <input type="checkbox"/> Compare and Contrast Chart (Digital Projections) |
| Close Reading: "The Spinal Cord and Brain" | Small Group/
Independent | 25 min. | |
| Extension Activity | Whole Group | 30 min. | |
| Language (30 min.) | | | |
| Spelling Review | Whole Group | 15 min. | <input type="checkbox"/> Spelling Chart from Lesson 6 (Digital Projections) |
| Spelling: Alphabetizing Words | Whole Group | 15 min. | <input type="checkbox"/> Activity Page 7.2 |
| Writing (15 min.) | | | |
| Identifying Irrelevant Sentences | Whole Group | 15 min. | <input type="checkbox"/> Activity Page 9.2 |
| Take-Home Material | | | |
| Topic and Irrelevant Sentences | | | <input type="checkbox"/> Activity Page 9.3 |
| Study Spelling Words | | | |

ADVANCE PREPARATION

Reading

- Predetermine three small groups for Close Reading.
- On chart paper, create the Compare and Contrast Systems of the Body chart or prepare Digital Projection DP.U3.L9.1.

| Compare and Contrast Systems of the Body | | | |
|---|------------------------|------------------------|-----------------------|
| | Skeletal System | Muscular System | Nervous System |
| Function | | | |
| Features | | | |
| Unique Facts | | | |
| Example of How It Works | | | |

Language

- Post the Spelling Chart from the previous lesson or prepare Digital Projection DP.U3.L6.1.
- Write the spelling words (only singular nouns) on index cards. Fold over the card so that only the first letter shows.

Universal Access

- Display vocabulary words in the classroom during and after instruction to reinforce word meaning.
- Project digital images in the classroom during and after instruction to reinforce ideas.

Lesson 9: The Nervous System and the Brain, Part 2

Reading



Primary Focus: Students will closely read and answer comprehension questions about the nervous system and the brain. **TEKS 3.6.G; TEKS 3.6.H**

REVIEWING VOCABULARY (15 MIN.)

The following are core vocabulary words used in this lesson. Review these words with the students.

- Call one student to the board. Whisper a vocabulary word into their ear, and have them draw a picture of that word. The student who correctly guesses the vocabulary word first gets to draw the next word.

brain stem, the central trunk of the human brain that continues down to the spinal cord

hemispheres, halves of a sphere; halves of Earth; halves of the cerebrum

cerebrum, the dominant part of the human brain found in the front of the skull that has two sections and is responsible for regulating most thought processes and voluntary actions in the body

cerebellum, the part of the human brain that is found at the bottom and back of the skull and that helps control muscle activity

accurate, careful; free of mistakes or errors

paralyzed, unable to act, move, or feel a part or parts of the body

hollow, empty inside

concussion, brain injury

medulla, brain stem

cerebral cortex, the “gray matter” of the cerebrum that processes sensory information and controls muscle function

TEKS 3.6.G Evaluate details read to determine key ideas; **TEKS 3.6.H** Synthesize information to create new understanding.

INTRODUCING THE READING (5 MIN.)

- Remember to use academic vocabulary words when appropriate: *assess*, *compare*, *contrast*.
- Tell students that today, they will reread “The Spinal Cord and Brain” in small groups. Ask students what they remember learning from reading it the first time.
- Now, ask students if they can remember another word for *cranium*.
 - » skull
- Ask students if they remember what a concussion is.
 - » when the brain gets bruised from a hard hit to the head

CLOSE READING: “THE SPINAL CORD AND BRAIN” (25 MIN.)

- Tell students that today, they will read independently and in small groups.
Note: As you are reading with one small group, the other two groups will be reading “The Spinal Cord and Brain” independently. After they have finished reading independently, they will complete Activity Page 9.1. This is an excellent time for you to make notes in your anecdotal records.
- During the small group reading time, ask students the following close reading questions:

Activity Page 9.1



Support

Read aloud the story to the students. Have students complete Activity Page 9.1 independently.

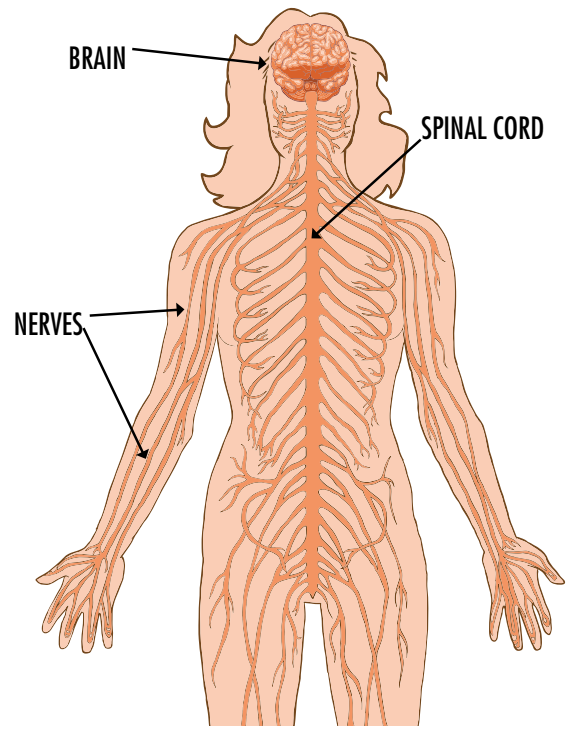
Challenge

Ask students to create additional discussion questions for the reading. If time permits, let students quiz the class.

Chapter 6 The Spinal Cord and Brain

You've got a lot of nerves! Really, you do!

You have nerves in your fingers. You have nerves in your toes. There are nerves all over your body. But there are two parts of your body that are especially important for your nervous system. One is the spinal cord. The other is the brain.



Your brain, spinal cord, and nerves

I told you a little about the spinal cord earlier, when we were looking at the skeletal system. I told you that the bones that make up your spine—the vertebrae—are there to protect your spinal cord. The vertebrae are **hollow** and long strings of nerves run through the **hollow** parts of the bones. The nerves that make up the spinal cord run all the way up your back and neck. They end up in the brain.

If I were to have a serious accident and damage my spinal cord, I might end up **paralyzed**—unable to move my legs and/or my arms. I might need to use a wheelchair to get around, like the boy in this photograph.

You see, the brain uses the spinal cord as a sort of super-highway to send messages out to the rest of the body. If the spinal cord is broken, or damaged, the messages can't get through to the arms and legs.



These children have experienced change to their spinal cords, which impacts how they move.

What does the brain send through the spinal cord that your arms and legs must receive in order to move?

- » messages

What does it mean to be paralyzed?

- » unable to move your legs and/or arms

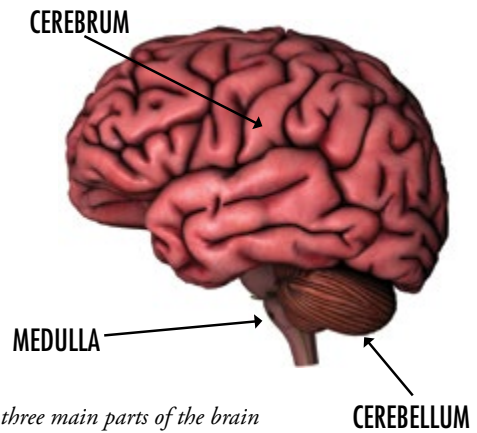
The spinal cord leads right to the center of your nervous system—your brain. It's the brain that receives messages from the nerves. It's the brain that sends messages out to your muscles. Even though the brain weighs only 2–3 pounds, it is the most important organ for life.

The brain is protected by the skull. Inside the skull, there are three layers of fiber and fluid protecting the brain. So, the brain is really well-protected. But it can still be harmed. Ask a football player who's had a **concussion**. Getting a **concussion** is like bruising the brain. Ouch!



The human brain

44



The three main parts of the brain

The brain is divided into three main parts: the **medulla**, the **cerebellum**, and the **cerebrum**. Each part has its own job to do.

The **medulla**, or “brain stem,” is located at the base of the skull in the back, right where the spinal cord meets the brain.

The **medulla** controls the important involuntary actions of the body, like breathing, heartbeat, and digestion.

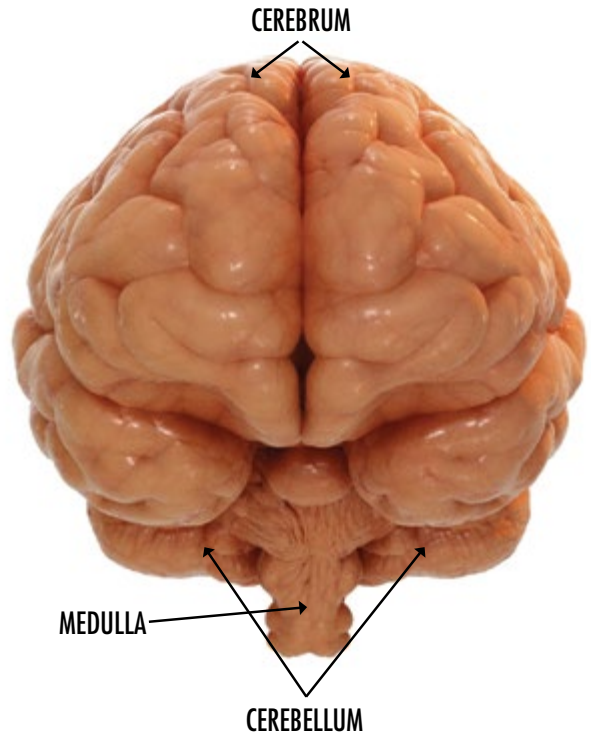
45

Besides the cranium, identify two other protective layers in your brain.

- » fibers and fluids (Ask students to read the sentences from the page(s) where they found the answer.)

The **cerebellum** sits right next to the **medulla**. It is divided into two **hemispheres** or halves. The **cerebellum** has several jobs. One of them is to control voluntary movements. That means the **cerebellum** helps you walk, run, and jump.

The two **hemispheres** of the **cerebellum** control different parts of the body. The right **hemisphere** controls movement on the left side of the body. The left **hemisphere** controls movement on the right side. It might seem strange that the left side of the brain controls the right side of the body, but that's just the way we're made.



The hemispheres of the cerebrum and the cerebellum



The cerebrum of the brain

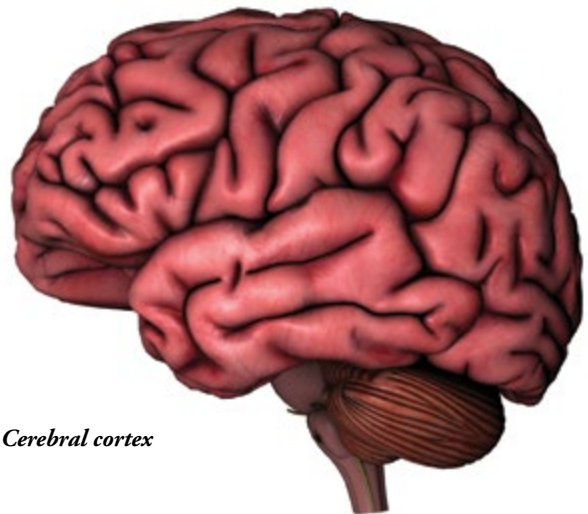
CEREBRUM

The third part of the brain is the **cerebrum**. The **cerebrum** sits on top of the **cerebellum** and the **medulla**. It is the largest part of the brain.

Each part of the **cerebrum** has a certain job to do. For example, the front part just inside your forehead controls emotions. The very back part just above the brain stem controls the sense of sight. The sense of touch is controlled by a strip of the brain running over the top of your head from ear to ear.

48

The outside part of the **cerebrum** is called the **cerebral cortex**. The **cerebral cortex** is the wrinkly part of the brain that most people think about when they think of a brain. People sometimes call this part of the brain “the gray matter.”



Cerebral cortex

49

The **cerebrum** is divided into two **hemispheres**, just like the **cerebellum**. Until recently, we did not know much about what the various parts of the **cerebrum** do. But in the past few decades, we have learned a lot.

Scientists now have even more advanced ways than just x-rays to look at and observe different organs in the body, including the brain. They use something called a PET scan to see different parts of the brain work. A scientist may ask the person having the PET scan to do something like talk or blink his or her eyes. When the person performs different actions, different parts of the brain light up on the computer screen. Scientists have learned a lot about what happens where in the brain by looking at PET scans. As you can see from this image of the brain, some of the things we do take place in the left **hemisphere**, while others happen in the right **hemisphere**.

LEFT-BRAIN FUNCTIONS

ANALYTIC THOUGHT

LOGIC

LANGUAGE

REASONING

SCIENCE AND MATH

WRITING

NUMBER SKILL

RIGHT-HAND CONTROL

RIGHT-BRAIN FUNCTIONS

ART AWARENESS

CREATIVITY

IMAGINATION

INTUITION

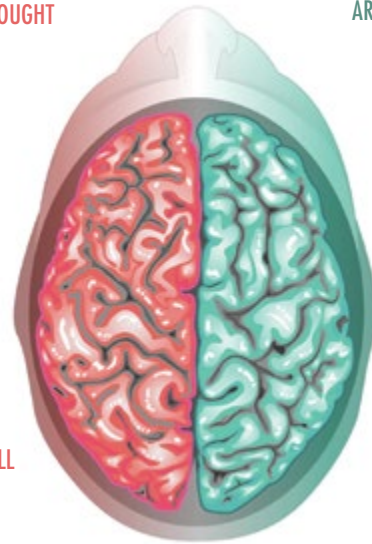
INSIGHT

HOLISTIC THOUGHT

MUSIC AWARENESS

3-D FORMS

LEFT-HAND CONTROL



Things that happen in each hemisphere of the cerebrum

What is the key idea of the chapter?

- » The brain is divided into three parts that are responsible for different jobs. The spinal cord and brain work together to send messages to the rest of the body. (Students may not state the key idea exactly like this, but it should be close.)

EXTENSION ACTIVITY (30 MIN.)

Note: There is an example of a completed class chart at the end of this lesson that is similar to the chart you will complete with students during this lesson. Students may have different examples of how each system works. The other information in the chart is found in chapters of *How Does Your Body Work?*

- Point out to students that so far in this unit, they have read about the skeletal system, the muscular system, and the nervous system.
- Tell students that they will now compare and contrast these three systems using information they have learned from reading *How Does Your Body Work?*
- Direct students' attention to the chart you created in advance, or project Digital Projection DP.U3.L9.1.

➤ Projection DP.U3.L9.1

| Compare and Contrast Systems of the Body | | | |
|--|-----------------|-----------------|----------------|
| | Skeletal System | Muscular System | Nervous System |
| Function | | | |
| Features | | | |
| Unique Facts | | | |
| Example of How It Works | | | |

- Tell students that first, they will help you add information to the chart for each system.
- Point out the categories listed on the chart for each system of the body. (Function, Features, Unique Facts, Example of How it Works)
- Ask students to open their Readers to the table of contents, locate “The Skeletal System,” and then turn to the first page of the chapter.
- Have students read **page 4** to themselves to determine what the function of the skeletal system is.
- Students should answer “gives your body shape.” Add this to the appropriate place on the chart.
- Next, ask students, “How many bones are in your body?”
- Students should answer “more than 200.” Add this to the appropriate place on the chart.
- Ask students to turn to **page 12**, which is the first page of “All About Bones.”



**ENGLISH
LANGUAGE
LEARNERS**

Reading/Viewing
Closely

Beginning

Read the multiple-choice distractor questions aloud and ask students to say whether it is true or false, i.e., “Your brain is protected by your skull. True or false?”

Intermediate

Expand on the true and false questions, i.e., “Is there anything else that protects your brain?”

Advanced/ Advanced High

Encourage students to answer questions in complete sentences.

ELPS 4.G

- Read **page 12** aloud to students and ask them to listen for a unique fact that can be added to the chart.
 - » Bones are made of calcium.
- Read **page 14** aloud to students and ask them to listen for another unique fact that can be added to the chart.
 - » Marrow inside bones makes red blood cells.
- For the remaining unique fact, you will need to wait until you get to **page 24** of “Joints and Muscles” to add it to the chart.
 - » Bones meet at a joint.
- Ask students for an example of how the skeletal system works, and add it and others, as needed, to the chart. If students are not able to provide an example, share the one listed in the chart at the end of this lesson.
- Follow the same procedures to fill in information about the muscular system using details from **pages 21–23**. Use information found on **page 28** to add one more unique feature to the skeletal system column. Use information found on **pages 36, 38 and 42** to fill in information about the nervous system.
- Tell students you want to compare and contrast the systems of the body using the information you added to the chart and their background knowledge about body systems.
- You may wish to use the following questions to guide the discussion:
 - How are the systems alike?
 - » Answers may vary, but could include that they each help the body in a particular way.
 - Which body system has the most “pieces,” or features? Which has the least?
 - » The nervous system has the most, with about a billion nerves. The skeletal system has the least, with more than 200 bones.
 - How do the skeletal system and muscular system work together?
 - » Answers may vary but could include that muscles are connected to bones by tendons and are the only way bones can move.
 - How do the skeletal system and the nervous system work together?
 - » Answers may vary but could include that the nervous system allows bones to sense what is going on around them.
 - How do the muscular system and nervous system work together?
 - » Answers may vary but could include that the nervous system allows muscles to sense what is going on around them and tells them when to move, both voluntarily and involuntarily.

- Compare and contrast voluntary muscles, involuntary muscles, and reflexes.
 - » Voluntary muscles move when you make them move, while involuntary muscles move automatically without any direction from you. Reflexes are like involuntary muscles in that they happen automatically as a way that your body protects itself.
- Which system is most important to your body? Why?
 - » Answers may vary.

Sample Compare and Contrast chart

| Compare and Contrast Systems of the Body | | | |
|--|--|--|---|
| | Skeletal System | Muscular System | Nervous System |
| Function | <ul style="list-style-type: none"> • gives your body shape | <ul style="list-style-type: none"> • allows your body to move | <ul style="list-style-type: none"> • allows you to keep track of what is happening in the world around you |
| Features | <ul style="list-style-type: none"> • more than 200 bones | <ul style="list-style-type: none"> • about 650 muscles | <ul style="list-style-type: none"> • about a billion nerves |
| Unique Facts | <ul style="list-style-type: none"> • Bones are made of calcium. • Marrow inside bones makes red blood cells. • Bones meet at a joint. | <ul style="list-style-type: none"> • About half your weight comes from muscles. • Voluntary muscles work when you make them work (bending your arm). • Involuntary muscles work automatically (your heart beating). | <ul style="list-style-type: none"> • Nerves help you use all five senses. • Nerves send messages to the brain about what is happening to your body. • The nervous system uses reflexes to keep you safe. |
| Example of How It Works | <ul style="list-style-type: none"> • Your foot is the shape it is because of the bones inside it. | <ul style="list-style-type: none"> • You can walk to the door because your muscles allow your body to move. | <ul style="list-style-type: none"> • You accidentally touch a very hot pan and immediately pull your hand away. |

Lesson 9: The Nervous System and the Brain, Part 2

Language



Primary Focus: Students will form and use irregular plural nouns. **TEKS 3.2.C;**
TEKS 3.11.D.iii

SPELLING REVIEW (15 MIN.)

- Tell students that they will review the spelling pattern of changing 'f' to 'v' and adding -e.
- Review the spelling words that you introduced earlier this week using the table displayed on the board, or project digital Projection DP.U3.L6.1.

➤ Projection DP.U3.L6.1

| | Singular Noun | | Plural Noun |
|----|--------------------------------------|----|-------------|
| 1 | knife | 12 | knives |
| 2 | life | 13 | lives |
| 3 | wife | 14 | wives |
| 4 | half | 15 | halves |
| 5 | wolf | 16 | wolves |
| 6 | loaf | 17 | loaves |
| 7 | elf | 18 | elves |
| 8 | leaf | 19 | leaves |
| 9 | thief | 20 | thieves |
| 10 | shelf | 21 | shelves |
| 11 | self | 22 | selves |
| 23 | Challenge Word: <i>before</i> | | |
| 24 | Challenge Word: <i>please</i> | | |

Activity Page 7.2



- Ask students to turn to Activity Page 7.2, which they completed in a previous lesson.
- Call on one student at a time to share a Blank Busters statement with the class to see if students can fill in the blank with the correct spelling word form.

TEKS 3.2.C Alphabetize a series of words to the third letter; **TEKS 3.11.D.iii** Edit drafts using standard English conventions, including: singular, plural, common, and proper nouns.

- Discuss the correct answer with the class and the correct spelling using the table of this week's spelling words.
- Continue in this manner for the remaining time with other students' Blank Busters statements.
- Tell students this table will remain on display until the assessment so that students may refer to it during the week.
- Tell student that their spelling assessment will be in the following lesson. Encourage them to practice their words beforehand.



SPELLING: ALPHABETIZING WORDS (15 MIN.)

TEKS 3.2.C

- Using the previously prepared cards folded over to reveal just the first letter, tape the words on the board randomly. Tell students that you will now review how to alphabetize the spelling words and Challenge Words on the board to the second letter.
- Ask students, "Look at the first letter on each card taped on the board. Of all the letters displayed on the board, which one comes first in the alphabet?" Students should respond 'b'. Tape this card, still folded, to the board at the top of a column that you will create of the words.
- Ask students, "Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?" Students should respond 'e'. Tape this card, still folded, to the board below the 'b' displayed.
- Ask students, "Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?" Students should respond 'h'. Tape this card, still folded, to the board below the 'e' displayed.
- Ask students, "Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?" Students should respond 'k'. Tape this card, still folded, to the board below the 'h' displayed.
- Ask students, "Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?" Students should notice that there are three cards with the letter 'l' displayed. Unfold and then refold each card to reveal the second letter, e.g., the 'i' in *life*, the 'o' in *loaf*, and the 'e' in *leaf*. Ask students which of these three letters, 'i', 'o', or 'e', comes first. They should respond 'e'. Tape the 'le' card, still folded, to the board below the card with 'k' displayed. Ask students which



TEKS 3.2.C Alphabetize a series of words to the third letter.



Beginning

Use an echo reading strategy by reading the word and having students repeat the words.

Intermediate

Have students act or draw out the word meanings.

**Advanced/
Advanced High**

Have students create their own sentences for the words.

ELPS 1.C

letter comes next, the 'i' or the 'o'. They should respond 'i'. Tape the 'li' card, still folded, below the card with 'le' displayed. Then, tape the remaining 'lo' card, still folded, to the board below 'li'.

- Ask students, "Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?" Students should respond 'p'. Tape this card, still folded, to the board below the 'lo' card.
- Ask students, "Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?" Students should notice that there are two cards with the letter 's' displayed. Unfold and then refold each card to reveal the second letter, e.g., the 'h' in *shelf* and the 'e' in *self*. Ask students which of these two letters, 'h' or 'e', comes first. They should respond 'e'. Tape the 'se' card, still folded, to the board below the card with 'p' displayed. Then, tape the card with 'sh' below the 'se' card.
- Ask students, "Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?" Students should respond 't'. Tape this card, still folded, to the board below the card with 'sh' displayed.
- Ask students, "Look at the first letter on each of the remaining cards. Of all the letters displayed on the remaining cards, which one comes next in the alphabet?" Students should notice that there are two cards with the letter 'w' displayed. Unfold and then refold each card to reveal the second letter, e.g., the 'i' in *wife* and the 'o' in *wolf*. Ask students which of these two letters, 'i' or 'o', comes first. They should respond 'i'. Tape the 'wi' card, still folded, to the board below the card with 't' displayed. Then, tape the card with 'wo', still folded, below 'wi'.
- Now that all of the cards have been placed on the board in alphabetical order, unfold all the cards so that the entire word is visible.
- Read the words aloud with students and state explicitly that all the spelling words are now in alphabetical order on the board.

| | | | |
|--------|------|--------|-------|
| before | leaf | please | thief |
| elf | life | self | wife |
| half | loaf | shelf | wolf |
| knife | | | |

Lesson 9: The Nervous System and the Brain, Part 2

Writing



Primary Focus: Students will identify and use parts of a paragraph, including a topic sentence, supporting details, and a concluding statement, in a written

piece. **TEKS 3.11.B.i**

IDENTIFYING IRRELEVANT SENTENCES (15 MIN.)

- Remind students that a paragraph is a group of sentences about one subject or topic. A topic sentence, usually the first sentence of a paragraph, provides a clue as to what the paragraph will be about. A concluding sentence wraps up the paragraph and often restates the topic sentence.
- Tell students that just as Mr. Mowse was confused about ordering sentences, sometimes paragraphs will have sentences that do not belong in the paragraph because they do not relate to the topic sentence.
- Ask students to turn to Activity Page 9.2 and explain that the page includes several paragraphs. Each paragraph has a topic sentence, followed by additional sentences. Explain, however, that in each paragraph, there is a sentence that does not relate to the topic sentence. Explain that students are to underline the topic sentence in each paragraph and cross out the sentence that does not relate to the topic. Point out that the last sentence in each paragraph is a good concluding sentence. Then, ask students to circle the concluding sentence.
- Have students complete Activity Page 9.2 as a teacher-guided activity.

End Lesson

Lesson 9: The Nervous System and the Brain, Part 2

Take-Home Material

- Study Spelling Words for next day's assessment and complete Activity Page 9.3.

TEKS 3.11.B.i Develop drafts into a focused, structured, and coherent piece of writing by: organizing with purposeful structure including an introduction and conclusion.

Activity Page 9.2



**ENGLISH
LANGUAGE
LEARNERS**

Writing/Writing

Beginning

Assist students in identifying the topic and concluding sentences in each paragraph.

Intermediate

With a peer, identify the topic and concluding sentences.

Advanced/ Advanced High

Encourage students to complete Activity Page 9.2 independently.

ELPS 5.G

Activity Page 9.3



10

Vision: The Parts of the Eye

PRIMARY FOCUS OF LESSON

Speaking and Listening

- Students will describe the relationship between the parts of the eye in “Vision: The Parts of the Eye” using language that pertains to sequence and cause/effect. **TEKS 3.1.A; TEKS 3.6.B; TEKS 3.7.C**

Reading

- Students will determine the key idea of “Eyes and Vision,” recount the key details, and explain how these details support the key idea. **TEKS 3.2.A.iv; TEKS 3.7.G**

Language

- Students will form and use irregular plural nouns. **TEKS 3.11.D.iii**

Writing

- Students will identify and use parts of a paragraph, including a topic sentence, supporting details, and a concluding statement, in a written piece. **TEKS 3.12.B**

FORMATIVE ASSESSMENT

- Activity Page 10.1** **Help This Eye See!** Recall key details from the reading. **TEKS 3.7.G**

- TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.B** Generate questions about text before, during, and after reading to deepen understanding and gain information; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.7.G** Discuss specific ideas in the text that are important to the meaning; **TEKS 3.11.D.iii** Edit drafts using standard English conventions, including: singular, plural, common, and proper nouns; **TEKS 3.12.B** Compose informational texts, including brief compositions that convey information about a topic, using a clear central idea and genre characteristics and craft.

LESSON AT A GLANCE

| | Grouping | Time | Materials |
|---|-----------------------------|---------|---|
| Speaking and Listening (45 min.) | | | |
| Previewing Vocabulary | Whole Group | 5 min. | <input type="checkbox"/> KWL Chart (Lesson 1)
<input type="checkbox"/> Digital Flip Book: U3.L10.1–U3.L10.8
<input type="checkbox"/> Activity Page 1.1 (optional) |
| Introducing the Read-Aloud | Whole Group | 10 min. | |
| Presenting the Read-Aloud: “Vision: Parts of the Eye” | Whole Group | 20 min. | |
| Discussing the Read-Aloud | Whole Group/
Partner | 10 min. | |
| Reading (40 min.) | | | |
| Previewing Vocabulary | Whole Group | 5 min. | <input type="checkbox"/> <i>How Does Your Body Work?</i>
<input type="checkbox"/> Activity Page 10.1
<input type="checkbox"/> Vocabulary Cards |
| Introducing the Reading | Whole Group | 5 min. | |
| Presenting the Reading: “Eyes and Vision” | Whole Group | 20 min. | |
| Discussing the Reading | Whole Group/
Partner | 10 min. | |
| Language (25 min.) | | | |
| Spelling Assessment | Whole Group/
Independent | 25 min. | <input type="checkbox"/> Activity Page 10.2 |
| Writing (10 min.) | | | |
| Writing Titles for Paragraphs | Whole Group | 10 min. | <input type="checkbox"/> Activity Page 10.3 |
| Take-Home Material | | | |
| “Eyes and Vision” | | | <input type="checkbox"/> Activity Page 10.4 |

ADVANCE PREPARATION

Reading

- Prepare Vocabulary Cards for the following words: *cornea*, *lens*, *retina*, and *optic nerve*.

Universal Access

- Display vocabulary words in the classroom during and after instruction to reinforce word meaning.
- Project digital images in the classroom during and after instruction to reinforce ideas.
- Ask students to brainstorm how they think their vision is connected to the other systems they have learned about. (skeletal, muscular and nervous system)

Start Lesson

Lesson 10: Vision: The Parts of the Eye

Speaking and Listening



Primary Focus: Students will describe the relationship between the parts of the eye in “Vision: The Parts of the Eye” using language that pertains to sequence and cause/effect. **TEKS 3.1.A; TEKS 3.6.B; TEKS 3.7.C**

PREVIEWING VOCABULARY (5 MIN.)

The following are core vocabulary words used in this lesson. Preview the words with the students before the lesson. Students are not expected to be able to use these words immediately, but with repeated exposure throughout the lessons, they will acquire a good understanding of most of the words. You may wish to display the vocabulary words in your classroom for students to reference. Students may also keep a “unit dictionary” notebook along with definitions, sentences, and/or other writing exercises using these vocabulary words.

- Display the vocabulary words on the board.
- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.

TEKS 3.1.A Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.B** Generate questions about text before, during, and after reading to deepen understanding and gain information; **TEKS 3.7.C** Use text evidence to support an appropriate response.

- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.

iris, eye color

wondrous, amazing; miraculous; awesome

lens, the small, flexible part of the eye that focuses light to produce an image

pupil, a small, black opening in the center of the colored part of the eye that controls how much light can enter

retina, a part of the eye that lies along the back inner wall of the eyeball and that allows us to see shades of gray in dim light, as well as colors and sharp images in bright light

| Vocabulary Chart for “Vision: The Parts of the Eye” Read-Aloud | | |
|--|---------------------------------|-------------------------------|
| Type | Tier 3 Domain-Specific Words | Tier 2 General Academic Words |
| Vocabulary | iris
lens
pupil
retina | wondrous |
| Multiple Meaning | iris
pupil | |
| | | |
| Sayings and Phrases | | |

INTRODUCING THE READ-ALoud (10 MIN.)

- Remind students that the various human body systems are interconnected.
- Ask students, “What are the names of the systems you have learned about so far?” (skeletal, muscular, and nervous systems)
- Ask students to share what they remember about the muscular and skeletal systems, using the KWL chart for support as needed. Reread any riddles about these two systems and have students provide the answers.
- Review the nervous system with students, showing them images from the Read-Aloud if needed.
- Add any new information about the nervous system to the KWL chart, especially facts learned about the different parts of the brain.

Challenge

Ask students to brainstorm ideas of what people with limited vision do to operate throughout the day.

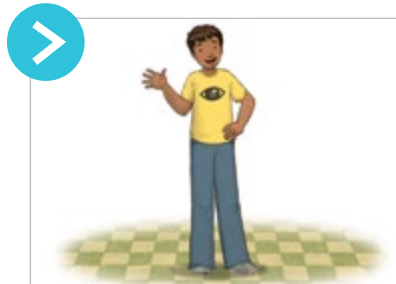
- » Answers will vary. (seeing-eye dogs, walking canes, braille, etc.)

Support

Remind students that when studying the human body's systems and senses, there are things on the outside that are easily seen, like eyelashes; these are called external body parts. There are also things on the inside, like bones, that cannot be seen without the help of machines such as x-rays; these are called internal body parts. Tell students that today they will learn about both the internal and external parts of the human eye.

- Reread any riddles about the nervous system and have students provide the answers.
- Ask students if their predictions were correct about what, in addition to the brain, is hidden in the skull. Then tell them that today they will be learning about their eyes and the different parts that work together that allow them to see.
- Remind students that from the first moment we open our eyes in the morning, we use our vision to help us get around. Our vision keeps us safe by helping us avoid bumping into objects, walking into traffic, and so on.
- Revisit the 'K' and 'W' sections of the KWL chart and add what students know about their eyes.
- Write any questions students have about their eyes in the 'W' section of the chart.
- Encourage students to listen carefully to the information in the Read-Aloud to correct any misunderstandings and/or to add more information to the KWL chart.
- Tell students to listen carefully to find out details about how the eyes work and how vision helps us understand the world around us.

PRESENTING THE READ-ALoud: “VISION: PARTS OF THE EYE” (20 MIN.)



Show Image U3.L10.1 Ricardo

Imagine a typical day. You are always looking around at people and books and screens, at animals and cars and trees. Before crossing a street, you

look both ways for traffic. What part of your body do you use to look at all these things? Your eyes, of course! And which body organ do you think helps your eyes to see? Yes—the **wondrous** brain. Human eyes work together with the brain in order to see.

Of all your senses, your sense of sight is the one you use the most. More than half of all the information you collect from your environment is received through your eyes. Then, the information is sent to the back of your brain, sometimes called the “mind's eye,” where your brain interprets what your eyes see and creates a picture for you.



Check for Understanding

- What body organ do your eyes work with in order to see?
» brain



Show Image U3.L10.2 Eye Composite

Remember when we looked at the different parts of the skull?

- Point to your skull. Point out the different bones discussed in the following passage.

The cranium, which houses your brain, is only one part of your skull. Besides the eight flat cranial bones, there are 20 additional skull bones. Some of these bones form the eye sockets, two holes that are the perfect size for housing and protecting your eyeballs.

- (Demonstrate for students where their eye sockets are located.) You can feel your eye sockets by gently touching the area around your eyeball. (Invite students to gently feel their eye sockets.)

Before we take a look at an eyeball, let's look at what surrounds your eyes. There are other things that also play an important part in helping you to see. Turn and look at your neighbor. See the hairs above the eyes? What are they called? Right—the eyebrows. They're not just there to look pretty. They have a purpose.

Now, close your eyes. What is the skin called that covers your eyes? Yes—eyelids. Your eyelids protect your eyes, too, keeping them moist by spreading tears over them. Tears are produced by tear glands,

Challenge

Does anyone know what your eyebrows do?

- » Your eyebrows help keep dust and sweat out of your eyes.

located above each eyeball on the underside of the eyelid. These salty water droplets keep your eyes wet and help fight germs. Tear ducts are tiny raised bumps located in the inner corner of your eyes, containing openings no larger than a pinhole. These tiny openings are the drains for your tears!

Support

Invite students to identify the eyebrows, eyelids, and tear ducts of their neighbors' eyes, and share their function.

Challenge

Does anyone know the name for the colored part of the eyes?



Check for Understanding

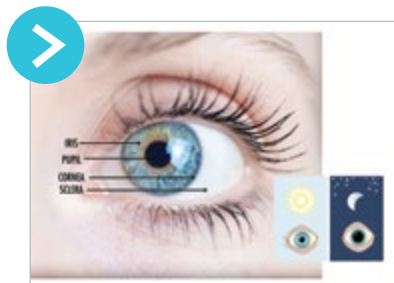
What do you think you would be doing if your tear ducts couldn't drain a lot of tears fast enough?

» crying

Your eyelashes, the short curved hairs growing on the edges of your eyelids, keep dust particles out as well. There are muscles all around each eye—six in all. They control your eyes' movements, allowing them to swivel in their sockets, looking up and down and side to side.

Now we're ready to take a peek at the parts of your eyeball itself. Look at your neighbor again. What shape is his or her eyeball? It may appear oval to you, but the eyeball is actually well named because it is round, just like a basketball. It looks oval because some parts are hidden behind the eyelids.

What color were your neighbor's eyes? Did you notice? Look again.



Show Image U3.L10.3

Close-up of Eye (Sclera, Cornea, Iris, Pupil)

Let's find out. Look at this picture together. The outer visible part of the eye includes the sclera, **cornea**, **iris**, and **pupil**. The white outer layer of

the eye is called the sclera. The thin, tough, transparent tissue that covers the colored part of the eye is called the **cornea**, and it allows light to pass through. Together, the sclera and the **cornea** protect the

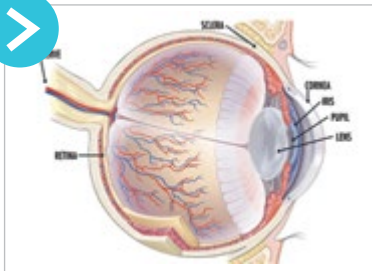
eye from germs, dangerous particles, and damaging light rays. The colored part of the eye, the disc located just behind the transparent **cornea**, is called the **iris**. At the center of the **iris** is a black circle. Do you see it? This dark circular hole, called the **pupil**, varies in size as it regulates the amount of light entering the eye. The muscles of the **iris** control the size of the **pupil**, tightening to make the **pupil** smaller in bright light, and relaxing to make the **pupil** larger in dim light.



Check for Understanding

Which two parts of the eye help protect it from germs, dangerous particles, and damaging light rays?

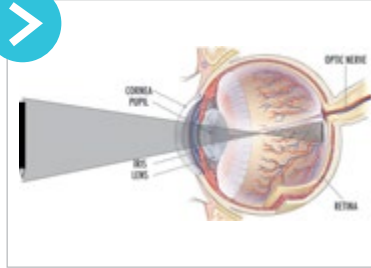
- » sclera and cornea



Show Image U3.L10.4 Inside the Human Eye

- As you read the following sentences, point to the diagram.

You can see clearly only if the right amount of light enters your eyes. Eyes are designed to focus light. Every part of the eye has a role to play, including those parts that lie inside the eyeball. So, what *is* inside the eyes? Liquid and jelly! That's right—eyes are soft and hollow; the clear fluid and jelly inside them give them their round shape. There are three important parts *inside* the eyeballs that help you see: the **lens**, the **retina**, and the **optic nerve**.



Show Image U3.L10.5 Sight Diagram

In order to see, you need light. It can be natural light from the sun or electrical light from a bulb, but all seeing begins with light. The eye sees objects by

seeing the light that reflects, or bounces off, objects. Imagine that you are looking at a house. The sun shines down on the house. Light from the sun bounces off the house and travels to your eyes.

Light rays bend toward each other as they pass through the **cornea**, the transparent tissue that covers the **iris**. This bending is the first step in focusing the light. The bent light rays then pass through the **pupil** to a clear disc called the **lens**. The rubbery, flexible **lens** adjusts its shape in order to focus on near or distant objects, creating crisp images. As the light rays pass through the **lens**, they bend even closer, cross one another, and land on the cup-shaped **retina** at the back of the eye. An image of the house is formed on the **retina**, but because light rays are bent, the image appears upside down on the retina. The light-receiving cells of the retina transfer light rays into electrical energy so that the nervous system can send information to your brain via the **optic nerve**. The short, thick **optic nerve** is fixed to the back of the eyeball, just behind the **retina**. Acting like a cable, it passes through a tunnel in the skull and connects the eyeball to the brain. The **optic nerve** carries messages to the brain to be processed. The brain recreates the image so that the house is now seen right side up! As the eyes work together with the nervous system, this whole process takes less than one second to complete. When you think of the factors and parts of the eye that are involved in allowing us to see, it is indeed **wondrous** to think that it takes less than one second to see!

Eyes are so important to us that it is troubling when things go wrong with them, preventing us from seeing as well as we would like.

Support

Invite students to reteach the path light takes when entering your eye, with the projected diagram.

Two of the most common eye problems are **nearsightedness** and **farsightedness**. Have you heard those terms before? Let's find out what they mean.

Challenge

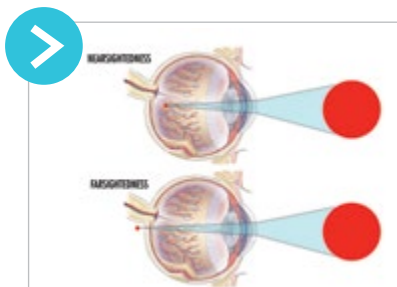
Encourage students to brainstorm what nearsightedness and farsightedness mean.



Show Image U3.L10.6 Diagram of Nearsightedness and Farsightedness

We know that people come in all shapes and sizes. Look around you. Legs and arms and faces and heads are all different shapes and sizes. So, it

makes sense that eyes vary in shape and size from person to person, too. The size and shape of the eye affects its ability to focus light and work well. In perfect vision, as light rays pass through the **lens** of the eye, they meet in just the right place to project a clear image on the **retina**. But sometimes the **cornea** or the **lens** is not quite the right shape to bend the light in the most effective way. Sometimes the shape of the eyeball affects how clearly images are projected on the **retina**. When these things occur, vision may become blurry.



Show Image U3.L10.7 Light Entering the Eye

In **nearsightedness**, the eyeball's size in relation to the **cornea** affects its focusing power, so images are projected, or focused, in front of the **retina**. Nearby objects are seen

clearly, but distant objects are out of focus. In **farsightedness**, the eyeball's size affects the focusing power of the lens, so images are projected, or focused, behind the **retina**. Distant objects are seen clearly, but nearby objects are out of focus.

Challenge

Who can tell us what contact lenses are?

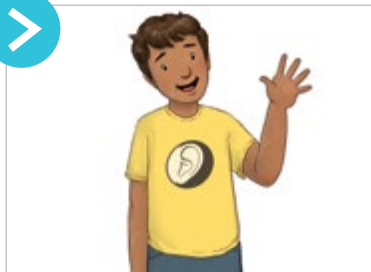


Check for Understanding

Who is farsighted or nearsighted? What does it mean for you?

- » Farsighted means you can see things that are faraway, but not up close. Nearsighted means you can see things up close, but faraway things are hard to see.

Luckily, these problems can both be corrected with glasses or contact lenses.



Show Image U3.L10.8

Ricardo

Before I go, let's try a riddle or two:

I reflect off objects and enter your eyes. I bend to help you see. Your sight depends on me. What am I?

- » light

Objects appear upside down on me. I live at the back of your eyeball. What am I?

- » retina

I am the part of your eye that is colored. Sometimes I'm green, but I could be brown, gray, blue. What am I?

- » iris

OK, it's time for me to go! Next time we'll look at the smallest bone in your body. Can anyone predict where it is? Hint: It's part of another sensory organ.

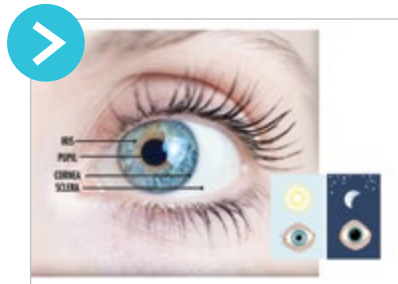
DISCUSSING THE READ-ALoud (10 MIN.)

1. **Literal.** What are your five senses?

- » sight, hearing, smell, taste, touch

2. **Literal.** How do these senses work with the brain to process information about our surroundings?

- » Information about the environment is collected through the senses and is sent back to the brain for interpretation.



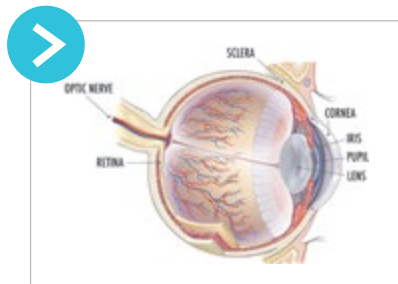
Show Image U3.L10.3
Close-Up of Eye
(Sclera, Cornea, Iris, Pupil)

3. **Inferential.** What are the visible, or external, parts of the eye?

- » eye sockets, eyebrows, eyelids, eyelashes, sclera, cornea, iris, and pupil

4. **Inferential.** What is the purpose of these visible parts?

- » Eyebrows and eyelashes keep away dust, sweat, and other particles; eyelids and tear ducts keep the eyeball moist; the pupil controls how much light enters the eyeball; the sclera and cornea protect from germs, particles, and light rays; eye sockets are the “house” that protect the eyeball.



Show Image U3.L10.4
Inside the Human Eye

5. **Literal.** What are the inner, or internal, parts of the eye?

- » lens, retina, and optic nerve

6. **Evaluative.** Describe how the parts of the eye work together with the nervous system to allow a person to see.

- » Light travels through the cornea, and as it passes through, the light bends. The bent light passes through the pupil to the lens. The lens bends the light again to finish focusing the image. This light lands on the retina, where the light is transferred to electrical energy so the optic nerve can send information to the brain.



Speaking and Listening

Beginning

Ask students simple yes or no questions, i.e., “Do your brain and eyes work together?”

Intermediate

Have students provide domain words when asked definition questions, i.e., “What is the name of the small black opening in the center of the colored part of the eye that controls how much light can enter?”

Advanced/

Advanced High

Encourage students to answer questions using complete sentences and newly learned domain vocabulary.

ELPS 2.I; ELPS 3.D;

ELPS 3.F

7. **Evaluative.** Why is it very important to take care of and protect the eyes? How can you do this?

- » Answers may vary, but should include that sight is the most frequently used sense, and we learn a great deal through the sense of sight.

Think-Pair-Share

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

8. Your sense of sight is the one you use the most. How does the sense of sight help you on a daily basis?

- » Answers may vary.

9. After hearing today’s Read-Aloud and comprehension questions and answers, do you have any remaining questions?

- You may wish to allow time for individual, group, or class research of the text and/or other resources to answer any remaining questions. **TEKS 3.6.B**

Lesson 10: Vision: The Parts of the Eye

Reading



Primary Focus: Students will determine the key idea of “Eyes and Vision,” recount the key details, and explain how these details support the key idea. **TEKS 3.2.A.iv; TEKS 3.7.G**

PREVIEWING VOCABULARY (5 MIN.)

The following are vocabulary words used in this lesson. Preview the words with the students before the lesson and refer back to them at appropriate times.

- Display the vocabulary card or write the vocabulary word on the board.
- Divide the word into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.

TEKS 3.2.A.iv Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.7.G** Discuss specific ideas in the text that are important to the meaning.

- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.

vision, the sense of sight, the act of seeing

cornea, a thin, clear tissue that covers the iris, protects the eye from dirt and germs, and focuses light

optic nerve, the nerve that sends messages from your eyes to your brain about what you see

rods and cones, special cells that line the retina and send signals to the brain through the optic nerve

| Vocabulary Chart for “Eyes and Vision” | | |
|--|--|----------------------------------|
| Type | Tier 3
Domain-Specific Words | Tier 2
General Academic Words |
| Vocabulary | vision
iris
cornea
optic nerve
rods and cones
pupil
lens
retina | |
| Multiple Meaning | iris
pupil | |
| | | |
| Sayings and Phrases | | |

INTRODUCING THE READING (5 MIN.)

- Tell students that the title of today’s chapter (Chapter 7) is “Eyes and Vision.”
- Explain to students that the brain is like a message center in the human body. Ask them if they remember what muscles need in order to move. (a message from the brain)
- Ask students if they remember the name for the long strings of nerves that are a superhighway to the brain. (spinal cord)

Chapter 7 Eyes and Vision

For the past few days I have been talking to you about the body and its systems. Your teacher asked me if I could also tell you something about **vision** and hearing.

I told her I could. I know a little about **vision** and a little about hearing, but I am not an expert on either one. So, I told her I would bring in some friends of mine who know more about these subjects.

I have one of those friends with me today. His name is Dr. Kwan Si-Yu. He is a special kind of eye doctor called an optometrist. He can tell you all about the eyes and how they work.



Dr. Welbody introduces Dr. Kwan Si-Yu.

52

53

Support

Be sure to call students' attention to and discuss the images accompanying the text, as they often reinforce understanding of the text.

Make sure students also read each caption.

Support

Encourage students to find answers to the discussion questions throughout the reading, with a partner, before sharing as a group.

PRESENTING THE READING: "EYES AND VISION" (20 MIN.)

Pages 52–53

- Read the title of today's chapter together as a class, "Eyes and Vision."
- Display the Vocabulary Card for *vision*.
- Have students find *vision* in the glossary, and read the definition together as a class.
- Ask students to read **pages 52–53** to themselves to fill in the blank in the following sentence: "Dr. Welbody brought in Dr. Kwan Si-Yu because Dr. Welbody is not an _____ on vision."
- When students have finished reading, reread the sentence and have students answer. (expert)
- Have students look at the image and read the caption on **page 53**.

Hello, I am Dr. Kwan Si-Yu. Are you ready to learn all about eyes?

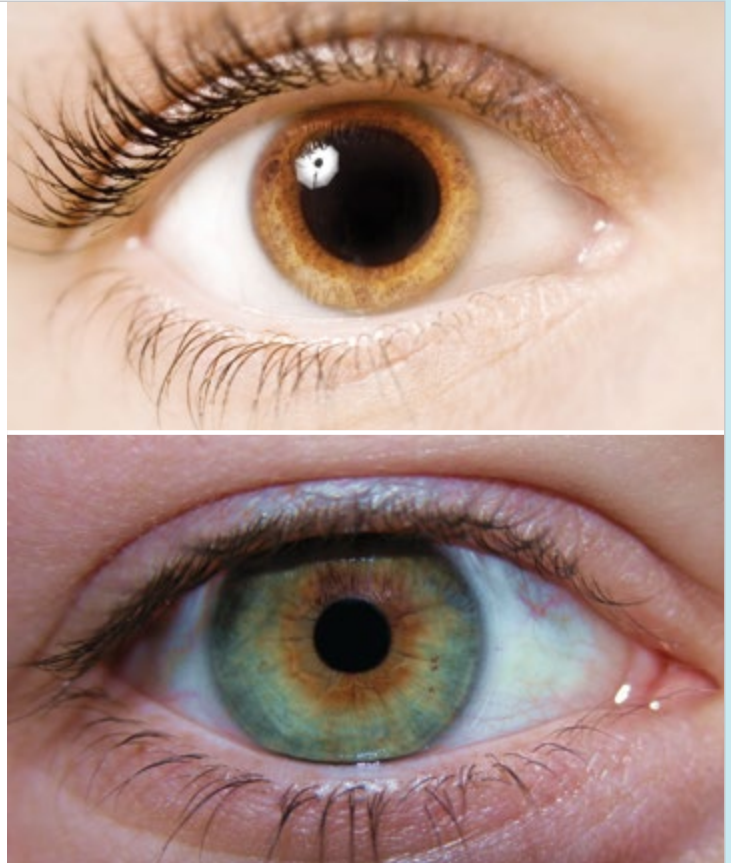
Good!

The human eye has several parts. I'd like to start by showing you two parts you can see easily.

In the images on the right, you can see what eyes look like up close. The **pupil** is the black part in the center of the eye. The **iris** is the colorful part of the eye that surrounds the **pupil**.

The **iris** can be different colors. Some of you may have green eyes or brown eyes. When we say that a person has green eyes or brown eyes, it's his or her **irises** we are talking about.

The **pupil** is not as colorful as the **iris**. It is always black, but it changes shape. When it is dark, the **pupil** gets bigger to let more light in. When it is very bright and sunny, the **pupil** shrinks to let less light in. How much light will be let into the inside of your eye depends on the shape of the **pupil**.



*The top picture shows a large **pupil**, which is letting more light in. The bottom picture shows a small **pupil**, which is letting less light in.*

Pages 54–55

- Display the Vocabulary Cards for *pupil* and *iris*.
- Have students find *pupil* and *iris* in the glossary, and read the definitions together as a class.
- Note for students that *pupil*, *pupils*, *iris*, and *irises* are all used in this chapter.
- Ask students to read **pages 54–55** to themselves to find the answer to the question: “Why does the pupil in your eye get bigger and smaller?”

Challenge

Ask students to think of questions about vision that this chapter does not address.

- When students have finished reading, restate the question and have students answer. (The pupil gets bigger to let more light in and smaller to let less light in.)
- Have students look at the image and read the caption on **page 55**.



Check for Understanding

What part of the eye can be different colors?

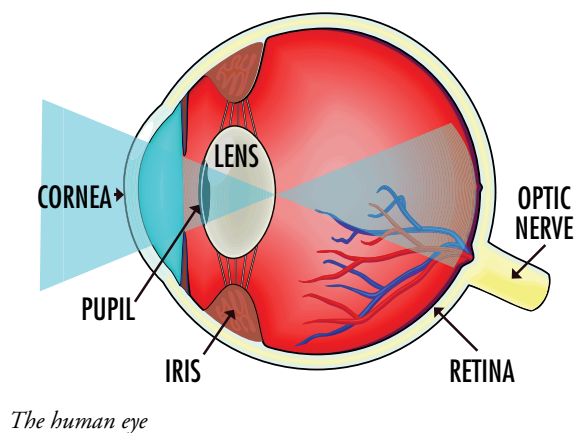
» iris

Now, let's learn about some parts of the eye that you can't see just by looking at a person's face.

The picture on the next page shows some parts of the eye as they would look if you could see inside a person's head. You are looking at them from the side.

You can see the **iris** and the **pupil**. There are also some other parts shown.

- The **cornea** is a thin, clear tissue that covers the colored part of the eye. It helps protect the eye from dirt and germs.
- The **lens** is the part of your eye that focuses light. The **lenses** in your eyes curve outward.
- The **retina** is made of a special kind of tissue that is very sensitive to light. Light from the **lens** falls on the **retina**. Then, nerves in the **retina** send messages to the brain.
- These messages travel down a nerve called the **optic nerve**.



Pages 56–57

- Display the Vocabulary Cards for *cornea*, *lens*, *retina*, and *optic nerve*.
- Have students find *cornea*, *lens*, *retina*, and *optic nerve* in the glossary, and read the definitions together as a class. Note for students that *lenses* is used in the chapter.
- Ask students to read **pages 56–57** to themselves to find the answer to the question: “What is the function of the cornea?”
- When students have finished reading, restate the question and have students answer. (The cornea helps protect the eye from dirt and germs.)
- Ask, “What is the function of the retina?” (The nerves in the retina send messages to the brain down a nerve called the optic nerve.)
- Have students look at the image and read the caption on **page 57**.

Now, let's see how all of these parts work together so you can see things. You may be surprised to learn that the eye does not really see objects. Instead, it sees the light that reflects off objects.

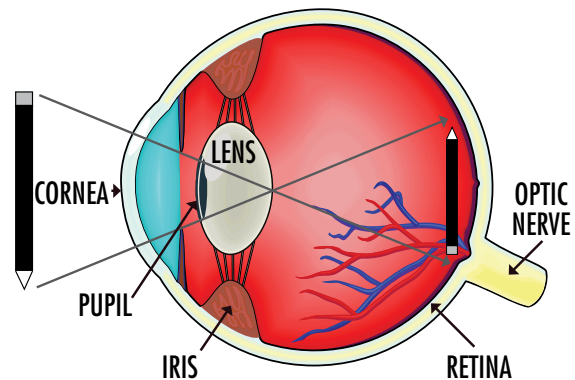
Light passes into the eye—first through the **cornea**, and then through the **pupil**. If it's dark, the **pupil** expands to let more light in. If it's bright, the **pupil** gets smaller to let less light in. When a doctor shines a light in your eyes, she is watching to see if your **pupils** change shape.

Next, the light passes through the **lens**, which focuses the light and projects it onto the **retina**.

The **retina** is lined with special cells called **rods and cones**. These are special kinds of nerve cells that sense light. The **rods and cones** send information to the brain, using the **optic nerve**.

All of this happens very quickly—so quickly that it seems like you see things at the exact moment you look at them. In reality, though, you are seeing them a split second later.

The brain combines the information passed through the **optic nerve** of each eye to make one image. That is when you “see” the object.



Your eyes see light reflected off objects.

- Display the Vocabulary Card for *rods and cones* or write the term on the board.
- Have students find *rods and cones* in the glossary, and read the definition together as a class.
- Ask students to read **pages 58–59** to themselves to find the answer to the question: “What is the function of rods and cones?”
- When students have finished reading, restate the question and have students answer. (Rods and cones are special cells in the retina that send information to the brain using the optic nerve.)
- Have students look at the image and read the caption on page **59**.

DISCUSSING THE READING (10 MIN.)

1. **Literal.** Which part of your eye is made of a special kind of tissue that is very sensitive to light?
 - » retina
 2. **Literal.** Where does the retina send the messages it receives?
 - » to the brain
 3. **Literal.** Remember, we said that the spinal cord is like a highway for messages to travel to the brain. What is the name of the highway eye messages travel along?
 - » optic nerve
 4. **Literal.** Does the eye actually “see” objects?
 - » No, the eye actually sees the light that reflects off objects.
 5. **Inferential.** What is the key idea of the chapter?
 - » Students may not state the key idea exactly like this, but it should closely resemble the following: The human eye has many parts that all work together to send messages to the brain that allow us to “see.”
- Have students complete Activity Page 10.1 independently.

Lesson 10: Vision: The Parts of the Eye Language



Primary Focus: Students will form and use irregular plural nouns.

 **TEKS 3.11.D.iii**

SPELLING ASSESSMENT (25 MIN.)

- Have students turn to Activity Page 10.2 for the spelling assessment.
- If you would like for students to have pens, this is the time to pass them out.
- Using the following chart, call out each singular noun one at a time in the following manner: Say the word, use it in a sentence, and then say the word again.

 **TEKS 3.11.D.iii** Edit drafts using standard English conventions, including: singular, plural, common, and proper nouns.

Activity Page 10.1



**ENGLISH
LANGUAGE
LEARNERS**

Reading
Reading/Viewing Closely

Beginning

Ask multiple-choice distractor questions aloud and ask students to say whether it is true or false, i.e., “The retina sends messages to your brain. True or false?”

Intermediate

Pair students with a partner who can support the student in rereading the text if necessary and answering the questions.

Advanced/ Advanced High

Encourage students to answer questions in complete sentences.

ELPS 4.G

Activity Page 10.2



- Tell students that at the end, you will go back through the list once more.

1. self

2. thief

3. loaf

4. wife

5. wolf

6. elf

7. knife

8. life

9. shelf

10. half

11. leaf

Challenge Word: before

Challenge Word: please

- After you have called out all of the words, including the Challenge Words, go back through the list slowly, reading each word just once more.
- Ask students to write the following sentences as you dictate them:
 1. Some people say cats have nine lives.
 2. The elves found half of a loaf of bread on the shelf.
- Then, ask students to go back and write the plural form of each singular noun. Allow students five to ten minutes to complete this portion of the spelling test.
- After students have finished, collect pens, if used.
- Tell students that you will now show them the correct spelling for each word so that they can correct their own work using a pencil.
- Say and write each word on the board, instructing students to correct their work by crossing out any incorrect spelling, then copying and writing the correct spelling next to it.
- Continue through all the words and then on to the dictated sentences.

Note: At a later time today, you may find it helpful to use the template provided to analyze students' mistakes. This will help you to understand any patterns that are beginning to develop or that are persistent among individual students.

Lesson 10: Vision: The Parts of the Eye

Writing



Primary Focus: Students will identify and use parts of a paragraph, including a topic sentence, supporting details, and a concluding statement, in a written

piece. **TEKS 3.12.B**

WRITING TITLES FOR PARAGRAPHS (10 MIN.)

- Tell students that today, they are going to practice writing titles for paragraphs.
- Remind students that a paragraph is a collection of sentences on one topic. A paragraph has a topic sentence that tells the key idea, or what the paragraph is mostly about. A paragraph also has a concluding sentence that wraps up the paragraph and often restates the topic sentence.
- Write the following sentence on the board: *How Does Your Body Work?* teaches readers about three of the systems that make up your body. (Make sure that you indent this sentence when you write.)
- Tell students that this sentence will be the topic sentence of a paragraph you will write together as a class. As the topic sentence, it tells what the rest of the paragraph will be about, so all of the other sentences in the paragraph will be about the three systems described in *How Does Your Body Work?*
- Ask students to brainstorm facts learned from the first chapters of the Reader. (Some ideas might include: skeletal system is made up of bones filled with marrow cells; muscular system allows bones to move; muscles are either voluntary or involuntary; nervous system sends messages around the body, etc.). Stop after you have three or four ideas.
- Have students put their ideas into sentences.
- Review these ideas with students, ensuring that their examples relate to the topic sentence. Omit any that do not relate. Write these sentences on the board, following the topic sentence, in paragraph form.

TEKS 3.12.B Compose informational texts, including brief compositions that convey information about a topic, using a clear central idea and genre characteristics and craft.

Activity Page 10.3



**ENGLISH
LANGUAGE
LEARNERS**



Language
Foundational Skills

Beginning

Give students choices of paragraph titles to choose from when titling their paragraphs.

Intermediate

Allow students to use one word from each paragraph as their title.

Advanced/ Advanced High

Encourage students to title their paragraphs with words from the reading.

ELPS 5.G

Activity Page 10.4



- Also, check that the last sentence serves as a good concluding sentence.
- Remind students that a title tells what the paragraph is about but is not written in sentence form. Titles for paragraphs are often phrases made from the key words in the topic sentence.
- Ask students to suggest possible titles for the paragraph that you have just written as a class. Choose one and write it on the board above the sentence. Point out that the important words of the title are capitalized. Since titles aren't sentences, there is no ending punctuation.
- Ask students to turn to Activity Page 10.3.
- Read the first paragraph to students, noting that all of the sentences are about summer and why it is the best season, and that the first sentence is the topic sentence. Point out that the last sentence is a concluding sentence that wraps up the paragraph by restating the topic sentence.
- Ask students to use the words in the topic sentence to create a title. Write their suggested titles on the board.
- Remind students to capitalize the first and last word of the title and any other important word(s). Since titles aren't sentences, there is no ending punctuation.
- Have students choose the title they like the best, and write it on the blank above the first paragraph.
- Complete the activity page as a teacher-guided activity.

~~~~~~End Lesson~~~~~

## Lesson 10: Vision: The Parts of the Eye

# Take-Home Material

- Have students take home Activity Page 10.4 to read to a family member.

Spelling Analysis Chart

Name

self

selves

thief

thieves

loaf

loaves

wife

wives

wolf

wolves

elf

elves

knife

knives

life

lives

shelf

shelves

half

halves

leaf

leaves

**Challenge Word:** before

**Challenge Word:** please

## Spelling Analysis Directions

- Students are likely to make the following errors:
  - Not changing the 'f' to 'v' before adding -es
  - Adding -es to the words that end with 'fe'
- While either of the above student-error scenarios may occur, you should still be aware that misspellings may be due to many other factors. You may find it helpful to record the actual spelling errors that the student makes in the analysis chart. For example:
  - Is the student consistently making errors on specific vowels? Which ones?
  - Is the student consistently making errors at the end of the words?
  - Is the student consistently making errors on particular beginning consonants?
- Did the student write words for each feature correctly?
- Also, examine the dictated sentences for errors in capitalization and punctuation.



## 11

# Hearing: The Parts of the Ear

## PRIMARY FOCUS OF LESSON

### Speaking and Listening

Students will describe the relationship between the parts of the ear in “Hearing: The Parts of the Ear” using language that pertains to sequence and cause/effect. **TEKS 3.1.A; TEKS 3.6.B; TEKS 3.7.C; TEKS 3.7.D**

### Reading

Students will ask and answer questions to demonstrate understanding of “Ears and Hearing,” referring explicitly to the text as the basis for the answers. **TEKS 3.2.A.iv; TEKS 3.7.C**

### Language

Students will use spelling patterns and generalizations (e.g., ending rules) in writing words. **TEKS 3.2.B.iv; TEKS 3.2.B.vii**

### Writing

Students will produce writing in which the development and organization are appropriate to task and purpose, i.e., ideas are presented clearly and in a logical order. **TEKS 3.11.B.i; TEKS 3.11.B.ii**

## FORMATIVE ASSESSMENT

**Activity Page 11.2 Write a Paragraph** Write topic, supporting, and concluding sentences. **TEKS 3.11.B.i; TEKS 3.11.B.ii**

- ✚ **TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments;  
**TEKS 3.6.B** Generate questions about text before, during, and after reading to deepen understanding and gain information;  
**TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.7.D** Retell and paraphrase texts in ways that maintain meaning and logical order; **TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.2.B** Demonstrate and apply spelling knowledge by (iv) spelling multisyllabic words with multiple sound-spelling patterns; (vii) spelling words using knowledge of suffixes, including how they can change base words such as dropping e, changing y to i, and doubling final consonants; **TEKS 3.11.B** Develop drafts into a focused, structured, and coherent piece of writing by: (i) organizing with purposeful structure including an introduction and conclusion; (ii) developing an engaging idea with relevant details.

## LESSON AT A GLANCE

|                                                            | Grouping                    | Time    | Materials                                                                                                                                                                      |
|------------------------------------------------------------|-----------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Speaking and Listening (45 min.)</b>                    |                             |         |                                                                                                                                                                                |
| Previewing Vocabulary                                      | Whole Group                 | 5 min.  | <input type="checkbox"/> KWL Chart (previous lesson)<br><input type="checkbox"/> Digital Flip Book: U3.L11.1–U3.L11.6<br><input type="checkbox"/> Activity Page 1.1 (optional) |
| Introducing the Read-Aloud                                 | Whole Group                 | 10 min. |                                                                                                                                                                                |
| Presenting the Read-Aloud: “Hearing: The Parts of the Ear” | Whole Group                 | 20 min. |                                                                                                                                                                                |
| Discussing the Read-Aloud                                  | Whole Group/<br>Partner     | 10 min. |                                                                                                                                                                                |
| <b>Reading (35 min.)</b>                                   |                             |         |                                                                                                                                                                                |
| Previewing Vocabulary                                      | Whole Group                 | 5 min.  | <input type="checkbox"/> <i>How Does Your Body Work?</i><br><input type="checkbox"/> Vocabulary Cards                                                                          |
| Introducing the Reading                                    | Whole Group                 | 5 min.  |                                                                                                                                                                                |
| Whole Group Reading: “Ears and Hearing”                    | Whole Group                 | 20 min. |                                                                                                                                                                                |
| Discussing the Reading                                     | Whole Group/<br>Partner     | 5 min.  |                                                                                                                                                                                |
| <b>Language (20 min.)</b>                                  |                             |         |                                                                                                                                                                                |
| Review Spelling Patterns and Irregular Plural Nouns        | Whole Group                 | 20 min. | <input type="checkbox"/> Activity Page 11.1                                                                                                                                    |
| <b>Writing (20 min.)</b>                                   |                             |         |                                                                                                                                                                                |
| Practice Writing Paragraphs                                | Whole Group/<br>Independent | 20 min. | <input type="checkbox"/> Activity Page 11.2<br><input type="checkbox"/> Verb Chart<br><input type="checkbox"/> Plural Noun Chart                                               |
| <b>Take-Home Material</b>                                  |                             |         |                                                                                                                                                                                |
| Family Letter                                              |                             |         | <input type="checkbox"/> Activity Pages 11.1, 11.2                                                                                                                             |
| Write a Paragraph                                          |                             |         |                                                                                                                                                                                |



## ADVANCE PREPARATION

### Speaking and Listening

- Write each vocabulary word on a piece of paper: *cochlea*, *eardrum*, *inner ear*, *middle ear*, and *outer ear*.
- Prepare to project the following digital images on the program's digital components site during the Read-Aloud: U3.L11.1–U3.L11.6.
- KWL Chart from previous Lesson 1.

### Reading

- Prepare Vocabulary Cards for the following words: *membrane*, *gland*, *auditory nerve*, *vibrate*, *outer ear*, *middle ear*, *inner ear*, *eardrum*, *cochlea*, and *sensitive*.

### Language

- On chart paper, create the following Verb Chart.

| Verb | -ed | -ing | -s | -es |
|------|-----|------|----|-----|
|      |     |      |    |     |
|      |     |      |    |     |
|      |     |      |    |     |
|      |     |      |    |     |

- On chart paper, create the following Singular and Plural Noun Chart.

| Singular Noun | Plural Noun |
|---------------|-------------|
|               |             |
|               |             |
|               |             |
|               |             |
|               |             |

### Universal Access

- Display vocabulary words in the classroom during and after instruction to reinforce word meaning.
- Project digital images for students to use while discussing parts of the ear prior to the start of the lesson.

## Lesson 11: Hearing: The Parts of the Ear

## Speaking and Listening



**Primary Focus:** Students will describe the relationships between the parts of the ear in “Hearing: The Parts of the Ear” using language that pertains to sequence and cause/effect. **TEKS 3.1.A; TEKS 3.6.B; TEKS 3.7.C; TEKS 3.7.D**

### PREVIEWING VOCABULARY (5 MIN.)

The following are core vocabulary words used in this lesson. Preview the words with the students before the lesson. Students are not expected to be able to use these words immediately, but with repeated exposure throughout the lessons, they will acquire a good understanding of most of the words. You may wish to display the vocabulary words in your classroom for students to reference. Students may also keep a “unit dictionary” notebook along with definitions, sentences, and/or other writing exercises using these vocabulary words.

- Display the vocabulary words on the board.
- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.

**cochlea**, the spiral-shaped organ filled with fluid and hair cells that allows a person to hear

**eardrum**, the thin, stretched membrane across the ear canal that vibrates when sound waves hit it

**inner ear**, the deep part of the ear that has semicircular canals and the cochlea and that helps hearing and balance

**middle ear**, the main hollow space of the ear behind the eardrum and before the inner ear

**outer ear**, the outer portion of the ear that consists of flaps, the ear canal, and the eardrum

**TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.B** Generate questions about text before, during, and after reading to deepen understanding and gain information; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.7.D** Retell and paraphrase texts in ways that maintain meaning and logical order.

Vocabulary Chart for “Vision: The Parts of the Eye”

| Type                | Tier 3 Domain-Specific Words                               | Tier 2 General Academic Words |
|---------------------|------------------------------------------------------------|-------------------------------|
| Vocabulary          | cochlea<br>eardrum<br>inner ear<br>middle ear<br>outer ear |                               |
| Multiple Meaning    |                                                            |                               |
| Sayings and Phrases |                                                            |                               |

**INTRODUCING THE READ-ALoud (10 MIN.)**

- Display KWL chart from previous Lesson 1.
- Remind students that the various human body systems are interconnected.
- Ask students, “What are the names of the systems you have learned about so far?”
  - » skeletal, muscular, and nervous systems
- Ask students to share what they remember about the muscular and skeletal systems, using the KWL chart for support as needed. Reread any riddles about these two systems and have students provide the answers.
- Ask students, “What does the term *sensory organ* mean?”
  - » an organ that allows you to use one of your five senses
- Review the parts of the eye, showing students images from the Read-Aloud if needed.
- Add any new information about the nervous system to the KWL chart, especially facts learned about the different parts of the eye, and how they work together to allow us to see.
- Reread any riddles about the nervous system and have students provide the answers.
- Tell students that today they will be learning about their ears and the different parts that work together to allow them to hear.
- Ask students to make predictions about whether or not sound travels in a sequence, or order, through the ear parts, similar to how light travels through the eye. You may wish to record their responses on the KWL chart and address the responses during the Discussing the Read-Aloud section.

**Support**

Remind students that when eyes are seeing, there is a sequence, or order, by which each part of the eye receives and processes the light that is coming into the eye. Ask for a volunteer to explain the route the light takes. (First light passes through the cornea, then the pupil, then the lens, and finally it lands on the retina.)

**Challenge**

Ask students to brainstorm ideas for how people who are deaf can communicate with others. (through sign language, by reading lips, and with computers)

- Revisit the 'K' and 'W' sections of the KWL chart and add what students know about their ears. Write any questions students have about their ears in the 'W' section of the chart.
- Encourage students to listen carefully to the information in the Read-Aloud to correct any misunderstandings, and/or add more information to the KWL chart.
- Remind students that observations are an important part of the learning process for scientists. Then tell them that you would like them to closely look at a partner's ear.
- Ask them to draw the different parts of the ear that they observe, and to label the parts that they know.
- Give students a few minutes to look at a partner's ear and draw the various parts. You may wish to also draw the parts of the ear on a piece of chart paper, chalkboard, or whiteboard.
- Review with students the parts that they may already know, such as the earlobe.
- Remind students that when studying the human body's systems and senses, they will learn about both internal and external parts.
- Tell students to listen carefully to find out details about how the ear works and how hearing helps us understand the world around us.

**PRESENTING THE READ-ALoud : “HEARING: THE PARTS OF THE EAR” (20 MIN.)**

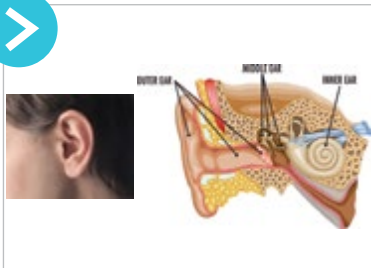


**Show Image U3.L11.1  
Ricardo**

Hear ye! Hear ye! Today we're going to poke around in your skull once more to learn about another one of your sensory organs. I'll give you a hint with another one of my special riddles:

We are located near your eyes. There are two of us. My twin hangs out on the opposite side of your head. We both hate the sound of sirens. What are we?

» ears



## Show Image U3.L11.2

### Ear Up Close

Yes—your ears! Your ears work together with your brain to help you hear. Think about all the different sounds you hear throughout your day. You hear alarm clocks, water running, doors opening,

horns honking, bells ringing, people talking, and so much more. Your ears are very important in the classroom, where you need to listen in order to learn. Your ears help you thicken your cerebral cortex! You are going to hear about all the parts of the ear that work together as an interconnected system.

Your ear is divided into three sections: the **outer ear**, **middle ear**, and **inner ear**. Just like your eyes, only part of your ears is visible. The other parts are hidden inside the protective bones of your skull.

Mammals are the only animals with **outer ears**. The **outer ear** consists of flaps on either side of your head, the **ear canal**, and the **eardrum**. Your outer earflaps are called pinna [PIN-ah]. They are made of skin and a tough elastic tissue called cartilage.

### Challenge

Think about these two words: *canal* and *drum*. What hints do they give you about how these ear parts work and function?

- » A canal is a pathway, and a drum vibrates when hit, producing sound.

### Support

Invite students to identify the outer parts of their ears as you read through the following information:

The bottom part of each earflap, or pinna, is called an earlobe.

Touch your earlobe, the bottom part of your pinna.

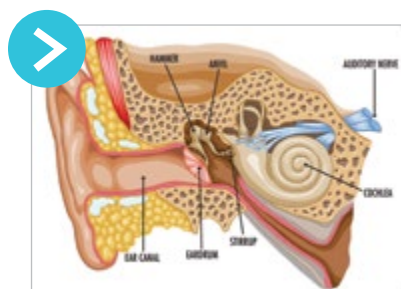
It is much softer than the top part because it does not contain any cartilage. Some earlobes are attached to the side of the head, whereas others dangle loose. Do you know which sort you have? Turn to your neighbor and ask.



### Check for Understanding

Who remembers which other parts of the body contain flexible cartilage?  
» ears, nose, ends of bones, and cartilage

The bottom of each earflap, or pinna, is called the earlobe. It is much softer than the top part because it does not contain any cartilage. Some earlobes are attached to the side of the head, whereas others dangle loose. Do you know which sort you have? Turn to your neighbor to ask.



### Show Image U3.L11.3 Human Ear (Ear Canal, Eardrum, Hammer, Anvil, Stirrup Cochlea, Auditory Nerve)

Shaped something like a cup, your **outer ear** is a sound catcher. It collects sound waves from the air around you

and funnels them through your ear canal to your **eardrum**. Your ear canal is like a tunnel, about half as long as one of your pinky fingers.

The inside of the ear canal is lined with tiny hairs, and earwax is constantly being produced by glands beneath the soft skin.



#### Check for Understanding

Can anyone guess what earwax does? I'll give you a hint: earwax serves a similar purpose to that of tears.

» An analogy could be "earwax is to ears as tears are to eyes."

Earwax prevents infections by keeping dirt and other particles from building up in the ear canal. At the end of the ear canal, sound bounces off of a thin, flexible flap of skin that stretches across the end of this tunnel. This **membrane**, or thin skin flap, is called an **eardrum** because sound **vibrates** off it in the same way that sound **vibrates** off the top of a drum when it is pounded with a drumstick. Your **eardrum** separates your **outer ear** from your **middle ear**.

Your **middle ear** is a tiny, air-filled space just behind your **eardrum**. As the **eardrum vibrates**, or shakes, three itty-bitty bones inside the **middle ear** begin to move, too. These three bones are named for their shapes: the hammer, the anvil, and the stirrup. They are the smallest bones in your body. The stirrup is the smallest of the three, no bigger than a grain of rice. These three tiny bones form a chain, held in place by muscles, that leads from the **middle ear** to the **inner ear**.

OK, it's time for an experiment. Close your mouth and form a puddle of spit inside your mouth. As you swallow your spit, listen closely. Did you hear anything? You should hear a little click. The **middle ear** is linked

## Support

Ears also have to “pop” when you go to deeper places. People who scuba dive and swim deep in the ocean learn different ways to help their middle ears maintain the correct amount of air pressure while they’re underwater.

to the back of your throat by a narrow tube. Whenever you swallow, chew, or yawn, the tube opens to let air travel in and out of your **middle ear**. That keeps the air pressure constant on either side of your **eardrum**, preventing it from bursting. Have your ears ever felt clogged in an airplane or while riding in a car over a mountain? Suddenly, you hear a loud pop and they are fine again. The tube connecting your throat to your **middle ear** opened up. Thank goodness!

Your **inner ear** is located inside your skull. It is the most complicated and delicate part of the ear, consisting of a maze of tubes inside a liquid-filled, bony, hollow space. At the end of the maze is a snail-shaped, coiled, bony tube filled with fluid. This part of your ear, lined with tiny hairs, plays a very important part in hearing. It is called the **cochlea**, which means “snail” in Latin. Some people who cannot hear get cochlear implants, invented devices that function just like the **cochlea** functions. The second part of the inner ear is the **auditory nerve**, which can be likened to the optic nerve of the eyeball.



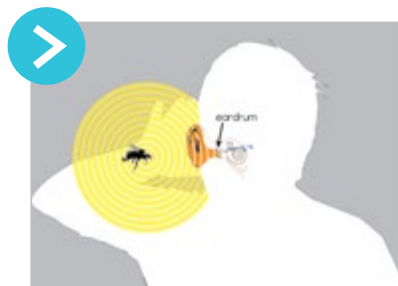
### Check for Understanding

Who can tell me what the function of the optic nerve is?

- » connects the eyeball to the brain, relaying what is seen by the eyes to the brain for processing

What do you think is the job of the auditory nerve?

- » to send information that is heard to the brain for processing



### Show Image U3.L11.4 How Hearing Works

So, just exactly how do ears work?

Your ears collect sound waves, or vibrations. Sound waves are tiny, invisible movements in the air. Sounds are heard only when these waves bump against the

**outer ear** and get funneled into your ear canals. Different sounds have different wave patterns. Loud sounds, such as the sound of a jackhammer, have larger waves than softer sounds, such as the purring of a cat. The louder the sound, the larger the vibration is inside your ear. For you to hear

sounds, vibrations must travel from your **outer ear**, through your **middle ear**, to your **inner ear**, and on to your brain for processing. Let's follow a sound wave through an ear to see how it works.

First, the **outer ear**, or sound catcher, collects sound waves and channels them into the ear canal. Once the sound waves are channeled into the ear, they hit the **eardrum**, causing it to **vibrate**. As the **eardrum vibrates**, so do the three bones in the middle ear. Next, hinged together by miniature joints, the hammer hits the anvil, and the anvil hits the stirrup. All these vibrations in the **middle ear** cause liquid in the inner ear to **vibrate** as well.



### Check for Understanding

Let's review these first few steps of hearing before we move on to the rest.

- Encourage students to use sequencing words to retell the initial steps of hearing. **TEKS 3.7.D**

Wrapped inside the cochlea is a long, narrow ribbon with thousands of hearing cells, each loaded with tiny hairs. The vibrations in the **middle ear** create waves in the fluid of the **inner ear** that cause the tiny hairs of the **cochlea** to ripple as well. Next, the sensory hair cells bend and stretch, producing nerve **impulses**. These signals are carried on nerve fibers, or threads, along the **auditory nerve** to the hearing center of the brain. The brain is able to recognize the nerve impulses, or signals, as sound, even determining the direction from which the sound comes. The brain receives lots of different vibrations at the same time and is able to tell the signals apart, passing the information along to you and allowing you to hear. These signals hardly ever get mixed up in your amazing brain.

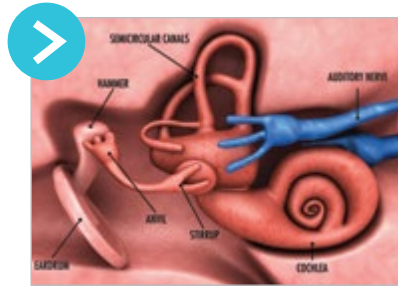
Just like the process of the eyeball working with light, the process of hearing sounds is also quite wondrous!

For some people, hearing is difficult or even impossible when one or more parts of this system are not working properly. When people are not able to hear anything, or perhaps only a very few sounds, we say they are deaf.



**TEKS 3.7.D** Retell and paraphrase texts in ways that maintain meaning and logical order.

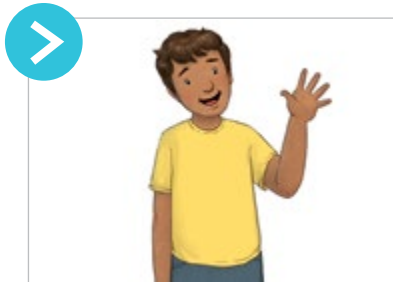




### Show Image U3.L11.5 Inner Ear Detail

Your **inner ear** is the seat of your hearing, but it has another important job to perform as well. Your balance is controlled by your **inner ear**. Nestled beside your cochlea are three curved

tubes called the semicircular canals. These canals are filled with fluid and lined with tiny hairs, just like the **cochlea**. Whenever you move your head—turning around, lying down, or bending forward—fluid inside the semicircular canals causes the hair to bend. The bending of the canals' tiny hairs sends nerve signals to your brain to let it know where and how you are moving. Your brain then sends messages to your muscles to keep you steady, maintaining your balance. Have you ever whirled around so fast that you became dizzy and lost your balance? That's because the fluid in the canals kept moving for a few seconds even after you stopped.



### Show Image U3.L11.6 Ricardo

It's almost time to stop for today, but first close your eyes and fold your hands in your lap. Let's sit very quietly and find out how many different sounds

we can hear in the room. (Allow for students to share what they hear.)

## DISCUSSING THE READ-ALoud (10 MIN.)

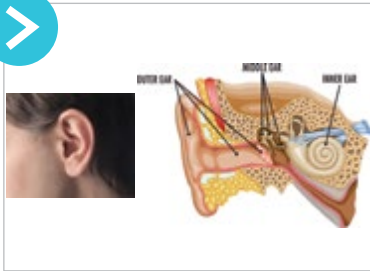
1. **Evaluative.** List the order, or sequence, of parts of the ear that sound travels through to allow you to hear.
  - » Sound waves are collected in the outer ear, then channeled into the inner ear; next, sound hits the ear drum; the hammer hits the anvil, the anvil hits the stirrup; and the cochlea ripples.

2. **Inferential.** Why do our ears produce earwax?

- » to prevent infections by keeping dirt and other particles from building up in the ear canal

3. **Literal.** What are the three sections of the human ear?

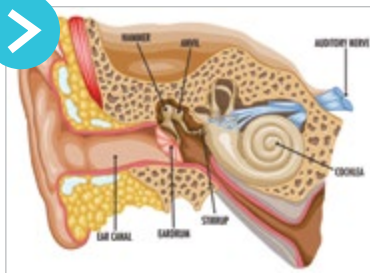
- » outer ear, middle ear, and inner ear



**Show Image U3.L11.2**  
**Ear Up Close**

4. **Literal.** What are the parts of the outer ear?

- » pinna, or earflaps, made of cartilage; earlobe (part of the pinna); ear canal; and eardrum) [Have students point to the parts of the outer ear on the image.]



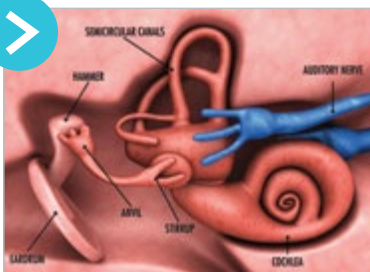
**Show Image U3.L11.3**  
**Human Ear (Ear Canal, Eardrum, Hammer, Anvil, Stirrup Cochlea, Auditory Nerve)**

5. **Inferential.** What are the three parts of the middle ear?

- » hammer, anvil, stirrup [Have students point to the parts of the middle ear.]

6. **Inferential.** What is unique about these three parts?

- » They are the smallest bones in the human body.



**Show Image U3.L11.5**  
**Inner Ear Detail**

7. **Evaluative.** You have described the order in which the parts of the ear receive and process sound. Now, explain what happens to sound at each stop along the path of the ear parts, which allows a person to hear.

- » The outer ear collects sound waves and channels them into the ear canal where they hit the eardrum, causing it and the three bones in the middle ear to vibrate;

the hammer hits the anvil, and the anvil hits the stirrup. The vibrations in the middle ear cause liquid in the inner ear to vibrate, creating waves in the fluid of the inner ear, and causing the tiny hairs of the cochlea to ripple. The sensory hair cells produce nerve impulses, which are carried along the auditory nerve to the hearing center of the brain. The brain recognizes the nerve impulses as sound.

8. **Evaluative.** Why is it very important to take good care of the ears?

- » Answers may vary, but should include the importance of ears for communicating and learning about our surroundings.

### Think-Pair-Share

- I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

1. **Evaluative.** How does your sense of hearing help you on a daily basis?

- » Answers may vary.
- After hearing today’s Read-Aloud and comprehension questions and answers, do you have any remaining questions?
- You may wish to allow time for individual, group, or class research of the text and/or other resources to answer any remaining questions.

#### ENGLISH LANGUAGE LEARNERS



#### Speaking and Listening

##### Beginning

Ask students simple yes or no questions, i.e., “Does the outer ear collect sound waves?”

##### Intermediate

Have students provide domain words when asked definition questions, i.e., “What are the electrical signals carried through the nerves of the ear to the brain that enable someone to be able to hear sound?”

##### Advanced/ Advanced High

Encourage students to answer questions using complete sentences and newly learned domain vocabulary.

**ELPS 3.D**

## Lesson 11: Hearing: The Parts of the Ear

# Reading



**Primary Focus:** Students will ask and answer questions to demonstrate understanding of “Ears and Hearing,” referring explicitly to the text as the basis for the answers **TEKS 3.2.A.iv; TEKS 3.7.C**

### PREVIEWING VOCABULARY (5 MIN.)

- The following are vocabulary words used in this lesson. Preview the words with the students before the lesson and refer back to them at appropriate times.
- Display the vocabulary card or write the vocabulary word on the board.

**TEKS 3.2.A.iv** Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.7.C** Use text evidence to support an appropriate response.

- Divide the word into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.
- The words also appear in the glossary in the back of the student reader.

**membrane**, a thin sheet or layer that covers something

**vibrate**, to move back and forth rapidly

**gland**, an organ in the body that makes natural chemicals

**sensitive**, responsive

**auditory nerve**, the nerve that sends signals from your ears to your brain about what you hear

| Vocabulary Chart for “Ears and Hearing” |                                                                                                   |                                  |
|-----------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------|
| Type                                    | Tier 3<br>Domain-Specific Words                                                                   | Tier 2<br>General Academic Words |
| Vocabulary                              | membrane<br>gland<br>auditory nerve<br>cochlea<br>eardrum<br>inner ear<br>middle ear<br>outer ear | vibrate<br>sensitive             |
| Multiple Meaning                        |                                                                                                   |                                  |
| Sayings and Phrases                     |                                                                                                   |                                  |

### INTRODUCING THE READING (5 MIN.)

- Tell students that the title of today’s chapter is “Ears and Hearing.”
- Tell students that they will learn about how their ears help them hear sounds.
- Ask students to turn to the table of contents, locate the chapter, and then turn to the first page of the chapter.

### Support

Encourage students to find answers to the discussion questions throughout the reading, with a partner, before sharing as a group.

## Chapter 8 Ears and Hearing

Boys and girls, today you are going to learn about the sense of hearing. I'm an expert on eyes and vision, but not on ears and hearing.

That's why I brought in a friend of mine. This is Dr. Audit. She is an ear doctor. She will tell you all sorts of interesting things about your ears!

So please welcome Dr. Kim Audit.

Hi! Can you all hear me?

You can? Well, then, tell your ears thanks! Your ears work for you all day long. They tune into all kinds of sounds. They help you learn during school. They help you stay safe on the playground. When was the last time you thanked your ears for all the help they give you?



*Dr. Kwan Si-Yu introduces Dr. Kim Audit.*

### WHOLE GROUP READING: "EARS AND HEARING" (20 MIN.)

#### Pages 60–61

- Read the title of the today's chapter together as a class, "Ears and Hearing."
- Ask students to scan the page for vocabulary words. (There are none.)
- Ask students to read **pages 60–61** to themselves to fill in the blank in the sentence: "Dr. Kim Audit is an expert on \_\_\_\_\_ and \_\_\_\_\_."
- When students have finished reading, reread the sentence and have students answer. (ears and hearing)
- Have students look at the image and read the caption on **page 61**.

I'm here to teach you about ears and hearing. But I'd like to start by using this drum to tell you about sound waves. Let me give it a couple of taps.

A drum is just a thin **membrane**, or skin, that's been pulled tight over a frame. When you hit a drum, the **membrane** begins to **vibrate**. To **vibrate** means to move back and forth rapidly. The **vibrations** of the drum create **vibrations** in the air. The **vibrations** in the air are called sound waves!



*Dr. Audit demonstrates **vibration**.*

## Pages 62–63

- Display the Vocabulary Cards for *membrane* and *vibrate*.
- Have students find *membrane* and *vibrate* in the glossary, and read the definitions together as a class. Note for students that both the word *vibrate* and two forms of the word, *vibration* and *vibrations*, are used in this chapter.
- Ask students to read **pages 62–63** to themselves to find the answer to the question: “What are sound waves?”
- When students have finished reading, restate the question and have students answer. (vibrations in the air created by vibrations of an object)
- Have students look at the image and read the caption on **page 63**.

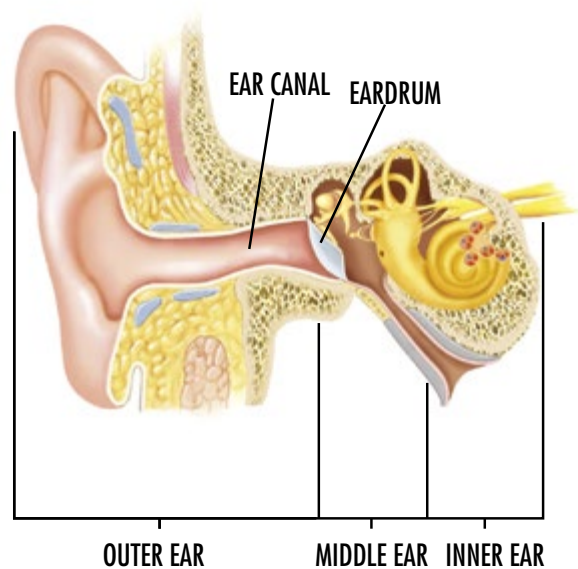
Now back to your ears. Your ears are made up of three parts: the **outer ear**, the **middle ear**, and the **inner ear**.

The part of your ear that you see on the side of your head is called the **outer ear**. The **outer ear** is made of cartilage and fat. The **outer ear** may look funny, but its shape is a good one for catching sounds. That's really the **outer ear's** main job—to catch sounds and guide them into the **middle ear**.

The **outer ear** has an opening in it called the ear canal. The ear canal is a tube that lets sound enter your skull.

The ear canal is lined with hairs and **glands** that produce ear wax. Ear wax helps to protect the ear. It also helps keep germs out of your ears.

The ear canal leads to the **eardrum**. The **eardrum** is a lot like the drum I brought in today. It has a thin **membrane** that is stretched tightly across the ear canal. When sounds reach the **eardrum**, they make the **eardrum** vibrate.



*Outer, middle, and inner ear*

## Pages 64–65

- Display the Vocabulary Cards for *outer ear*, *middle ear*, *inner ear*, *gland*, and *eardrum*.
- Have students find *outer ear*, *middle ear*, *inner ear*, *gland*, and *eardrum* in the glossary, and read the definitions together as a class. Note for students that *glands* is used in this chapter.
- Ask students to read **pages 64–65** to themselves to find the answer to the question: “What are the three parts of the ear?”
- When students have finished reading, restate the question and have students answer.
  - » outer ear, middle ear, and inner ear
- Ask, “What is the function of the outer ear?”
  - » to catch sounds and guide them to the middle ear through the ear canal)
- “What is the function of the middle ear?”
  - » The eardrum is located here. Its function is to vibrate when sounds hit it, just like a drum.
- Have students look at the image and read the caption on **page 65**.

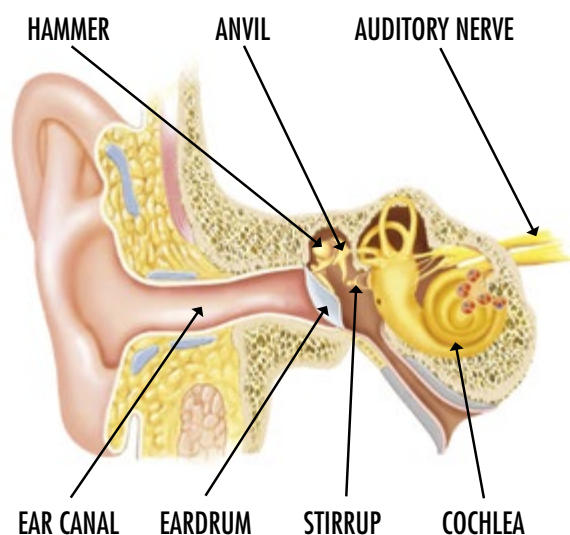


The **middle ear** is made up of three small bones with funny names: the hammer, the anvil, and the stirrup. These bones are named for things they look like. One looks like a hammer. Another looks like an anvil—the piece of iron on which a blacksmith bangs hot metal into shape. The last one looks like a stirrup that you put your foot in when you are mounting a horse.

These bones are very tiny. The stirrup is the size of a grain of sand. It is the smallest bone in the body.

All three bones are very **sensitive** to sound waves. They vibrate when they are struck by sound waves and they pass vibrations to a part in the **inner ear** called the **cochlea**.

The **cochlea** is a fluid-filled coil, shaped like a snail's shell. It is lined with hairs, which are connected to nerves. Sound waves from the **middle ear** make these hairs vibrate. Then, the nerves connected to the hairs send messages to the brain through the **auditory nerve**. That's how your ears let you hear what I'm saying.



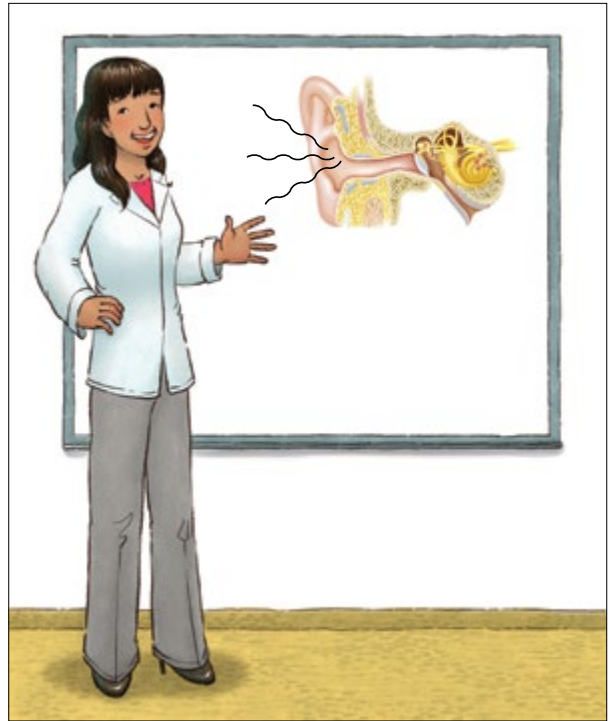
*Parts of the ear*

## Pages 66–67

- Display the Vocabulary Cards for *sensitive*, *cochlea*, and *auditory nerve*.
- Have students find *sensitive*, *cochlea*, and *auditory nerve* in the glossary, and read the definitions together as a class.
- Ask students to read **pages 66–67** to themselves to find the answer to the question: “What is the function of the hammer, anvil, and stirrup?”
- When students have finished reading, restate the question and have students answer.
  - » to vibrate when they are struck by sound waves and pass vibrations to the part in the inner ear called the cochlea
- Ask, “What is the function of the cochlea?”
  - » The hairs that line the cochlea vibrate when sound waves hit them. Nerves connected to the hairs send messages to the brain through the auditory nerve.
- Have students look at the image and read the caption on **page 67**.



Hearing is pretty amazing if you think about it. When I hit this drum, the sound waves travel across the room. Some of those waves enter your **outer ear** and are guided down the ear canal to your **eardrum**. The sound waves make your **eardrum vibrate**. The vibrating **eardrum** makes the tiny bones in your **middle ear vibrate** and these bones make the tiny hairs in your **cochlea vibrate**. Then, the nerves attached to these hairs send messages to your brain. All of this happens quicker than the time it just took you to read this sentence!



*Dr. Audit explains how your ear works.*

### Challenge

Encourage students to research more information on the ears and hearing.

### **Pages 68–69**

- Ask students to scan the page for new vocabulary words.
  - » There are none.
- Ask students to read **pages 68–69** to themselves to find the answer to the question: “How does a human ear hear?”
- When students have finished reading, restate the question and have students answer.
  - » Sound waves enter the outer ear and travel down the ear canal to the eardrum to make it vibrate. The tiny bones in the middle ear vibrate, causing the tiny hairs in the cochlea to vibrate. The nerves attached to these hairs send messages to the brain.
- Have students look at the image and read the caption on **page 69**.

## DISCUSSING THE READING (5 MIN.)

1. **Literal.** What are vibrations in the air called?
  - » sound waves
2. **Literal.** What does ear wax do?
  - » It protects the ear and helps keep germs out of the ear.
3. **Literal.** What three bones make up the middle ear?
  - » hammer, anvil, and stirrup
4. **Literal.** Which one is the smallest bone in the body?
  - » stirrup
5. **Literal.** How does the cochlea, found in the inner ear, help you hear sounds?
  - » The hairs that line it vibrate when sound waves come from the middle ear. The hairs are connected to nerves that send messages to the brain through the auditory nerve, which lets you hear sounds.
6. **Inferential.** What is the key idea of this chapter?
  - » Students may not state the key idea exactly like this, but it should closely resemble the following: The three parts of the ear work together to enable hearing.



**ENGLISH  
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Reading/Viewing Closely

### Beginning

Ask multiple-choice distractor questions aloud and ask students to say whether it is true or false, i.e., “Ear wax helps keep germs out of the ear. True or false?”

### Intermediate

Pair student with a partner who can support the student in rereading the text if necessary and answering the questions.

### Advanced/Advanced High

Encourage students to answer questions in complete sentences.

**ELPS 4.F**



**ENGLISH  
LANGUAGE  
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Language

### Beginning

Ask multiple-choice distractor questions aloud and ask students to say whether it is true or false, i.e., “The plural form of puppy is puppies. True or false?”

### Intermediate

Pair student with a partner who can support the student in practicing the spelling words.

### Advanced/Advanced High

Encourage students to use singular and plural forms of the nouns in sentences.

**ELPS 5.C**

## Lesson 11: Hearing: The Parts of the Ear

# Language



**Primary Focus:** Students will use spelling patterns and generalizations (e.g., ending rules) in writing words. **TEKS 3.2.B.iv; TEKS 3.2.B.vii**

## REVIEW SPELLING AND IRREGULAR NOUNS (20 MIN.)

**Note:** This week is a mixed review of spelling patterns. All of these patterns and words should be familiar to students.

- Tell students that the words for this week are all words they have learned and practiced before.

**TEKS 3.2.B** Demonstrate and apply spelling knowledge by (iv) spelling multisyllabic words with multiple sound-spelling patterns; (vii) spelling words using knowledge of suffixes, including how they can change base words such as dropping e, changing y to i, and doubling final consonants.

- Display the Verb Chart and Singular and Plural Noun Chart that you created before the lesson.

| Verb | <i>-ed</i> | <i>-ing</i> | <i>-s</i> | <i>-es</i> |
|------|------------|-------------|-----------|------------|
|      |            |             |           |            |
|      |            |             |           |            |
|      |            |             |           |            |
|      |            |             |           |            |

| Singular Noun | Plural Noun |
|---------------|-------------|
|               |             |
|               |             |
|               |             |
|               |             |

- When introducing the words, use these procedures:

### Step 1: Introducing the Verbs

- Tell students that this week, they will review spelling patterns they have applied so far in Grade 3. On the assessment, they will be responsible for determining the form of the verb or noun that fits in the oral sentence provided. These are all words that students have spelled in Grade 3.
- Tell students they will review this week’s spelling words in sections, or chunks. The first section will be verbs. Remind students that a verb describes an action.
- As you introduce each of the spelling words, write it in the table, pronouncing each word as you write it.

| Verb   | <i>-ed</i> | <i>-ing</i> | <i>-s</i> | <i>-es</i> |
|--------|------------|-------------|-----------|------------|
| watch  |            |             |           |            |
| wish   |            |             |           |            |
| submit |            |             |           |            |
| raise  |            |             |           |            |
| dry    |            |             |           |            |

### Step 2: Adding the Suffixes *-ed* and *-ing*

- Tell students that you will now fill in two columns of the table by adding the suffixes *-ed* and *-ing* to each root word.

- Have students tell you how to add *-ed* and *-ing* to *watch* and *wish*. (Students should point out that when words end with 'ch' and 'sh', the suffixes *-ed* and *-ing* are simply added.)
- Now, ask students to tell you how to add *-ed* and *-ing* to *submit*. (Students should tell you that when a word ends with CVC (consonant-vowel-consonant), the final consonant must be doubled before adding *-ed* or *-ing*. This is the case with *submit*.)
- Ask students to tell you how to add the suffixes to *raise*. (Students should say that when a word ends with a final letter 'e', the final letter 'e' must be dropped before adding *-ed* or *-ing*.)
- Ask students how to add *-ed* and *-ing* to *dry*. (Students should say that you change the 'y' to 'i', then add *-ed*. However, when adding *-ing*, the suffix is simply added, with no change to the 'y'.)

| <b>Verb</b> | <b>-ed</b> | <b>-ing</b> | <b>-s</b> | <b>-es</b> |
|-------------|------------|-------------|-----------|------------|
| watch       | watched    | watching    |           |            |
| wish        | wished     | wishing     |           |            |
| submit      | submitted  | submitting  |           |            |
| raise       | raised     | raising     |           |            |
| dry         | dried      | drying      |           |            |

### Step 3: Adding the Suffixes *-s* or *-es*

- Tell students that you will now fill in the remaining columns of the table by adding *-s* or *-es* to the verbs.
- Working through each root word, ask students to tell you how to add either *-s* or *-es* by asking which suffix is appropriate for that verb in the same way you did in the previous set of directions.

| <b>Verb</b> | <b>-ed</b> | <b>-ing</b> | <b>-s</b> | <b>-es</b> |
|-------------|------------|-------------|-----------|------------|
| watch       | watched    | watching    |           | watches    |
| wish        | wished     | wishing     |           | wishes     |
| submit      | submitted  | submitting  | submits   |            |
| raise       | raised     | raising     |           | raises     |
| dry         | dried      | drying      |           | dries      |

- When introducing the words, use these procedures:

### Step 1: Introducing Singular Nouns

- As you introduce each of the spelling words, write it in the table, pronouncing each word as you write it.

| Singular Noun | Plural Noun |
|---------------|-------------|
| book          |             |
| puppy         |             |
| knife         |             |
| child         |             |
| person        |             |

### Step 2: Forming the Plurals of the Singular Nouns

- Ask students to explain how to complete the remainder of the table by forming the plural form of the nouns.

| Singular Noun                 | Plural Noun |
|-------------------------------|-------------|
| book                          | books       |
| puppy                         | puppies     |
| knife                         | knives      |
| child                         | children    |
| person                        | people      |
| <b>Challenge Word:</b> across |             |
| <b>Challenge Word:</b> idea   |             |

- Explain to students that the Challenge Words *across* and *idea* are used very often. They may not follow spelling patterns, and need to be memorized. Use the Challenge Words in sentences as examples for students. “Maggie went *across* the street to play with Simon.” “I have no *idea* what the answer is.”
- Tell students that they will not need to change the form of the Challenge Words on the assessment.
- Tell students to turn to Activity Page 11.1. Have students circle the spelling words on the backside. Tell students they will take home Activity Page 11.1 to share with a family member.

### Support

Allow students to reference the spelling table to help them come up with meaningful sentences.

### Challenge

Ask students to use multiple spelling words in one sentence.

### Challenge

Tell students that these tables will remain on display until the assessment so that they may refer to them during the week.

### Challenge

Tell students they will take home Activity Page 11.1 with this week’s spelling words to share with a family member.

### Activity Page 11.1





## Checking for Understanding

Practice the words during the remaining time. Call on a student to read any word in its plural form, and ask them to orally use the word in a meaningful sentence. After the student says the sentence, have them ask the class: "Did that sentence make sense?" If the class says, "Yes," then the student puts a check mark in front of the word and calls on another student to come to the front and take a turn. If the class says, "No," have the student try again, or call on another student to come to the front and use the word in a meaningful sentence. This continues until all the plural forms are used or time has run out.



**ENGLISH  
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## Writing Writing

### Beginning

Ask students to provide a topic for a paragraph, as well as a topic sentence.

### Intermediate

Pair students with another student who can help them brainstorm ideas for their topic and supporting sentences.

### Advanced/ Advanced High

Encourage students to write a paragraph that includes a topic sentence and supporting sentences, in order.

### ELPS 5.G

## Activity Page 11.2



## Support

Take this opportunity to connect with students who may be struggling with this concept. Help them brainstorm their topic sentences, supporting details, etc.

## Challenge

Encourage students to write multiple paragraphs.

## Lesson 11: Hearing: The Parts of the Ear

# Writing



**Primary Focus:** Students will produce writing in which the development and organization are appropriate to task and purpose, i.e., ideas are presented clearly and in a logical order. **TEKS 3.11.B.i; TEKS 3.11.B.ii**

## PRACTICE WRITING PARAGRAPHS (20 MIN.)

- Tell students that today, they are going to practice writing paragraphs.
- Review the elements of a good paragraph: topic sentence, supporting details, no irrelevant sentences, sentences in order, concluding sentence, and title.
- Ask students to brainstorm topics they would like to write about, and make a list on the board.
- Have students turn to Worksheet 11.2 and begin work on their paragraphs. Should students need more time, have them take their worksheets home to finish.



## Check for Understanding

Circulate while students are writing, offering assistance as needed.

**TEKS 3.11.B** Develop drafts into a focused, structured, and coherent piece of writing by (i) organizing with purposeful structure including an introduction and conclusion; (ii) developing an engaging idea with relevant details.

## Lesson 11: Hearing: The Parts of the Ear

# Take-Home Material

### Activity Page 11.1



- Have students take home Activity Page 11.1 to share spelling words with an adult. Students may also take home Activity Page 11.2-Writing Paragraphs (if they didn't finish in class).

### Activity Page 11.2







## 12

# A Clean Bill of Health

## PRIMARY FOCUS OF LESSON

### Speaking and Listening

Students will compare the nervous system in the human body to other

✚ common systems. **TEKS 3.1.A; TEKS 3.6.F; TEKS 3.7.C**

Students will identify and explore idioms relating to health and the body.

✚ **TEKS 3.3.D**

### Language

Students will use spelling patterns and generalizations (e.g., ending rules) in

✚ writing words. **TEKS 3.2.B.iv**

## FORMATIVE ASSESSMENT

Lined Paper

✚ **Nervous System Comparison** Compare the nervous system to wiring in a house. **TEKS 3.7.C**

✚ **TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.F** Make inferences and use evidence to support understanding; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.3.D** Identify, use, and explain the meaning of antonyms, synonyms, idioms, homophones, and homographs in a text; **TEKS 3.2.B.iv** Demonstrate and apply spelling knowledge by: spelling multisyllabic words with multiple sound-spelling patterns.

## LESSON AT A GLANCE

|                                                     | Grouping                    | Time    | Materials                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------|-----------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Speaking and Listening (80 min.)</b>             |                             |         |                                                                                                                                                                                                                                                                                       |
| Previewing Vocabulary                               | Whole Group                 | 5 min.  | <input type="checkbox"/> KWL chart (previous lesson)<br><input type="checkbox"/> Digital Flip Book: U3.L12.1–U3.L12.9<br><input type="checkbox"/> lined paper<br><input type="checkbox"/> Image cards C.U3.L12.1–C.U3.L12.12<br><input type="checkbox"/> Activity Page 1.1 (optional) |
| Introducing the Read-Aloud                          | Whole Group                 | 10 min. |                                                                                                                                                                                                                                                                                       |
| Presenting the Read-Aloud: “A Clean Bill of Health” | Whole Group                 | 25 min. |                                                                                                                                                                                                                                                                                       |
| Discussing the Read-Aloud                           | Whole Group/<br>Independent | 20 min. |                                                                                                                                                                                                                                                                                       |
| Word Work: <i>Miraculously</i>                      | Whole Group/<br>Partner     | 5 min.  |                                                                                                                                                                                                                                                                                       |
| Systems Sort                                        | Whole Group/<br>Small Group | 15 min. |                                                                                                                                                                                                                                                                                       |
| <b>Language (40 min.)</b>                           |                             |         |                                                                                                                                                                                                                                                                                       |
| Review Spelling Words                               | Whole Group                 | 25 min. | <input type="checkbox"/> Activity Page 12.1                                                                                                                                                                                                                                           |
| Grammar Review                                      | Whole Group                 | 15 min. |                                                                                                                                                                                                                                                                                       |
| <b>Take-Home Material</b>                           |                             |         |                                                                                                                                                                                                                                                                                       |
| “A Clean Bill of Health”                            |                             |         | <input type="checkbox"/> Activity Page 12.2                                                                                                                                                                                                                                           |

## ADVANCE PREPARATION

### Speaking and Listening

- Write each vocabulary word on a piece of paper: *delicate*, *miraculously*, *posture* and *wiring*.
- Prepare to display KWL chart from the previous lesson.
- Prepare to project the following digital images on the program's digital components site during the Read-Aloud: U3.L12.1–U3.L12.9.
- Identify Image Cards C.U3.L12.1–C.U3.L12.12.

### Language

- Set up the students' chairs in a circle.
- Prepare music, ready to start and stop for a spelling review game.
- Tape and a note card with a star on it
- List of spelling words

### Universal Access

- Display vocabulary words in the classroom during and after instruction to reinforce word meaning.
- Project digital images in the classroom during and after instruction to reinforce ideas.

## Lesson 12: “A Clean Bill of Health”

## Speaking and Listening



**Primary Focus:** Students will compare the nervous system in the human body to other common systems. **TEKS 3.1.A; TEKS 3.6.F; TEKS 3.7.C**

Students will identify and explore idioms relating to health and the body. **TEKS 3.3.D**

### PREVIEWING VOCABULARY (5 MIN.)

The following are core vocabulary words used in this lesson. Preview the words with the students before the lesson. Students are not expected to be able to use these words immediately, but with repeated exposure throughout the lessons, they will acquire a good understanding of most of the words. You may wish to display the vocabulary words in your classroom for students to reference. Students may also keep a “unit dictionary” notebook, along with definitions, sentences, and/or other writing exercises using these vocabulary words.

- Display the vocabulary words on the board.
- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.

**delicate**, easily broken or damaged

**miraculously**, amazingly; incredibly

**posture**, the way in which someone holds or carries his or her body

**wiring**, a system or network of wires that carries electricity from one place to another

**TEKS 3.1.A** Listen actively, ask relevant questions to clarify information, and make pertinent comments; **TEKS 3.6.F** Make inferences and use evidence to support understanding; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.3.D** Identify and explain the meaning of antonyms, synonyms, idioms, homophones, and homographs in a text.

### Vocabulary Chart for “A Clean Bill of Health” Read-Aloud

| Type                | Tier 3 Domain-Specific Words | Tier 2 General Academic Words       |
|---------------------|------------------------------|-------------------------------------|
| Vocabulary          | wires                        | delicate<br>miraculously<br>posture |
| Multiple Meaning    |                              |                                     |
| Sayings and Phrases |                              |                                     |

### INTRODUCING THE READ-ALOUD (10 MIN.)

- Tell students that today’s Read-Aloud is the last one in which they will be hearing about the different human body systems, and that they have learned quite a bit of information about how the human body works.
- Revisit the KWL chart to review any important information about the skeletal, muscular, and nervous systems, including how they are interconnected with the circulatory, respiratory, digestive, and excretory systems.
- Ask students if they see any questions from the ‘W’ section that have remained unanswered.
- Share with students that they may have time to research any unanswered questions during the Pausing Point.
- An idiom is an expression whose meaning goes beyond the literal meaning of its individual words. Idioms have been passed down orally, or quoted in literature and other printed text. Idioms often use figurative language, meaning that what is stated is not literally taking place. It is important to help your students understand the difference between the literal meanings of the words and their implied or figurative meanings. **TEKS 3.3.D**
- Read students the title of today’s Read-Aloud: “A Clean Bill of Health.”
- Have students repeat the idiom after you.
- Ask students if they have ever heard this saying before.
- Ask students what they think the word *bill* means in this idiom. (Allow time for answers.)
- Explain that the way the word *bill* is used here is not like a bill their parents have to pay at a restaurant or for a doctor’s visit. The way *bill* is used here means an official document or a certificate that is provided by a medical doctor.

### Challenge

Allow time for students to share some examples of idioms they may already know.

**TEKS 3.3.D** Identify, use, and explain the meaning of antonyms, synonyms, idioms, homophones, and homographs in a text.

- Ask students what health is and what it means to be healthy. (Allow time for answers.)
- Explain that having a clean bill of health means that a doctor has examined you and has told you that your body is working properly and that you are healthy.
- Tell students that in a more general sense, the phrase “a clean bill of health” can refer to anything that is free of any faults or defects. If you have an older computer, but it is free of computer viruses and still functions well, you can say that your computer has a clean bill of health.
- Tell students they will be hearing this phrase throughout the Read-Aloud. Try to find other opportunities to use this idiom in the classroom.
- Tell students to listen carefully as they review information about the different human body systems.

## Support

Explain that about a hundred years ago, before a ship could leave its port and enter a new one in a different city, it had to have a clean bill of health—an actual certificate—saying that the place where the ship came from had no record of diseases. If the ship did not have the document saying it came from a port with a clean bill of health, it was not allowed to enter the new port.

### PRESENTING THE READ-ALOUD: “A CLEAN BILL OF HEALTH” (25 MIN.)



#### Show Image U3.L12.1 Ricardo and Dr. Welbody

Today is our last day together. Dr. Welbody is here to help us review some of what you learned about the human body. Take it away, Dr. Welbody!

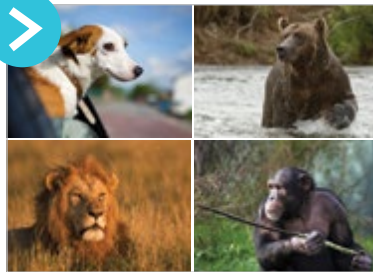
Hello, everyone! It’s so nice to see you again! When Ricardo and I talked last night, I said that I hoped you had learned how to take care of your bodies so that your pediatricians could give you a “clean bill of health.”



#### Checking for Understanding

- Does anyone know what I mean by “a clean bill of health”?
- » It’s another way of saying that you’re healthy.

If someone examines you and finds nothing wrong, they will give you a clean bill of health. It’s important to know how to keep your bodies healthy, so I will talk to you about that, too.



### Show Image U3.L12.2 Mammals

Humans are mammals.

### Think-Pair-Share:

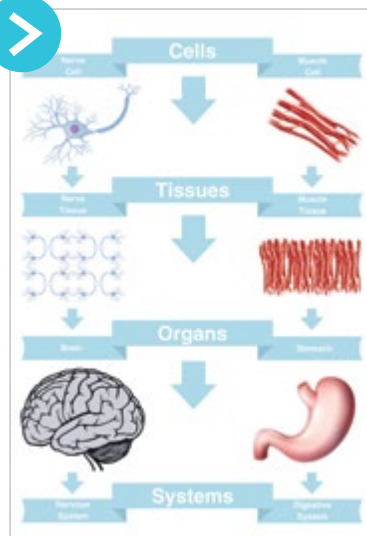
What do you know about mammals?

- » Answers may vary. All mammals are warm-blooded animals that grow body hair, produce milk for their young, and have a brain and a backbone.

You have brains and backbones, so you are also vertebrates. All mammals are vertebrates, but are all mammals alike—cats and dogs, foxes and sheep, whales and seals. What makes you different from all of them? That’s a question I’d like for you to think about as we review what you know about humans.

### Support

Invite students to point to each level as you read the following sentences.



### Show Image U3.L12.3 Cell, Tissue, Organ, and Systems Diagram

Humans have cells, tiny microscopic units that are the building blocks of their bodies.

Similar cells group together to form tissues. Tissues form organs, and organs build systems. Remember that nerve cells become nerve tissue, which is what the organs in the nervous system are made of; whereas muscle

cells become muscle tissue, which is what muscles are made of. All the systems working together form a complicated, interconnected network.

Do other mammals have cells, tissues, organs, and systems? Yes, cells are the basic building blocks of all living things, including all other mammals—and plants, too!

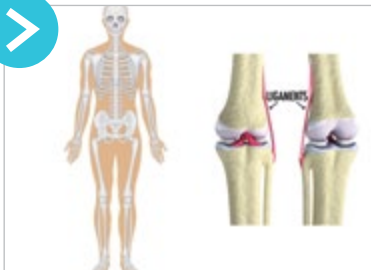


### Show Image U3.L12.4 Human Body Systems

Humans have many interconnected systems.

- Allow students time to answer the following questions as you read:

Do all mammals have circulatory systems? Yes! Blood travels through mammals' bodies. Do they have digestive systems? Yes, they eat and break down food. Do they have excretory systems? Yes, they sweat and urinate! Do they have respiratory systems? Yes, mammals breathe in air. Do mammals have skeletal systems? Yes, they have backbones. Do they have muscular systems? Yes, mammals run and jump or glide and swim, moving those bones, so they must have muscles. And, do they have nervous systems? Yes, they react to their environments, so they must have nerves. Let's take a closer look at your skeletal system.



### Show Image U3.L12.5 Bones in the Skeletal System

Your skeletal system is made up of axial bones and appendicular bones, working together to give your body a sturdy framework for all the other systems.

Your vertebrae are stacked in a column, forming your spine. Together with your protective skull and rib cage, they are your axial bones, running down

## Challenge

Who can remember the different body systems we've talked about?

- » circulatory system, digestive system, excretory system, respiratory system, skeletal system, muscular system, and nervous system

## Support

Show your neighbor where to find your axial bones. (vertebrae/spine)

## Challenge

Tell or show your neighbor what you think appendages are. (arms/legs)



the center, or axis, of your body. Your legs and arms are attached to your appendicular bones, the shoulder blades, and the pelvis.



### Checking for Understanding

Can anyone remember what we call the point where two bones meet?

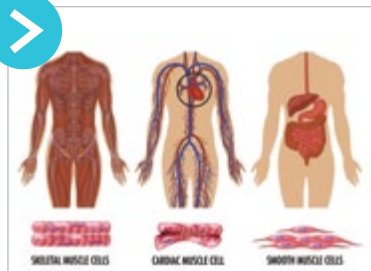
» joint

What's the name of the connective tissues that wrap around your joints to hold your bones together?

» ligaments

What can you do to give your skeletal system a clean bill of health?

**Diet** is important. Make sure that you eat enough foods with calcium to grow strong bones. Milk, broccoli, and dark, leafy greens are good choices. **Posture** is important, too; make sure that you sit and stand up straight. Keep your back safe by bending your knees when you lift something heavy!



### Show Image U3.L12.6

#### Muscles in the Muscular System

Rope-like tissues called tendons attach your bones to muscles. These skeletal muscles give your bones mobility, allowing you to touch your toes or climb a mountain. Because we control

our skeletal muscles, we call them voluntary muscles. There are other muscles that we cannot consciously control. What do we call them? (Pause for students to answer.) Right! Involuntary muscles.

Smooth muscles are involuntary muscles. They contract and lengthen on their own, working day and night to complete their jobs.



### Check for Understanding

Who can give an example of a smooth muscle?

- » Answers may vary. (muscles lining the organs of the digestive, respiratory, and circulatory systems)

A third type of muscle is also involuntary. This is your body's most important type of muscle. It is the muscle that keeps you alive.



### Check for Understanding

Does anyone remember the name of the strong muscle that is found only in your heart?

- » cardiac muscle

It is important to keep all of your muscles, both voluntary and involuntary, healthy. Diet is important. Muscles need protein found in eggs, meat, beans, and nuts. Exercise strengthens your muscles. Get all the exercise you can as a way of thanking your muscles for keeping you in constant motion.



### Show Image U3.L12.7 Nerves in the Nervous System

Your nervous system is your body's command system, communicating with the rest of your body systems, telling them what to do. It works closely with your skeletal and

muscular systems. Your skeletal muscles move your skeletal bones, but your muscles get their commands from messages sent by the nervous system. A network of nerves links your brain and spinal cord to muscles and sensory organs all over your body.

## Support

What can you do to give your muscles a clean bill of health?

- » healthy diet and exercise

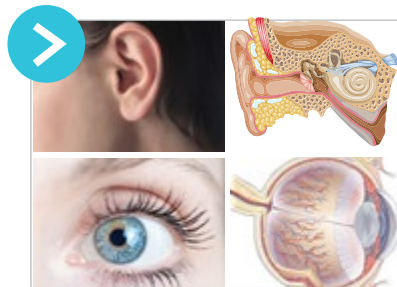
## Support

Wiring refers to the system of wires that controls something, like electricity. If wiring is shorted out, a working connection is no longer present.

Nerves collect messages from your brain, from your senses, and from other places inside your body. Many messages can be sent at the same time, as electrical impulses dash around your body in split-second relays. Your nervous system, with your brain acting as its main commander, controls everything you do.

Your nervous system is like an electrical system. Electrical **wiring**—whether in your house or in your body—can be shorted out if something goes wrong.

So, how can you prevent that? How can you give your nervous system a clean bill of health? It's no surprise that diet and exercise are just as important to your nervous system as they are to your other systems. It makes sense that because our systems are interconnected, they are affected by many of the same things, like diet and exercise. Vitamins and minerals from healthy foods like fresh fruits and vegetables, and protein from different foods, are all important. Drinking lots of water helps, too. Stay away from eating extra-salty foods and from anything that is filled with too much sugar, such as soda. Apples and oranges are great substitutes. Be sure to get outside every day to play, and be sure to get plenty of sleep. Your bodies are working very hard as they grow, and they need plenty of nourishment—or food—and rest to grow on!



### Show Image U3.L12.8

#### The Five Senses and Sensory Organs

All we have left to review are your sensory organs, which include parts of your eyes and ears. Without these sensory organs, you could not hear me reading aloud, and you would not

be able to see the images I'm showing you. In order to see, you need light. Your eye sees objects by seeing the light that bounces off those objects. Light passes through the cornea, the outer covering of your eye. Light rays are bent by the cornea before they pass through the pupil, the black dot at the center of your eye, to the lens, and on to

the retina at the back of your eye. A short optic nerve attached to the eyeball sends impulses to the brain, where the image is interpreted and you see it.

What can you do to give your eyes a clean bill of health? (Pause for students to answer.)

Your eyes already have some built-in protection: Eyelids, eyebrows, and eyelashes keep dust and sweat away. Two deep sockets in your skull protect your eyeballs. But there are other things you can do to prevent injury to your eyes. Never look directly at the sun. Avoid bright lights and smoky spaces. Give your eyes a rest, never sitting for too long in front of a computer or television screen. Wear safety goggles to protect your eyes from damaging chemicals in pool water or chemicals in a science lab, and wear sunglasses to protect from the glare from sunlight shining off things such as polished surfaces or snow.

Your eyes and ears often work together to make sense of your world. Your ears include the outer ear, those flaps we see on the outside of your head, and two other sections: the middle ear and the inner ear, both hidden inside your head. Your outer ear catches sound waves from the air and directs them through your ear canal to your eardrum; the eardrum vibrates and begins to move the bones of the middle ear. The hammer, anvil, and stirrup set off vibrations in the inner ear, causing the tiny hairs of the cochlea, a snail-shaped bony tube, to move. These hair cells produce nerve impulses, sending them along your auditory nerve to your brain. Your brain sorts everything out and you **miraculously** hear sound.

Your ears are **delicate** organs as well, so how can you give them a clean bill of health? Most importantly, keep the noise volume down. Ears can be damaged when sounds are too loud. Although it is important to keep your ears clean, you must never stick anything in them. Objects might get stuck or otherwise cause damage to the eardrum.

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Speaking and Listening  
Listening Actively

**Beginning**

Ask students simple yes or no questions, i.e., “Will exercise help you to get a clean bill of health?”

**Intermediate**

On a separate sheet of paper that students can keep, have them draw and label words and concepts discussed during the Read-Aloud section.

**Advanced/  
Advanced High**

Encourage students to answer questions using complete sentences and domain vocabulary.

**ELPS 2.1**

Nervous System  
Comparing



**Show Image U3.L12.9**  
**Ricardo and Dr. Welbody**

Well, that brings us to the end of our time together. We’ve had lots of fun, and I hope you have, too. We hope you’ve also learned a few things along the way. Here is one last riddle before we leave you:

*I am probably the most important three pounds in your body. I help you think and reason. I control your movements, as well as all your senses. I am the one organ that makes humans more advanced than other mammals. What am I?*

» *brain*

Remember to eat a balanced diet and exercise every day. Dr. Welbody and I wish you all a clean bill of health at your next checkup! Bye for now!

**DISCUSSING THE READ-ALoud (20 MIN.)**

1. **Inferential.** What are some things you can do to give your body a clean bill of health?
  - » Eat a healthy, balanced diet, and find time to exercise every day.
2. **Inferential.** What are some facts you’ve learned about the skeletal system?
  - » Answers may vary.
3. **Inferential.** Why is posture important for the skeletal system? What evidence in the text helps you to know?
  - » It helps keep the spinal column in good shape. Answers may vary but should include details from the text.
4. **Inferential.** What are some facts you’ve learned about the muscular system?
  - » Answers may vary.
5. **Inferential.** What are some examples of voluntary and involuntary muscles?
  - » Answers may vary, but could include the calf muscle as a voluntary muscle, the cardiac muscle as an involuntary muscle, etc.

6. **Inferential.** What are some facts you've learned about your nervous system?

» Answers may vary.

### WORD WORK: MIRACULOUSLY (5 MIN.)

1. In the Read-Aloud, you heard that when sound enters your ear, your brain sorts everything out and you *miraculously* hear sound.
2. Say the word *miraculously* with me.
3. When something happens “miraculously,” it is so amazing that it’s almost as if it’s happening by a miracle or is in fact a miracle.
4. Isn’t it amazing that the sun miraculously rises every morning?
5. What are some things that you think happen miraculously? Be sure to use the word *miraculously* when you tell about it. (Ask two or three students. If necessary, guide and/or rephrase the students’ responses to make complete sentences: “miraculously happened because . . .”)
6. What’s the word we’ve been talking about? What part of speech is the word *miraculously*?
  - Use a *Discussion* activity for follow-up. Ask students, “What are other things that your body does miraculously?” Make sure that students use the word *miraculously* and other domain-related vocabulary in complete sentences in their discussion.

### SYSTEMS SORT (15 MIN.)

**Note:** You may wish to conduct this exercise as a class, or by having students form small groups, giving each group a handful of Image Cards to discuss.

- Prepare Image Cards C.U3.L12.1–C.U3.L12.12, and ask a student to choose an Image Card and show it to the other students. The student must then describe the various systems working to complete the actions taking place in the picture they are holding. For example, for the image of the people inline skating, a student may say, “The interconnected muscular, skeletal, respiratory, and nervous systems are working together to help the people in the image to inline skate.” You may also choose to emphasize the part of the brain responsible for balance and coordination: the cerebellum. Have a student proceed to another card and identify the different systems being used. Emphasize that all the systems are interconnected, and reinforce domain vocabulary whenever possible.

### Support

Provide access to the various system names and vocabulary you wish students to utilize in their answers.

### Challenge

If the student volunteer does not name all possible responses, encourage other students to fill in any systems they think are in action as well.

Image Cards  
C.U3.L12.1–  
C.U3.L12.12



## Support

Allow students to write down the words to help them with the spelling.

## Challenge

Ask students to also use their spelling word, correctly, in a sentence.

### ENGLISH LANGUAGE LEARNERS



### Language Writing

#### Beginning

Write the spelling word on the board and ask students if it is spelled correctly.

#### Intermediate

Write the spelling word on the board, incorrectly, and ask students to correct it.

#### Advanced/ Advanced High

Ask students to write the given spelling word on the board.

**ELPS 5.C**

## Lesson 12: "A Clean Bill of Health"

# Language



**Primary Focus:** Students will use spelling patterns and generalizations (e.g., ending rules) in writing words. **TEKS 3.2.B.iv**

### REVIEW SPELLING WORDS (25 MIN.)

- Set up the students' chairs in a circle.
- You will want to have music ready to start and stop for this game, tape, a note card with a star on it, and the list of spelling words.
- The students will sit in the chairs as you are explaining the game.
- Before each round, the students will need to close their eyes.
- While their eyes are closed, you will tape the star note card to the back or bottom of one chair.
- Then students open their eyes, and once the music starts, they will begin walking around the inside of the chairs.
- Once the music stops, each child needs to find a chair. Unlike regular musical chairs, where one chair is removed each round, in this game, no chairs are removed.
- The students look under or behind their chairs for the star. Whoever has it will spell a word that you give them. Game play continues until all the words have been reviewed.

**Note:** The Verb and Singular and Plural Noun Charts are below for teacher reference.

| Verb   | -ed       | -ing       | -s      | -es     |
|--------|-----------|------------|---------|---------|
| watch  | watched   | watching   |         | watches |
| wish   | wished    | wishing    |         | wishes  |
| submit | submitted | submitting | submits |         |
| raise  | raised    | raising    |         | raises  |
| dry    | dried     | drying     |         | dries   |

**TEKS 3.2.B.iv** Demonstrate and apply spelling knowledge by: spelling multisyllabic words with multiple sound-spelling patterns.

| Singular Noun                        | Plural Noun |
|--------------------------------------|-------------|
| book                                 | books       |
| puppy                                | puppies     |
| knife                                | knives      |
| child                                | children    |
| person                               | people      |
| <b>Challenge Word:</b> <i>across</i> |             |
| <b>Challenge Word:</b> <i>idea</i>   |             |

### GRAMMAR REVIEW (15 MIN.)

- Tell the students that today, they will review all of the grammar taught so far this year.
- Take a few moments to ask students for examples and definitions of the following:
  - Nouns = common; names of people, places, things in general, e.g., *boat, boy, school*
  - Nouns = proper; names of people, places, and things in particular, e.g., *Sally, Moore Park*
  - Nouns = concrete; names of people, places, and things that can be detected using a person’s five senses
  - Nouns = abstract; names of emotions/feelings; states/attributes; ideas/concepts; and movements/events that can’t be detected using a person’s five senses
  - Verbs = action words, e.g., *walk, talk, sing, hop*
  - Verbs = linking words that join the predicate to the subject it describes, e.g., *is, seems, feels, are, were, was*
  - Adjectives = words that describe nouns, often telling how many, color, shape, size, etc., e.g., *happy, pretty, soft, seven, tall, sharp*
  - Adjectives = articles, e.g., *a, an, the*
  - Subject = the part of a sentence that tells the “who” or “what” the sentence is about



- Predicate = the part of the sentence that tells the action, the “what” is happening. The predicate includes and often begins with the verb.
- Fragment = a group of words that isn’t a complete thought and lacks either a subject or predicate
- Simple sentence = a group of words that has one subject and one predicate
- Run-on sentence = two or more simple sentences that run together because they are capitalized or punctuated incorrectly
- Paragraph = a set of sentences on the same topic
- Topic sentence = one sentence, usually the first, that tells the key idea, or what the paragraph is mostly about
- Concluding sentence = one sentence, always the last, that wraps up the paragraph; it does not introduce new information; it often restates the topic sentence
- Irrelevant sentence = doesn’t relate to the topic sentence, and should not be included in the paragraph

- Have students turn to Activity Page 12.1 and complete it independently.

~~~~~~End Lesson~~~~~

Lesson 12: “A Clean Bill of Health”
Take-Home Material

- Have students take home Activity Page 12.2 and read it aloud to an adult.

Activity Page 12.1



Activity Page 12.2



13

Overcoming Disabilities

PRIMARY FOCUS OF LESSON

Reading

Students will ask and answer questions to demonstrate understanding of “Overcoming Disabilities,” referring explicitly to the text as the basis for the answers. **TEKS 3.2.A.iv; TEKS 3.7.C**

Language

Students will use subject pronouns and explain their function in sentences. **TEKS 3.11.D.vii**

Reading

Students will ask and answer more questions to demonstrate understanding of “Overcoming Disabilities,” referring explicitly to the text as the basis for the answers. **TEKS 3.7.C**

FORMATIVE ASSESSMENT

Activity Page 13.1 **Overcoming Disabilities, Part I:** Answer questions about the reading. **TEKS 3.7.C**

TEKS 3.2.A.iv Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.7.C** Use text evidence to support an appropriate response; **TEKS 3.11.D.vii** Edit drafts using standard English conventions, including: pronouns, including subjective, objective, and possessive cases.

LESSON AT A GLANCE

| | Grouping | Time | Materials |
|--|---|---------|---|
| Reading (40 min.) | | | |
| Previewing Vocabulary | Whole Group | 5 min. | <input type="checkbox"/> <i>How Does Your Body Work?</i>
<input type="checkbox"/> Activity Page 13.1
<input type="checkbox"/> Vocabulary Cards |
| Introducing the Reading | Whole Group | 5 min. | |
| Whole Group Reading:
“Overcoming Disabilities, Part I” | Whole Group | 20 min. | |
| Discussing the Reading | Whole Group/
Partner/
Independent | 10 min. | |
| Language (25 min.) | | | |
| Introducing Subject Pronouns | Whole Group | 25 min. | <input type="checkbox"/> Subject and Pronoun Chart (Digital Projections)
<input type="checkbox"/> Subject Pronoun Sentences (Digital Projections)
<input type="checkbox"/> Activity Page 13.2 |
| Reading (55 min.) | | | |
| Previewing Vocabulary | Whole Group | 5 min. | <input type="checkbox"/> <i>How Does Your Body Work?</i>
<input type="checkbox"/> Activity Page 13.3 |
| Introducing the Reading | Whole Group | 5 min. | |
| Small Group Reading:
“Overcoming Disabilities, Part II” | Small Group | 20 min. | |
| Discussing the Reading | Whole Group/
Partner/
Independent | 15 min. | |
| Disability Simulation | Whole Group/
Partner | 10 min. | |
| Take-Home Material | | | |
| “Overcoming Disabilities, Part II” | | | <input type="checkbox"/> Activity Page 13.4 |
| Review Spelling Words | | | |

ADVANCE PREPARATION

Reading

- Write each vocabulary word on a piece of paper: *disability*, *deaf*, *blind*, *overcoming* and *gesture*.

Language

- On chart paper, create the Subject Pronoun Chart or prepare Digital Projection DP.U3.L13.1.

Subject Pronoun

A pronoun is a part of speech that takes the place of a noun. Every pronoun always refers to a specific noun. When a pronoun is the subject of the sentence, it is called a subject pronoun.

Subject pronouns include

| Singular | Plural |
|------------------|----------------------------|
| I | we |
| you (one person) | you (more than one person) |
| he, she, it | they |

Note: The Subject Pronoun Chart needs to remain on display for several days as you add verbs to it. For that reason, you may wish to write it on chart paper.

- Write the following sentences on the board or project Digital Projection DPU3.L13.2:

| | |
|---|-----------------------------|
| 1. Sam watches the skaters. | ___ watches the skaters. |
| 2. (insert your name) skated quickly. | ___ skated quickly. |
| 3. The skaters glide over the ice. | ___ glide over the ice. |
| 4. Sam and Martha have hot chocolate. | ___ have hot chocolate. |
| 5. (insert another student's name) came too. | ___ came too. |
| 6. (insert three students' names) skate well. | ___ skate well. |
| 7. My sister fell and hurt her knee. | ___ fell and hurt her knee. |
| 8. Your mother is waving to all of us. | ___ is waving to all of us. |

Reading

- Write each vocabulary word on a piece of paper: *challenge*, *determined*, *breakthrough*, *tribute*, and *courage*.
- Determine small groups for reading.
- Have enough blindfolds and ear coverings for half of the class, or ask students to silently mouth words.

Universal Access

- Display vocabulary words in the classroom during and after instruction to reinforce word meaning.
- Predict: What do you think disabilities are? What do they have to do with the human body?
- Ask students if they know of anyone who has a disability. How does it make their life different?

Lesson 13: Overcoming Disabilities

Reading



Primary Focus: Students will ask and answer questions to demonstrate understanding of “Overcoming Disabilities,” referring explicitly to the text as the basis for the answers. **TEKS 3.2.A.iv; TEKS 3.7.C**

PREVIEWING VOCABULARY (5 MIN.)

The following are vocabulary words used in this lesson. Preview the words with the students before the lesson, and refer back to them at appropriate times.

- Display the vocabulary words on the board.
- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.
- The words also appear in the glossary in the back of the Student Reader.

disability, something that prevents a person from moving easily or acting or thinking in a typical way

deaf, unable to hear

blind, unable to see

overcoming, defeating or successfully dealing with

gesture, a movement of a body part to communicate

TEKS 3.2.A.iv Demonstrate and apply phonetic knowledge by decoding words using knowledge of syllable division patterns such as VCCV, VCV, and VCCCV with accent shifts; **TEKS 3.7.C** Use text evidence to support an appropriate response.

Support

Encourage students to find answers to the discussion questions throughout the reading, with a partner, before sharing as a group.

| Vocabulary Chart for “Overcoming Disabilities: Part I” | | |
|--|---------------------------------|----------------------------------|
| Type | Tier 3
Domain-Specific Words | Tier 2
General Academic Words |
| Vocabulary | disability
deaf
blind | overcoming
gesture |
| Multiple Meaning | | |
| Sayings and Phrases | | |

INTRODUCING THE READING (5 MIN.)

- Tell students that the title of today’s chapter is “Overcoming Disabilities, Part I.”
- Remind students that they have learned about how their eyes see and how their ears hear. This background information will help them understand what they will read about in this chapter.
- Ask students to turn to the table of contents, locate the chapter, and then turn to the first page of the chapter.

Chapter 9 Overcoming Disabilities, Part I

Last time, I told you a little bit about hearing. Earlier, Dr. Si-Yu told you about eyes and vision. Today, I would like you to think about what it would be like if you couldn't hear or couldn't see.

Millions of people live with poor hearing or with no hearing at all. These people are **deaf**.

Imagine, if you can, what it would be like to be completely **deaf**. How would you know what other people are saying? After all, you could not hear their words.

Many deaf people use sign language. Sign language is a way to communicate without speaking. One person makes signs with her hands that stand for words and letters. The other person sees the signs and understands the message. The two women in this picture are using sign language.



Dr. Audit talks about sign language.

WHOLE GROUP READING: “OVERCOMING DISABILITIES, PART I” (20 MIN.)

Pages 70–71

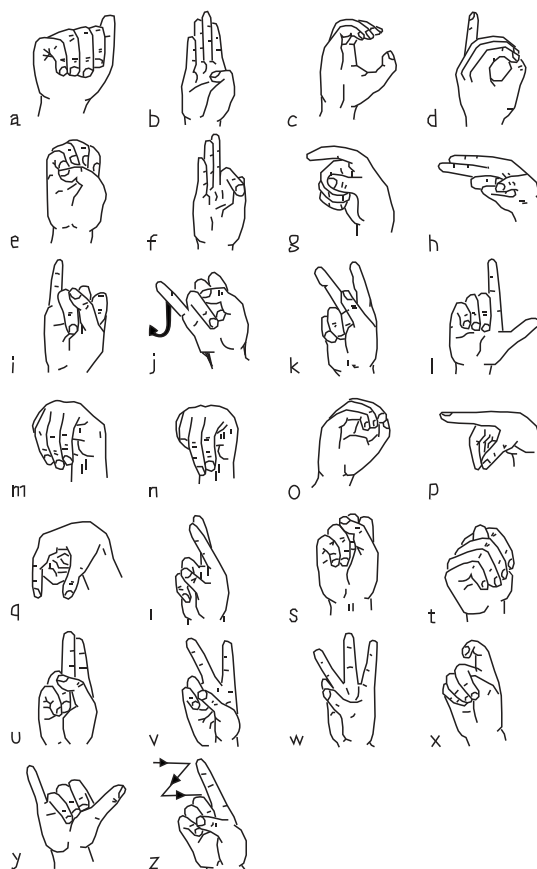
- Read the title of the chapter together as a group, “Overcoming Disabilities, Part I.”
- Display the image for this chapter and the Vocabulary Cards for *overcoming*, *disability*, and *deaf*. Ask students to find the words in the glossary and read the definitions. Note for students that the word *disability* appears throughout the chapter while the plural form of the word, *disabilities*, appears in the chapter title. Point out to students that a form of the word *deaf* listed after the definition, *deafness*, also appears in this chapter.
- Ask students to read **pages 70–71** to themselves to find the answer to the question: “What is one way that people who are deaf communicate?”
- When students have finished reading, restate the question and ask students to answer.
 - » using sign language
- Direct students' attention to the image on **page 71** showing two people communicating using sign language, and read the caption aloud as a group.

Did you know that there is a **gesture** or sign in American Sign Language for each letter in the alphabet? See if you can spell out your name using the signs shown on the next page.

Sign language is one way **deaf** people can communicate. There are also other ways. Some **deaf** people can read lips. That means they carefully watch a person's lips move as he is speaking. They can tell what the person is saying by looking at how his lips are moving.

How? A person's lips take on different shapes and positions as he says different sounds. Try looking in the mirror sometime while you are talking to see how your lips move. Someone who reads lips translates what a person is saying by studying the different shapes and positions of his lips. Isn't that amazing?

It takes much time and practice to learn how to use sign language and how to read lips.



Sign language for each letter of the alphabet

Pages 72–73

- Display the Vocabulary Cards for **gesture**. Ask students to find the word in the glossary and read the definition.
- Ask students to read **pages 72–73** to themselves to find the answer to the question: “What are two ways that people who are deaf communicate?”
- When students have finished reading, restate the question and ask students to answer.
 - » by reading lips and using sign language
- Ask, “What takes much time and practice to learn?”
 - » how to use sign language and how to read lips
- Direct students’ attention to the image and caption on **page 73**. You may wish to demonstrate how to sign a word students are familiar with. Note that it can be challenging to make some of the signs.

Challenge

Invite students to try to sign their names using the image on **page 73**.

Now, I'd like you to try to think what life would be like if you could not see. What would it be like to be **blind**? How would you find your way around? How would you read?

Blind people find ways to live with their **disability**. Many **blind** people use a cane to help them get around. By tapping in front of them, they can tell where there are walls. They can tell when they need to step up and when they need to step down.



*A **blind** man walks with a special cane.*

Pages 74–75

- Display the Vocabulary Cards for *blind*. Ask students to find the word in the glossary and read the definition.
- Ask students to read **pages 74–75** to find out what many blind people use to help them get around.
- When students have finished reading, restate the question and ask students to answer.
 - » Many blind people use a cane to help them get around, tapping in front of them to tell where things are.
- Have students read the caption and look at the image on **page 75**.

Some **blind** people use seeing-eye dogs to help them get around. These dogs are also known as guide dogs. They are specially trained to help **blind** people get from place to place safely.



A guide dogs helps a blind person get around.

76



*A **blind** person reads braille.*

Blind people can also learn to use their other senses to make up for their inability to see. A **blind** person can't tell what you look like, but he or she may be able to recognize you by your voice.

Blind people can also learn to read using a system called braille. In the braille system, raised bumps that a person can feel are used to stand for letters. A **blind** reader touches and runs her fingers over the dots and recognizes letters. Then, she thinks of the sounds the letters stand for and blends the sounds together to read. Like lip reading or using sign language, it takes lots of time and practice to learn how to read using braille.

77

Pages 76–77

- Ask students to read **pages 76** to find out another name for guide dogs and what they do.
- When students have finished reading, restate the question and ask them to answer.
 - » Guide dogs are also known as Seeing Eye dogs. They are specially trained to help people get from place to place safely.
- Direct students' attention to the image on **page 77**, and call on one student to read the caption aloud.
- Display the Vocabulary Card for *braille*, or write the word on the board. Ask students to find the word in the glossary and read the definition.
- Ask students to read **pages 77** to themselves to find the answer to the question: "How is braille like reading lips or using sign language?"

Activity Page 13.1



**ENGLISH
LANGUAGE
LEARNERS**



Reading
Reading/Viewing Closely

Beginning

Ask multiple-choice distractor questions aloud and ask students to say whether it is true or false, i.e., “When someone is deaf, it means that they cannot hear. True or false?”

Intermediate

Pair students with a partner who can support the student in rereading the text if necessary and answering the questions.

Advanced/ Advanced High

Encourage students to answer questions in complete sentences.

ELPS 4.G

- When students have finished reading, restate the question and ask students to answer.
 - » Braille takes much time and practice to learn, just like reading lips and using sign language.



Checking for Understanding

- Ask students how a blind person might recognize you.
- » by your voice

- Direct students' attention to the image and caption on **page 77**.

DISCUSSING THE READING (10 MIN.)

1. What is a disability?
 - » something that prevents a person from moving easily or acting or thinking in a typical way
 2. What does it mean to be blind?
 - » unable to see
 3. What are some ways blind people cope with their disability?
 - » using seeing-eye dogs, reading braille
 4. What does it mean to be deaf?
 - » unable to hear
 5. What are some ways deaf people cope with their disability?
 - » reading lips or using sign language
- Have students complete Activity Page 13.1 independently and review it as a class.

Lesson 13: Overcoming Disabilities

Language



Primary Focus: Students will use subject pronouns and explain their function in sentences. **TEKS 3.11.D.vii**

INTRODUCING SUBJECT PRONOUNS (25 MIN.)

- Remind students that nouns are the names of people, places, or things.
- Remind students that the subject of a sentence is who or what the sentence is about, and often comes first in the sentence.
- Tell students that today, they will learn about a new part of speech called a pronoun.
- Direct students' attention to the poster you created in advance defining pronouns and subject pronouns, or project Digital Projection DP.U3.L13.1 .

► Projection DP.U3.L13.1

Subject Pronoun

A pronoun is a part of speech that takes the place of a noun. Every pronoun always refers to a specific noun. When a pronoun is the subject of the sentence, it is called a subject pronoun.

- Have students read the poster, noting that “a pronoun is a word that takes the place of a noun.”
- Point out that when a pronoun is used to replace a noun that is the subject of the sentence, it is called a subject pronoun. (*Don reads well.* becomes *He reads well.*)
- Direct students' attention to the Subject Pronouns Chart you placed on the board or chart paper, and read the subject pronouns. You will need to leave this chart on display for future lessons.

| Subject pronouns include | |
|--------------------------|----------------------------|
| Singular | Plural |
| I | we |
| you (one person) | you (more than one person) |
| he, she, it | they |

Support

Ask students to give examples of nouns.

Challenge

Ask students to help you create two or three sentences that have nouns as subjects.

- » Examples could be: The dog licks my hand. *Don* reads well. My *sisters* take care of me.

TEKS 3.11.D.vii Edit drafts using standard English conventions, including: pronouns, including subjective, objective, and possessive cases.

- Note for students that pronouns can be singular or plural. Ask students to provide oral examples of singular and plural nouns (e.g., *cat, ball, desk, pencils, books, cars*, etc.). After each noun is provided, ask students to verbally identify which pronoun(s) could be used to replace the noun, emphasizing the fact that if a noun is singular, the pronoun used to replace it must also be singular.
- Direct students' attention to the sentences you placed on the board in advance.
- Ask a student to read the first sentence. (*Sam watches the skaters.*)
- Ask another student to identify the subject.
 - » *Sam*
- Ask a third student, "How do you know *Sam* is the subject of the sentence?"
 - » *Sam* is what the sentence is about.
- Ask students which subject pronoun from the list you placed on the board replaces *Sam*.
 - » *he*
- Ask, "When you replace the subject *Sam* with the subject pronoun *he*, what is your new sentence?"
 - » *He watches the skaters.*
- Ask students whom the pronoun *he* refers to, i.e., what noun it replaces.
 - » *Sam*
- Point out to students that every pronoun refers to a noun. Whenever they read a sentence that includes a pronoun, students should double check and make sure they understand to whom or what the pronoun refers.
- Then, ask a student to insert their name in the next sentence and tell which subject pronoun would replace their name.
 - » *Student's name skated quickly. becomes I skated quickly.*
- Call on students to complete the next two sentences.
- For the fifth sentence, call on a pair of students to come up to the front of the room. Have them face one another and speak to each other.
- Ask one of the students to insert their partner's name in the sentence (*Alice came too.*) and replace that name with the correct subject pronoun (*You came too.*).
- Then, call four students up to the front of the room. Choose one to point to the other students and insert the other three students' names in the last sentence (*Sally, Jim, and Fred skate well.*), and then replace those names with the correct subject pronoun (*You skate well.*).

- Lastly, have students read the final two sentences, replacing the subjects with the appropriate subject pronoun (*she*). Ensure students understand that the subject pronoun in each of these sentences (*she*) replaces all the words of the subject in each sentence (*my sister* and *your mother*), not just the noun.

| | |
|-------------------------------------|-----------------------------|
| My sister fell and hurt her knee. | She fell and hurt her knee. |
| Your mother is waving to all of us. | She is waving to all of us. |

- Have students turn to Activity Page 13.2, and guide them through the first few examples. Have students complete the worksheet independently.
- Leave the Subject Pronoun Chart on display for future lessons.

Activity Page 13.2



**ENGLISH
LANGUAGE
LEARNERS**

Language
Language

Beginning

Use an echo reading strategy by reading the words and having students repeat the words.

Intermediate

Ask students to read the sentences aloud.

Advanced/ Advanced High

Have students create their own sentences for the words.

ELPS 1.C

Lesson 13: Overcoming Disabilities

Reading



Primary Focus: Students will ask and answer questions to demonstrate understanding of “Overcoming Disabilities,” referring explicitly to the text as the basis for the answers. **TEKS 3.7.C**

PREVIEWING VOCABULARY (5 MIN.)

The following are vocabulary words used in this lesson. Preview the words with the students before the lesson and refer back to them at appropriate times.

- Display the vocabulary words on the board.
- Divide the words into syllables.
- Cover one syllable at a time with your hand and segment the word.
- Then, point to each syllable and ask the students to “read it fast” to signal them to read through the word.
- Explicitly point out any unusual or challenging letter-sound correspondences in any syllable, as well as one or two other words with the same letter-sound spelling.
- The words also appear in the glossary in the back of the Student Reader.

challenge, a difficult task or problem that requires extra effort

determined, reached a firm decision to do something

TEKS 3.7.C Use text evidence to support an appropriate response.

Activity Page 13.3



Support

Ask students to come to the reading table and read the chapter with you. This is an excellent time for you to make notes in your anecdotal records. Have students complete Activity Page 13.3 with your assistance.

Challenge

Ask students to read the chapter independently to find out specific details about the disabilities of the people in the chapter and how they were successful in life. Remind them that the bolded words in the chapter are found in the glossary, and match some of the words you previewed. Some words may appear in different forms in the chapter. Then, tell them to complete Activity Page 13.3.

breakthrough, a sudden, important change that allows for progress

tribute, something done to show honor or respect

courage, bravery

| Vocabulary Chart for “Overcoming Disabilities: Part II” | | |
|---|---------------------------------|---|
| Type | Tier 3
Domain-Specific Words | Tier 2
General Academic Words |
| Vocabulary | | challenge
determined
breakthrough
tribute
courage |
| Multiple Meaning | | |
| Sayings and Phrases | | |

INTRODUCING THE READING (5 MIN.)

- Tell students that the title of today’s chapter is “Overcoming Disabilities, Part II.”
- Remind students that they previously read “Overcoming Disabilities, Part I,” so the information they will read about in this chapter relates to the previous chapter.
- Tell students that in this chapter, they will learn about people with disabilities who have done many important things in their lives.
- Ask students to turn to the table of contents, locate the chapter, and then turn to the first page of the chapter.

SMALL GROUP READING: “OVERCOMING DISABILITIES, PART II” (20 MIN.)

- Tell students that today, they will read the chapter in a small group.
- Have students take out Activity Page 13.3. After students are finished reading the chapter, they will complete Activity Page 13.3 in their small group.

Chapter 10 Overcoming Disabilities, Part II

People with disabilities face extra **challenges** in life. However, these disabilities don't keep **determined** people from doing amazing things.

This is a painting of the musician Ray Charles. Ray Charles went **blind** when he was seven years old. He couldn't see, but there was nothing wrong with his ears. He loved music and decided to become a musician. He learned to sing and play the piano. Eventually, he became one of the most popular musicians of his day.

Ray Charles won ten Grammy Awards and made millions of dollars as a singer. He did not let his **disability** hold him back.



Ray Charles

This next image shows a girl named Helen Keller. Helen Keller lost both her sight and her hearing from a serious illness when she was just nineteen months old. She was **deaf** and **blind** for the rest of her life.

As a young girl, Helen Keller could not hear or speak. She learned to communicate a few ideas by making gestures. When she wanted her mother, she would grab and pull her mother to her. When she wanted to be alone, she would push her mom away. She could nod her head to say yes or shake it to say no. When she wanted toast, she would make a gesture as if she was spreading butter on bread.

There were a few ideas she could communicate. Yet there were many things she could not get across with gestures. As a child, she would often try to communicate and fail. Then, she would get angry and cry. Sometimes she would have terrible temper tantrums. She wanted, more than anything, to communicate with people. She was not able to do so.



Helen Keller as a child

Helen's parents were worried about her. They did not know how to help her communicate. Since she was **deaf** and **blind**, she could not attend school. So, her parents searched and found a special teacher who came to live with them. The teacher's name was Annie Sullivan.

Annie Sullivan wanted to teach Helen to understand words but how can you understand words if you can't hear them? Sullivan started by giving Helen a doll to hold. Then, she took Helen by the hand and traced the letters d-o-l-l on her palm. She did this over and over. After a while, Helen learned to write the letters d-o-l-l on a page. She did not know that she had written a word. She did not even know that words existed. But she felt proud that she could imitate what her teacher was doing.

Her teacher, Annie Sullivan, traced more words on Helen's palm. She learned to spell *pin*, *hat*, *cup*, and a few other words. The real **breakthrough** happened when Annie tried to teach Helen the word *water*. Sullivan took Helen outside to a well. She placed one of Helen's hands under the spout and spelled w-a-t-e-r on her other palm. Suddenly, something seemed to click in Helen's head. She understood that w-a-t-e-r meant the "wonderful, cool something" that was flowing over her hand.



Helen Keller with her teacher, Annie Sullivan

Helen soon learned more words. When she was eight, she went to a special school for the **blind**. Sullivan went with her. Later, she went to a school for the **deaf**. But she didn't stop there. She went on to Radcliffe College, where she became the first **deaf and blind** person to receive a college degree.

Helen learned to speak and she learned to read lips with her fingers. She learned to read, using braille. She wrote books, including a biography of her own life, *The Story of My Life*. She was active in politics and fought for women to have the right to vote.

Helen Keller lived a long and productive life. She died in 1968 at the age of 87.

In 2003, the state of Alabama honored Helen Keller by putting an image of her on their state quarter. The quarter pays **tribute** to Helen's **courage** in overcoming her **disabilities** and inspiring millions of people.



The Alabama state quarter

DISCUSSING THE READING (15 MIN.)

1. Who is Ray Charles and what did he do?
 - » He is a musician who went blind as a child. He learned to sing and play the piano. He won 10 Grammy Awards and earned millions of dollars as a singer.
2. What was Helen Keller's early life like?
 - » Answers may vary: Helen could communicate a few ideas by making gestures, but there were many things she couldn't communicate, and she had terrible temper tantrums because of this.
3. What did Keller learn to do through her teacher, Anne Sullivan?
 - » Keller learned to imitate what her teacher was doing, learned to spell some words, and learned what some things were.

Think-Pair-Share

- I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.
4. What did Helen Keller accomplish in her life?
 - » She learned more words; she went to a special school for the blind and another school for the deaf; she became the first deaf and blind person to receive a college degree; she learned to speak and read lips with her fingers; she learned to read using braille; she wrote books; and she was active in politics.
- If time permits, go over Activity Page 13.3 as a whole group.



**ENGLISH
LANGUAGE
LEARNERS**

Reading
Reading/Viewing Closely

Beginning

Ask yes/no questions aloud, i.e., "Your spinal cord is attached to your brain. True or false?"

Intermediate

Pair student with a partner who can support the student in rereading the text if necessary and answering the questions.

Advanced/ Advanced High

Encourage students to answer questions in complete sentences.

ELPS 4.G

DISABILITY SIMULATION (10 MIN.)

- Explain to students that they are going to participate in a disability simulation in which they will get a chance to see what it may be like to be deaf or blind.
- Pair off students and give each pair a blindfold and ear covering.
- Instruct students to take turns wearing the blindfold. The other partner guides the blindfolded student around the room using his or her voice. Ask the blindfolded students to write their name on a piece of paper. Switch roles.
- Instruct students to take turns wearing the ear coverings or silently mouthing words and holding a conversation with their partner.
- As a class, discuss how everyone felt during this exercise.

End Lesson

Lesson 13: Overcoming Disabilities

Take-Home Material

Activity Page 13.4



- Have students take home Activity Page 13.4 to read with an adult, and review spelling words.

Pausing Point 2

Note to Teacher

This is the end of *The Human Body: Systems and Senses* unit. Students have studied the systems and senses of the human body, including the muscular, skeletal, nervous, digestive, circulatory, respiratory, and excretory systems. They have also learned about the parts of the eye and the ear, and how those parts function together to help us see and hear. Students have learned about how to care for the different body systems through a well-balanced diet and exercise. It is highly recommended that you pause here and spend a day reviewing, reinforcing, or extending the material taught thus far.

You may have students do any combination of the activities listed below. The activities may be done in any order. You may also choose to do an activity with the whole class or with a small group of students who would benefit from the particular activity.

CORE CONTENT ADDRESSED IN THIS UNIT

Students will:

- Briefly describe and/or review seven of the systems of the human body
- Explain that the human body includes the following systems and identify the function of each: skeletal, muscular, and nervous
- Identify cells as the basic building blocks of all living things and explain that most cells are too small to be seen without a microscope
- Explain the relationship between cells, tissues, organs, and systems
- Explain that each system is made up of different types of cells (bone cells, muscle cells, nerve cells, blood cells, etc.)
- Explain that one of the systems of the human body is the skeletal system and that it has two parts
- Recall that there are 206 bones in the human body
- Explain briefly the composition of bones
- Identify examples of axial bones and explain their functions
- Identify examples of appendicular bones and explain their functions
- Identify three different types of joints and give examples of each: movable, immovable, and partially movable

- Describe how doctors are able to see and treat the skeletal system using an x-ray
- Explain the importance and purpose of cartilage
- Identify skeletal, smooth, and cardiac as three types of muscles in the human body and describe their functions
- Compare and contrast involuntary and voluntary muscles
- Explain that skeletal muscles work closely with bones to give the human body mobility
- Demonstrate familiarity with the legend of the Achilles heel/tendon
- Identify the brain and spinal cord as the control center of the body
- Identify nerves as messengers that transmit information from all of the parts of the body through the spinal cord to the brain
- Explain how the skeletal, muscular, and nervous systems are interconnected
- Explain that the five senses work with the brain to process information about our surroundings
- Describe a reflex action as a quick, unconscious action and explain its purpose in protecting the human body
- Identify the parts of the brain and their functions: brain stem (medulla), cerebrum, cerebellum
- Describe the human brain as divided into two hemispheres and explain that each hemisphere controls the muscles of the opposite side of the body
- Identify the parts of the outer and inner eye and describe how they work together with the brain to allow a person to see
- Describe nearsightedness and farsightedness and how these can be corrected
- Identify the parts of the outer, middle, and inner ear and describe how they work together with the brain to allow a person to hear
- Explain that cochlear implants can help some people who cannot hear
- Identify ways to take care of the human body

ACTIVITIES

Writing a Narrative: Publish

(Activity Pages PP.2 and PP.3)

- Have students take out Activity Page PP.2 and PP.3. Remind them that they have completed the editing step of the writing process for their narratives, including the substep of creating the final copy. Tell students that they will now

complete the publishing step of the writing process. Explain that this means they will create a presentation of their narratives to share.

- Remind students that they completed the publishing step together in previous units. Remind students that there are many ways to publish their writing. For example, some students may wish to use technology to add computer graphics such as illustrations, text boxes, and sidebars to aid in the presentation of information. Some students may wish to create a PowerPoint presentation. Other students may wish to create an artistic “book” format of their narratives—as excerpts or as a whole—perhaps with handwritten text and/or handmade illustrations.
- Encourage students to be creative. You may wish to have students share their published narratives with the class, school, and/or community. You may also wish to use Activity Page PP.3 to assess students’ formal writing.

Note: You may wish to model this step of the writing process for some students who are not ready to complete it independently. You may also wish to have some students work with partners or in groups. You may need to take more than one day to complete this step of the writing process, as the narrative is longer than other genres previously taught.

The Human Eye

Materials: Activity Page PP.4

- As a class, complete a brief image review. Flip through the images from the Read-Aloud, “Vision: The Parts of the Eye,” focusing on the images that discuss the parts of the eye. Have students take out Activity Page PP.4. Have students label the parts of the human eye. You may wish to have students complete this instructional page independently, with a partner, or as a group.

Note: This exercise is essential preparation for the Unit Assessment. It is highly recommended that students practice labeling the parts of the eye independently or with a partner during this Pausing Point.

The Human Ear

Materials: Activity Page PP.5

- Complete a brief image review. Flip through the images from the Read-Aloud, “Hearing: The Parts of the Ear,” focusing on the images that discuss the parts of the ears. Have students take out Activity Page PP.5. Have students label the parts of the human ear. You may wish to have students complete this instructional master independently, with a partner, or as a group.

Note: This exercise is essential preparation for the Unit Assessment. It is highly recommended that students practice labeling the parts of the ear independently or with a partner during this Pausing Point.

Unit-Related Trade Book or Student Choice

Materials: Trade book

- Read an additional trade book to review the human body's systems or how to stay healthy. You may also choose to have the students select a Read-Aloud to be heard again.
- If students listen to a Read-Aloud a second time, you may wish to have them take notes about a particular topic. Be sure to guide them in this important method of gathering information. You may wish to model how to take notes, construct an outline, etc. **TEKS 3.5**

Key Vocabulary Brainstorming

Materials: Chart paper, chalkboard, or whiteboard

- Give students a key unit concept or vocabulary word such as *eyeball*. Have them brainstorm everything that comes to mind when they hear the word, such as iris, pupil, cornea, optometrist, etc. Record their responses on a piece of chart paper, a chalkboard, or a whiteboard for reference.

Multiple-Meaning Word Activity: Pupil

Materials: Chart paper, chalkboard, or whiteboard

- Use a *Multiple Choice* activity to review the word *pupil*.
 1. In the unit you heard “At the center of the iris is a black circle . . . called the pupil.” Here, a pupil is a small, black opening in the center of the colored part of the eye. [On chart paper, a chalkboard, or whiteboard, write “A—eye part.” Tell students this is definition A.]
 2. The word *pupil* can also mean a child or young student in school. We sometimes refer to students as pupils. [Write “B—young student.”] Tell students this is definition B.
 3. The word *pupil* might also refer to one who has been taught by a famous or important person, as in this sentence: “Fredrik Hasselquist was a pupil of the father of taxonomy, Carolus Linnaeus.” [Write “C—taught by important person.”] Tell students this is definition C.

 **TEKS 3.5** Self-select text and read independently for a sustained period of time.

- Now have students form partners to quiz each other on the different meanings of the word *pupil*. Remember to be as descriptive as possible and use complete sentences. For example, you could say, “After my brother’s visit with the eye doctor, his pupils were so large that they looked like cat eyes.” And your partner should respond, “That’s the ‘A’ definition of pupil—eye part.”

Riddles for Core Content

- Ask students riddles such as the following to review core content:
 - I am a small tunnel in your ear. You can find wax inside of me. What am I? (ear canal)
 - We are the three smallest bones in the human body and are located in the middle ear. What are we? (hammer, anvil, and stirrup)
 - I am the largest part of your brain, controlling and managing language, memory, thought, sensations, and decision-making. What am I? (cerebrum)
 - I am about as thick as your thumb, and am three inches long. I help relay messages between your brain and spinal cord. What am I? (brain stem)
 - I can become larger and smaller, depending on the amount of light. What am I? (pupil)
 - I am rubbery, flexible, and transparent. I adjust shape in order to focus on near or distant objects. What am I? (the eye lens)
 - You may also wish to review Ricardo’s riddles from the Read-Alouds to review content.
- Have students create their own riddles.

Class Book: The Human Body: Systems and Senses

Materials: Drawing paper, drawing tools

- Tell the class or a group of students that they are going to finish their class book to help them remember what they have learned in this unit about human body systems. Have students brainstorm important information about the human body’s systems, as well as information about the eye and the ear. They should also think about how they can keep their bodies healthy through diet and exercise. Have each student choose one idea to draw a picture of, and ask them to write a caption for the picture. Bind the pages to make a book to put in the class library for students to read again and again.

Writing Prompts

- Students may be given an additional writing prompt such as one of the following:
 - The most interesting thing I've learned is _____ because . . .
 - One way I can keep my body healthy is . . .
 - Something I would like to learn more about is _____ because . . .
 - Without my brain, I could not . . .
 - I would compare and contrast the skeletal, muscular, and nervous systems by. . .

Brain Action

- Review that the brain is divided into two hemispheres. Review which hemisphere controls each side of the body. If time allows, review the different parts of the brain (brain stem, cerebrum, cerebral cortex, cerebellum). Have students try to write or draw with the hand they are unaccustomed to writing/drawing with. Perhaps carry this activity into outdoor time, having students take note of which leg they normally kick a ball with, which hand they normally throw with, and encouraging them to switch hands. What are the results? Reinforce unit-related vocabulary throughout the activity.

Guest Presenter

- Invite the physical education teacher or school nutritionist to come to the class and read a book or give a presentation on how students can keep their bodies healthy. Parents or guardians who work in the exercise and nutrition industries (trainers, physical therapists, dieticians, etc.) would also be good sources.

Song: "Dry Bones"

- Find a recording of the song "Dry Bones." Have students listen to the song once or twice, and encourage them to point to the various body parts mentioned in the song. After listening to the song, have students discuss the more technical names for the bones they learned about in the Read-Alouds; e.g., the "head bone" as the skull or cranium; the "back bone" and "neck bone" as the spine or spinal column; the "thigh bone" as the femur; the "knee bone" as a hinge joint.
- Ask students, "The skull and spine are both called what types of bones?" (axial bones) Ask, "What is another name for the bones in the legs and arms

that hang off of the axial skeleton?" (appendicular bones) Reinforce how the different body parts mentioned in the song are interconnected. Explain that the bones inside our bodies are not actually dry. Ask students why they think that is.

Note: If your school has a music teacher, you may want to collaborate with the teacher to teach this song to your students.

Research Activity: Taking Care of the Human Body

Materials: Trade books; computer with Internet access

Give students the opportunity to research how they can take care of their bodies. They may research what a well-balanced diet should consist of, and the types of exercises they can do on their own. Allow students the time to share their findings within a group or to the class.

Sources of Sound

Materials: Blindfold; bell

Have students use their sense of hearing to guess from which direction a sound is coming. Invite students to stand in a circle. Blindfold one student and place them in the center of the circle. Have one student in the circle speak. Ask the blindfolded student to guess which classmate spoke and where the student is standing. For a variation, you might have a student ring a bell or clap. Have the blindfolded student describe the sound that is being made and try to guess what is making the sound. Explain to students that they are hearing sound waves that travel through the air and reach their ears.

14

Unit Assessment

PRIMARY FOCUS OF LESSON

Reading

Students will read two passages and answer questions.

✚ **TEKS 3.3.B; TEKS 3.8.D; TEKS 3.9.D.i; TEKS 3.10.A**

Writing

✚ Students will write a short reflection passage. **TEKS 3.12.B**

Language

Students will be able to identify and spell regular and plural nouns where the

✚ 'f' changes to 'v' and -es is added. **TEKS 3.11.D.iii**

FORMATIVE ASSESSMENT

Fluency Assessment Students complete a short fluency assessment.

✚ **TEKS 3.4**

Activity Page 14.3 **Written Reflection** Write a short reflection.

✚ **TEKS 3.12.B**

Activity Page 14.4 **Spelling Assessment** Identify and spell regular and plural nouns where the 'f' changes to 'v' and -es is

✚ added. **TEKS 3.11.D.iii**

✚ **TEKS 3.3.B** Use context within and beyond a sentence to determine the meaning of unfamiliar words and multiple-meaning words; **TEKS 3.8.D** Explain the influence of the setting on the plot; **TEKS 3.9.D.i** Recognize characteristics and structures of informational text, including the central idea with supporting evidence; **TEKS 3.10.A** Explain the author's purpose and message within a text; **TEKS 3.12.B** Compose informational texts, including brief compositions that convey information about a topic, using a clear central idea and genre characteristics and craft; **TEKS 3.11.D.iii** Edit drafts using standard English conventions, including: singular, plural, common, and proper nouns; **TEKS 3.4** The student is expected to use appropriate fluency (rate, accuracy, and prosody) when reading grade-level text.

LESSON AT A GLANCE

| | Grouping | Time | Materials |
|--------------------------------------|-------------|---------|----------------------|
| Reading (50 min.) | | | |
| Student Skills Assessment | Independent | 50 min. | ☐ Activity Page 14.1 |
| Foundational Skills (25 min.) | | | |
| Fluency Assessment | Independent | 25 min. | ☐ Activity Page 14.2 |
| Writing (20 min.) | | | |
| Written Reflection | Independent | 20 min. | ☐ Activity Page 14.3 |
| Language (25 min.) | | | |
| Spelling Assessment | Independent | 25 min. | ☐ Activity Page 14.4 |

Lesson 14: Unit Assessment

Reading



STUDENT SKILLS ASSESSMENT (50 MIN.)

TEKS 3.3.B; TEKS 3.8.D;

TEKS 3.9.D.i; TEKS 3.10.A

Activity Pages 14.1



- Students will complete an assessment by reading two selections during one sitting and answering comprehension, grammar, morphology, and spelling questions that follow each selection. Students will not read out of their Reader, but rather from Activity Page 14.1, where the selections have been printed.
- Have students tear out Activity Page 14.1.
- Tell students they will read two selections from Activity Page 14.1 and answer comprehension, morphology, spelling, and grammar questions that follow each selection.
- Tell students that if they feel tired, it's a good idea to take a short, personal break. Explain to students that they need to respect others in the classroom and stay seated, while quietly looking up to the ceiling, stretching their shoulders, or taking a deep breath or two.
- Tell students they should go right on to the second selection once they have finished the first selection.
- Encourage students to do their best.
- Once students finish the assessment, encourage them to review their papers, rereading and looking over their answers carefully.
- Again, explain the necessity of respecting that not all classmates will finish at the same time, and, if they finish and have checked their papers, they should remain quiet for others to finish.

Note to Teacher

When time permits, score these assessments using the guidelines at the end of this lesson to evaluate each student's mastery of the skills taught in this unit.

If additional practice is needed for the remediation of skills students have not mastered, materials are available in the Pausing Point.



TEKS 3.3.B Use context within and beyond a sentence to determine the meaning of unfamiliar words and multiple-meaning words; **TEKS 3.8.D** Explain the influence of the setting on the plot; **TEKS 3.9.D.i** Recognize characteristics and structures of informational text, including the central idea with supporting evidence; **TEKS 3.10.A** Explain the author's purpose and message within a text.

Lesson 14: Unit Assessment

Foundational Skills



FLUENCY ASSESSMENT (25 MIN.)

TEKS 3.4

Assess students' fluency in reading using any of the supplemental chapters that they have not yet read. Recording and Scoring Sheets have been specifically included for "Reflexes."

Instructions

- Turn to the text copy of "Reflexes" at the end of this lesson. This is the text copy students will read aloud.
- Ask the student to remove Activity Page 14.2 from their workbook. You will use this activity page to mark as a running record as you listen to the student read aloud.
- Tell the student that you are going to ask them to read the selection aloud. Explain that you are going to keep a record of the amount of time it takes to read the selection. Encourage the student to read at their own regular pace.
- Begin timing when the student reads the first word of the selection. If you are using a watch, write the exact Start Time, in minutes and seconds, on your record page. If you are using a stopwatch, you do not need to write down the Start Time since it will calculate Elapsed Time. As the student reads the selection, keep a running record on the copy with the student's name using the following guidelines:

Activity Pages 14.2



| | |
|-------------------------------|---|
| Words read correctly | No mark is required. |
| Omissions | Draw a long dash above the word omitted. |
| Insertions | Write a caret (^) at the point where the insertion was made. If you have time, write down the word that was inserted. |
| Words read incorrectly | Write an "X" above the word. |
| Substitutions | Write the substitution above the word. |
| Self-corrected errors | Replace original error mark with an "SC." |
| Teacher-supplied words | Write a "T" above the word (counts as an error). |



TEKS 3.4 Use appropriate fluency (rate, accuracy, and prosody) when reading grade-level text.

- When the student finishes reading the selection, write the exact Finish Time in minutes and seconds on your record sheet. Alternatively, if you are using a stopwatch, simply write down the Elapsed Time in minutes and seconds. In the interest of time, ask students to read only the first three pages of text in either chapter. (Five minutes should be enough time to get a measurement on most students.) If the student does not read to the end, draw a vertical line on the record sheet to indicate how far they read. Also write down either the Finish Time or the Elapsed Time. After the student finishes reading orally, you may direct them to finish reading the remainder of the selection silently; you may also assess comprehension by having students answer the following comprehension questions orally.

Oral Comprehension Questions on “Reflexes”

1. **Literal.** What did the teacher do to startle the students?
 - » dropped a huge book on the floor
 2. **Literal.** Why did he do this?
 - » to test their reflexes
 3. **Literal.** What kind of test did Mr. Brown say this was?
 - » a test you can pass without even trying
 4. **Literal.** How do reflexes help keep us safe?
 - » They react without us thinking about it, thus protecting our body.
- Repeat this process for additional students. Scoring can be done later, provided you have kept running records and jotted down either the Elapsed Time or the Start Time, and the Finish Time.

Guidelines for Calculating W.C.P.M. Scores

If the reading was fairly accurate (< 10 uncorrected errors), you can get a rough (and easy) estimate of a student’s W.C.P.M. score simply by noting the time and looking at the chart on Activity Page 14.2.

To calculate a student’s exact W.C.P.M. score, use the information you wrote down on the record sheet and follow the steps described below. The steps are also shown in graphic form on Worksheet 13.2. You will probably find it helpful to use a calculator.

1. First, complete the Words section of Activity Page 14.2.
2. Count Words Read. This is the total number of words the student read or attempted to read, up to the point where he or she stopped. It includes words

the student read correctly, as well as words the student read incorrectly or skipped over. If the student attempted to read the whole selection, use 334 words total. If the student did not finish the selection, you will need to count the number of words the student actually attempted to read. Write the count for Words Read in the matching box on Activity Page 14.2.

3. Count the Uncorrected Mistakes noted in your running record. This includes words read incorrectly, omissions, substitutions, and words that you had to supply. Write the total in the box labeled Uncorrected Mistakes on Activity Page 14.2. (A mistake that is corrected by the student is not counted as a mistake; the student is penalized for the time they lost making the correction, but not for the initial mistake.)
4. Subtract Uncorrected Mistakes from Words Read to get Words Correct.
5. Next, complete the Time section of the worksheet.
6. Calculate Elapsed Time in minutes and seconds. (If you used a stopwatch, this was done for you. Skip to the next step.) If you used a watch and recorded start and stop times, you will need to subtract the Start Time from the Finish Time to calculate the Elapsed Time. Subtract seconds from seconds and then minutes from minutes. Calculate Time in Seconds. Multiply the number of minutes by 60 to convert minutes to seconds, and then add the number of seconds.
7. Next, complete the W.C.P.M. section of the worksheet.
8. Divide Words Correct by Time in Seconds. Then multiply by 60 to get Words Correct Per Minute (W.C.P.M.).

As you evaluate W.C.P.M. scores, here are some factors to consider.

It is normal for students to show a wide range in fluency and in W.C.P.M. scores. However, a major goal for Grade 3 students is to read with sufficient fluency to ensure comprehension and independent reading of school assignments in subsequent grades. Exact fluency targets vary from state to state; the national mean calculated by Hasbrouck and Tindal in 2006 for Fall of Grade 3 was 71 W.C.P.M.

A student's W.C.P.M. score can be compared with the scores of other students in the classroom (or grade level), and also with the national fluency norms for Fall of Grade 3 obtained by Hasbrouck and Tindal. Students whose scores are below the 25th percentile (44 W.C.P.M) are experiencing serious problems in reading fluently.

Lesson 14: Unit Assessment

Writing



Primary Focus: Students will write a short reflection passage. **TEKS 3.12.B**

WRITTEN REFLECTION (20 MIN.)

- Ask students to think back on all the chapters they read in this unit that described the systems of the body.
- Tell students that while you conduct the fluency assessment, they will have an opportunity to reflect on a chapter and system they read about in their book.
- Pass out Activity Page 14.3. Tell students they can look back through the chapters of their Reader and choose which system they would like to write about.
- Have students independently complete Activity Page 14.3.

Activity Page 14.3



Lesson 14: Unit Assessment

Language



Primary Focus: Students will be able to identify and spell regular and plural nouns where the 'f' changes to 'v' and -es is added. **TEKS 3.11.D.iii**

SPELLING ASSESSMENT (25 MIN.)

- Have students turn to Activity 14.4 for the spelling assessment.
- If you would like students to have pens, this is the time to pass them out.
- Tell students they will complete the assessment in two parts. For Part A, tell students the root word and then provide an oral sentence with a blank where a form of the root word will go. Students have to decide what form of the verb is needed and write the correct spelling on their assessment. Tell students that at the end, you will go back through the sentences once more.
 1. (raise) I _____ my hand yesterday to volunteer to read stories to the kindergarteners.

Activity Page 14.4



TEKS 3.12.B Compose informational texts, including brief compositions that convey information about a topic, using a clear central idea and genre characteristics and craft; **TEKS 3.11.D.iii** Edit drafts using standard English conventions, including: singular, plural, common, and proper nouns.

2. (dry) This morning, her hair _____ more quickly than mine because it is shorter.
 3. (watch) Yesterday, my dad _____ a football game on television.
 4. (submit) I am _____ my report as soon as I finish typing it up on the computer.
 5. (wish) Last year, my brother _____ for a new bike for his birthday.
- After you have provided all of the oral sentences for Part A, go back through the sentences slowly, reading each one just once more.
 - Tell students they will move on to Part B. For Part B, tell students the singular noun and then provide an oral sentence with a blank where a form of the word will go. Students have to decide what form of the word is needed and write the correct spelling on their assessment.
 - Tell students that at the end, you will go back through the sentences once more.
 1. (knife) I need a _____ to cut my steak.
 2. (puppy) The neighbor's dog had three _____ last week.
 3. (book) My sister likes to read mystery _____ and see if she can solve them.
 4. (person) There were three _____ waiting when I walked into the dentist's office.
 5. (child) There are 16 _____ on my soccer team.
 - After you have called out all of the sentences, go back through the sentences slowly, reading each one just once more.
 - Now, call out the Challenge Words: *across*, *idea*.
 - Ask students to write the following sentences as you dictate them:
 1. The people were hurrying to get their children to the bus stop.
 2. Sam looked out his window and saw two men raking leaves down the street.
 - After students have finished, collect pens, if used.
 - Tell students that you will now show them the correct spelling for each word so that they can correct their own work with their pencil.
 - Starting with Part A, say the oral sentence again and write the correct form of the word on the board. Instruct students to correct their work by crossing out any incorrect spelling, then copying and writing the correct spelling next to it. Follow the same procedures for Part B.
 - Continue through all the words and then on to the dictated sentences.

Note to Teacher:

At a later time today, you may find it helpful to use the template provided at the end of this lesson to analyze students' mistakes. This will help you understand any patterns that are beginning to develop or that are persistent among individual students.

Spelling Analysis Directions

- Students are likely to make the following errors:
 - not dropping the final letter 'e' before adding *-ed*, *-ing*, and/or *-es*
 - not changing the 'y' to 'i' before adding *-es*
 - not changing the 'f' to 'v' before adding *-es*
 - writing irregular plurals incorrectly since they do not follow a pattern
- While any of the above student-error scenarios may occur, you should still be aware that misspellings may be due to many other factors. You may find it helpful to record the actual spelling errors the student makes in the analysis chart. For example:
 - Is the student consistently making errors on specific vowels? Which ones?
 - Is the student consistently making errors on double consonants?
 - Is the student consistently making errors at the ends of the words?
 - Is the student consistently making errors on particular beginning consonants?
- Did the students write words for each feature correctly?
- Also, examine the dictated sentences for errors in capitalization and punctuation.

End Lesson

Spelling Analysis Chart

| Name |
|-------------------------------|
| 1. raised |
| 2. dried |
| 3. watched |
| 4. submitting |
| 5. wished |
| 6. knife |
| 7. puppies |
| 8. books |
| 9. people |
| 10. children |
| Challenge Word: across |
| Challenge Word: idea |

Reflexes

The students in the class were talking among themselves. None of them were paying attention to their science teacher, Mr. Brown.

Mr. Brown walked over to his bookshelf. He took a huge book off the shelf. It was a dictionary. It weighed about five pounds. He held the book out with two hands. Then, he let it fall.

SMACK!

The book slammed against the floor.

The students were startled. Sally almost jumped out of her chair. Ned twitched. Jimbo blinked and shook his head. Susan was so scared she shouted, “What?”

The students turned to look at Mr. Brown. Some of them look shocked. Some of them looked annoyed.

“What’s the deal, Mr. Brown?” Susan said. “Why did you drop that book?”

“I was testing your reflexes,” said Mr. Brown.

“What?” said Ned. “Did you say test? Do we have a test today? Oh, man! I am going to fail! I totally forgot to study!”

Mr. Brown smiled. “Don’t worry, Ned. This is a test you can pass without even trying!”

“Cool!” said Ned. “That’s my kind of test!”

“You see,” Mr. Brown explained, “that’s the thing about reflexes. You don’t have to think about them. A reflex is something you just do without thinking. Sally, when I dropped that book, did you think, Goodness! A loud noise! I think I will show how surprised I am by jumping out of my seat?”

“No,” said Sally. “I don’t remember thinking anything at all.”

“Exactly,” said Mr. Brown. “That’s how reflexes work. If you touch a hot stove, you don’t want to have to think things out. You want to be able to react right away, without having to think about it. This is one of the ways in which your nervous system keeps you safe. Your nerves are always on the lookout. They react, on their own, to loud noises. They feel vibrations. They sense heat. Your nervous system is like a watchdog that never sleeps. It is always protecting you and your body.”

Teacher Resources

In this section, you will find:

- Glossary
- Activity Book Answer Key
- Texas Essential Knowledge and Skills Correlation Chart
- English Language Proficiency Standards Correlation Chart

Glossary

A

Achilles—a hero of the Trojan War in Greek mythology; he could only be killed by a wound just above his heel

Achilles tendon—the strong tendon joining the muscles in the calf of the leg to the bone of the heel

active—busy

accurate—careful; free of mistakes or errors

American Sign Language—a kind of sign language used in the United States and Canada

anvil—a small bone in the ear that looks like an anvil and vibrates when sound waves hit the eardrum

appendages—smaller body parts that are attached to the main body; things that are attached to, or are a part of, a more significant or important thing

appendicular bones—bones that are attached to and hang from the main part of a skeleton

auditory nerve—the nerve that sends signals from your ears to your brain about what you hear

automatically—done without thinking about it

axial bones—the bones that are located down the center, or axis, of a vertebrate's body

B

blind—unable to see

braille—a system of raised bumps that blind people feel with their fingers and use to read and write

brain stem—the central trunk of the human brain that continues down to the spinal cord

breakthrough—a sudden, important change that allows for progress

C

calcium—what your bones are made of

cardiac muscle—muscular tissue of the heart that contracts rhythmically and continuously

cartilage—a flexible tissue that cushions the joints where your bones meet

cast—a hard covering that holds a broken bone in place while it heals

cell—the tiniest living part of the human body (**cells**)

cell body—the center of a cell

cerebellum—a part of the brain located under the cerebrum, divided into two halves; it helps with voluntary movement of muscle groups and balance

cerebral cortex—the “gray matter” of the cerebrum that processes sensory information and controls muscle function

cerebrum—the largest part of the brain, divided into two halves; it sits on top of the cerebellum and controls thoughts, emotions, and all the senses

challenge—a difficult task or problem that requires extra effort (**challenges**)

circulate—to move around in a loop or circle

cochlea—a fluid-filled coil in the inner ear that is lined with hairs that vibrate when sound waves hit the eardrum; the nerves connected to the hairs send messages to the brain that tell you what you are hearing

coil—spiral

college degree—the official document given to someone who has successfully completed a set of classes at a college

command—control; power

concussion—brain injury

connective—linking

consciously—done on purpose; deliberately

contact lens—a thin, plastic disc placed directly on the cornea of the eye to correct vision problems (**contact lenses**)

contract—to bring together; to shorten; to tighten

coordinates—to make different things work together effectively as a whole

cope—live with effectively

cornea—a thin, clear tissue that covers the iris, protects the eye from dirt and germs, and focuses light

courage—bravery

cranium—skull

cushion—to protect with something soft (**cushioned, cushions**)

D

dairy—made with milk

deaf—unable to hear (**deafness**)

decade—10 years (**decades**)

delicate—easily broken or damaged

dendrite—a path along which nerves send messages to the brain (**dendrites**)

determined—reached a firm decision to do something

digest—to break down food in the stomach so it can be used by your body (**digesting**)

disability—something that prevents a person from moving easily or acting or thinking in a typical way (**disabilities**)

E

ear canal—ear tube

eardrum—a thin membrane inside the ear that vibrates when sound hits it

eventually—after some time has passed

exist—to be real (**existed**)

expand—to get bigger

F

farsighted—able to see things clearly if they are far away; things that are closer look blurry

femur—the long bone found in the thigh; the thighbone

fiber—it forms tissue

fibula—the small, “outside bone” in the lower part of your leg

flexible—bendable

flinch—to draw back suddenly, which is an example of a reflex

fluid—liquid

frame—structure

functions—the actions or activities that something was designed to do

G

gesture—a movement of a body part to communicate

gland—an organ in the body that makes natural chemicals (**glands**)

Grammy Awards—awards for achievement in the music industry

guide dog—a seeing eye dog (**guide dogs**)

H

hammer—a small bone in the ear that looks like a hammer and vibrates when sound waves hit the eardrum

hemisphere—one half of a round object (**hemispheres**)

hollow—empty inside

I

imitate—to copy

inner ear—the innermost part of the ear that contains the cochlea and auditory nerve

insert—to put in

involuntary—automatic; your heart is an example of an involuntary muscle

invulnerable—safe or protected; opposite of vulnerable

iris—eye color (**irises**)

J

joint—a connection between two bones in your body (**joints**)

L

laser beam—an intense beam of light that can be used for many things including surgery and cutting things

LASIK surgery—an operation during which the doctor uses a laser beam to change the shape of the cornea of the eye to help it focus light better

lens—the clear part at the front of the eye that focuses light on the retina (**lenses**)

ligament—a tissue connecting bones to bones (**ligaments**)

M

marrow—spongy inside

medulla—brain stem

membrane—a thin sheet or layer that covers something

middle ear—the part of the ear that is between the outer and inner ear; it has three small bones that vibrate when struck by sound waves which then pass the vibrations to the inner ear

model—smaller copy

muscle—a tissue that makes it possible for your body to move (**muscles**)

muscular system—your muscles

N

nearsighted—able to see things clearly if they are close by; things that are farther away look blurry

nerves—bundles of fibers throughout the body that transmit sensations, information, and instructions to the brain and spinal cord

nervous system—your nerves

O

optician—a person who examines eyes, makes glasses, and sells contact lenses

optic nerve—the nerve that sends messages from your eyes to your brain about what you see

optometrist—a doctor who specializes in caring for eyes and treating vision problems

organ—a part of your body made of cells and tissues that performs a specific job (**organs**)

outer ear—the part of the ear that is visible on the side of the head; its job is to catch sounds and guide them into the middle ear

overcoming—defeating or successfully dealing with

P

palm—the inside part of a hand between the base of the fingers and the wrist

paralyzed—unable to act, move, or feel a part or parts of the body

pelvis—hip bones

PET scan—body or brain x-ray (**PET scans**)

politics—the art or science of government; activities and discussions involving government

posture—the way in which someone holds or carries his or her body

prescription—an order for medicine

pupil—eye center (**pupils**)

R

realistic—real, accurate, or true

receptors—organs or nerve endings that receive information from inside and outside the body and send that information to the brain

reflex—reaction (**reflexes**)

retina—the lining at the back of the eye that is very sensitive to light; the nerves in the retina send messages to the brain

rods and cones—special cells that line the retina and send signals to the brain through the optic nerve

S

scapula—shoulder blade (**scapulae**)

search—to look carefully and thoroughly for (**searched**)

seemed to click—made sense or worked out

sensitive—responsive

shoulder blade—scapula; you have two of these triangle-shaped bones at the top of your back (**shoulder blades**)

skeletal system—your bones

skull—head

spinal column—the backbone; the series of vertebrae that extend from the neck to the tailbone

spout—a pipe that liquid flows out of

sternum—breastbone

stirrup—a small bone in the ear that looks like a stirrup and vibrates when sound waves hit the eardrum

stomach—belly

structure—a form or shape; something that is made up of a number of parts arranged together

T

temper tantrum—an angry, uncontrolled outburst by a child or by someone acting childish (**temper tantrums**)

tendon—a tissue connecting muscles to bones (**tendons**)

tibia—shinbone

tissue—a group or layer of cells that work together as a part or organ in your body (**tissues**)

tribute—something done to show honor or respect

Trojan—a person born or living in the ancient city of Troy

V

vertebra—a small bone that is part of the spinal column or backbone (**vertebrae**)

vibrate—to move back and forth rapidly (**vibration, vibrations**)

vision—the sense of sight; the act of seeing

voluntary—on purpose; not by accident; opposite of involuntary; moving your hand to write with a pencil is an example of voluntary muscle action

vulnerable—weak or in danger

W

warrior—soldier

well—a deep hole dug in the ground to reach water

wiring—a system or network of wires that carries electricity from one place to another

wondrous—amazing; miraculous; awesome

X

x-ray—a powerful, invisible ray of light that can pass through objects to show the inside, such as the inside of the human body (**x-rays**)

Digital Exit Ticket Suggested Answers

| QUESTION | ANSWER |
|---|--|
| Lesson 1 | |
| Why are human bodies compared to machines? | Answers may vary, but should reference that human bodies and machines both have many networks and parts that have to work together. |
| Lesson 2 | |
| Explain why the skeletal system is so important. Use evidence from the text to support your answer | Answers may vary; The skeletal system is important because bones protect our organs and the skeletal system also helps our bodies to stand up. |
| Lesson 3 | |
| Name the three types of joints you heard about in today's Read-Aloud. Explain how joints function. | Answers may vary; Three types of joints are movable, immovable, and partially movable. Some joints let us move our body parts in circles, some joints let us bend body parts back and forth, and some joints hold things together. |
| Lesson 4 | |
| What is the key idea of the chapter? | Answers should reference the structure and function of bone and marrow cells. |
| Lesson 5 | |
| Why is the muscular system important to the body? Use evidence from the text to support your answer. | Answers should reference the muscular system being important to the body because it helps the body move and do things we can't see, like digesting food and pumping blood. |
| Lesson 6 | |
| What does cartilage do in your spinal cord and why is that important? Use details from the text to support your answer. | Answers may vary in wording; Cartilage in the spinal cord cushions the vertebrae in the spine, protecting them from one another; without cartilage, the vertebrae would rub and bump and damage each other. |
| Lesson 7 | |
| What is the purpose of the network of nerves in the nervous system? Use evidence from the text to support your answer. | Answers may vary in wording; The purpose of the network of nerves in the nervous system is to link the brain and spinal cord to muscles and other organs in the body, sending information back and forth. |
| Lesson 8 | |
| Explain why it is important to wear a helmet when you play sports or ride a bike. Be sure to name at least two parts of the brain in your answer. | Answers should reference the importance of wearing a helmet when playing sports or riding a bike is to protect the brain, which includes the medulla, the cerebrum, and the cerebellum, in case of a fall or hit. |

Lesson 9

How do the muscular system and nervous system work together? Use evidence from the text to support your answer.

Answers should reference that the nervous system allows muscles to sense what is going on around them and tells the muscles when to move, both involuntarily and voluntarily.

Lesson 10

What is the key idea of the chapter? Identify the key idea and at least two supporting details.

Answers should summarize the key idea of the chapter as the many parts of the human eye that all work together to send messages to the brain so that we can “see”.

Lesson 11

How does the cochlea, found in the inner ear, help you hear sounds? Use evidence from the text to support your answer.

Answers should reference the cochlea having tiny hairs that vibrate when sound waves hit them, and the nerves connected to those hairs send messages to the brain.

Lesson 12

What are some things you can do to give your body a clean bill of health? Use details from the Read-Aloud to support your answer.

Answers will vary, but should include some of the following: diet, posture, exercise, wearing sunglasses, etc.

Lesson 13

What is a disability? What are some ways blind people live with their disability? Use evidence from the text to support your answer.

Answers may vary, but should define a disability as something that prevents a person from moving easily or acting or thinking in a typical way. Some ways blind people live with their disabilities are: using canes, using guide dogs, using their other senses, reading in braille.

ACTIVITY BOOK ANSWER KEY

Activities with widely variable or subjective responses may not be reprinted in this Appendix.

NAME: _____ DATE: _____

1.1 ACTIVITY PAGE

Directions: Write words and phrases and/or draw pictures of the different human body systems and senses.

KWL Chart: Human Body Systems

Skeletal System

| K | W | L |
|-------------------|-------------------|-------------------|
| Answers may vary. | Answers may vary. | Answers may vary. |

Grade 3 Activity Book | Unit 3 1

KWL Chart: Human Body Systems

Muscular System

| K | W | L |
|-------------------|-------------------|-------------------|
| Answers may vary. | Answers may vary. | Answers may vary. |

2 Unit 3 | Activity Book Grade 3

NAME: _____ DATE: _____

1.1 CONTINUED ACTIVITY PAGE

KWL Chart: Human Body Systems

Nervous System

| K | W | L |
|-------------------|-------------------|-------------------|
| Answers may vary. | Answers may vary. | Answers may vary. |

Grade 3 Activity Book | Unit 3 3

KWL Chart: Human Body Systems

Eyes

| K | W | L |
|-------------------|-------------------|-------------------|
| Answers may vary. | Answers may vary. | Answers may vary. |

4 Unit 3 | Activity Book Grade 3

NAME: _____
DATE: _____

1.1 ACTIVITY PAGE
CONTINUED

KWL Chart: Human Body Systems

| Ears | | |
|-------------------|-------------------|-------------------|
| K | W | L |
| Answers may vary. | Answers may vary. | Answers may vary. |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Grade 3

Activity Book | Unit 3 5

NAME: _____
DATE: _____

1.2 ACTIVITY PAGE

Topic and Concluding Sentences

Draw a box around the topic sentence of the paragraph. Draw a circle around the concluding sentence.

For Katie and Molly, when it's hot during the summer, a day at the beach is a perfect day! Katie, Molly, and their mom took a cab from their hotel to the beach. At the beach, all three smeared sunblock all over their skin. It was hot so they got in the water for a bit. Then they looked for seashells. After that, Katie and Molly played volleyball with some teenagers. Katie made some really sweet plays. In fact, a small group formed to watch her play. After the game, Katie and Molly and their mom started to feel like they could use some food. They left the beach to find something to eat. What a good day!

Grade 3

Activity Book | Unit 3 7

NAME: _____
DATE: _____

1.3 TAKE-HOME

Topic and Concluding Sentences

Draw a box around the topic sentence of each paragraph. Draw a circle around the concluding sentence.

Cookies are the best treat. They are very sweet and very tasty. Also, there are lots of different yummy flavors of cookies. If you get tired of one kind of cookie, you can always try another kind. I can't think of one thing that's bad about cookies.

Joyce is not good at singing. When she sings, she can never seem to hit the right notes. If she is supposed to sing high, Joyce sings low. If she is supposed to sing low, Joyce sings high. Even Joyce's dog hates it when she sings!

Hugo is good at drawing. In fact, he once won a drawing contest. Hugo drew a car for the contest, but he can draw all sorts of things. If you ask Hugo to draw an animal or a person or a plant, his drawing will look just like the real thing. He is the best artist I know.

Grade 3

Activity Book | Unit 3 9

NAME: _____
DATE: _____

2.1 ACTIVITY PAGE

The Mowse Hole
Your Classroom Wall
Mowse Land, U.S.A.
September 30, 2011

Dear Friends,
dear friends,

I have been listening to your teacher tell you about real animals for the last few weeks. I love learning about animals because I am one I know you have met my relative, Rattenborough.

I thought I would write a report about animals and leave it for you to read. I had trouble writing my report. My sentences seem to be out of order. Can you help me?

Thank you so much.

Sincerely,
sincerely,

Mr. Mowse
mr. mowse

Grade 3

Activity Book | Unit 3 13

NAME: _____

2.2

ACTIVITY PAGE

DATE: _____

Classification of Animals A Report by Mr. Mowse

Select and mark the topic sentence (TS) and concluding sentence (CS) in this paragraph. Then, number the remaining sentences, which provide supporting details, in the correct order.

- 3 Another characteristic is that all living things reproduce, or make babies.
- 1 One important characteristic is that all living things need energy, or food, to survive.
- 2 A second characteristic is that all living things develop, starting as babies and growing into adulthood.
- TS** There are certain important characteristics that living things have in common.
- CS** Learning about the characteristics of all living things helps us to better understand life.
- 4 Last, all living things respond and adapt to the surrounding environment.



Mr. Mowse

Grade 3

Activity Book | Unit 3 15

Select and mark the topic sentence (TS) and concluding sentence (CS) in this paragraph. Then, number the remaining sentences, which provide supporting details, in the correct order.

- 3 Another way to classify animals is whether they are cold-blooded or warm-blooded.
- 1 One characteristic that scientists study is the type of body covering on an animal.
- TS** Animals can be classified or grouped by a set of common characteristics.
- 4 Warm-blooded animals can control their body temperature, but the temperature of cold-blooded animals is affected by the outside temperature.
- 2 Some animals have fur and some have scales to cover their bodies.
- CS** Classification makes understanding life easier and more organized.
- 5 Finally, scientists also study whether animals are vertebrates (having backbones) or invertebrates (not having backbones).

16 Unit 3 | Activity Book

Grade 3

NAME: _____

3.1

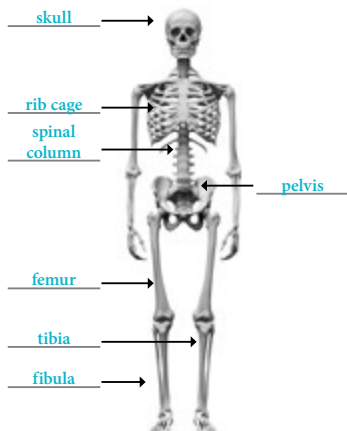
ACTIVITY PAGE

DATE: _____

The Skeletal System

Directions: Fill in the missing labels of the skeletal system.

| | | |
|---------------|--------|----------|
| spinal column | skull | femur |
| pelvis | tibia | rib cage |
| | fibula | |



Grade 3

Activity Book | Unit 3 23

NAME: _____

3.2

ACTIVITY PAGE

DATE: _____

All About Bones

1. What is the outer part of a bone made of?
- A. blood
 - B. muscle
 - C. calcium
 - D. seashells
- page 12
2. Identify what makes up the inside of bones.
- A. calcium
 - B. bone marrow
 - C. oxygen
 - D. soft tissues
- page 14
3. The important job of the bone marrow cells is to make and pump out red blood cells.
- page 14

Grade 3

Activity Book | Unit 3 25

4. _____ carry oxygen all around the body.

- A. Bone marrow cells
- B. White blood cells
- C. Red blood cells
- D. Soft tissues

page 14

5. Describe how an x-ray works so that a doctor can see the bones inside someone's body.

Bones absorb a lot of x-ray light. The soft tissue around bones does not absorb as much.

page 16

6. Explain how a cast helps broken bones heal.

A cast holds the bones in the right place so they will heal.

page 17

7. What do you think might happen to a broken bone if a cast were not placed on it?

Answers may vary, but they should include that the broken bone might not heal in the correct position.

NAME: _____

3.3 ACTIVITY PAGE

DATE: _____

Blank Busters

| | | | | |
|-------|-------|------|--------|-------|
| child | match | foot | tooth | mouse |
| glass | woman | man | person | goose |
| louse | story | fox | night | baby |

Fill in the blanks with the correct spelling words. Sometimes you will use the singular form, and sometimes you will use the plural form. Sometimes you will use both. You will not use a word more than once.

- My cat chased a mouse under the fence. Cats like to chase mice.
- My friend is the only child in her family. In my family, there are three children.
- Matches are not toys. You could start a fire with just one if you are not careful with it.
- I thought I only needed one person to take pictures during the play. But after seeing how wide the stage is, I need two or three people to take pictures so that we can see everything.
- The library book I checked out this week is a story about a boy who lived on a boat. I like reading stories about kids my age.

6. A group of men waited at the bus stop in the rain. One man did not have an umbrella or raincoat so he was soaked.

7. My sister has a loose tooth that she wiggles all the time. She has already lost four teeth.

| | | | | |
|-------|-------|------|--------|-------|
| child | match | foot | tooth | mouse |
| glass | woman | man | person | goose |
| louse | story | fox | night | baby |

8. Some women sat on a blanket at the park and ate lunch. One woman took her shoes off before she ate.

9. Today, there are many more geese at the pond. Yesterday, I only saw one goose and it was not long before it flew away.

10. My neighbor found a louse on her son's head. She washed all his clothes and sheets to make sure there were no lice on those.

11. My feet hurt after walking around all day. There is a blister on one foot but not on the other.

12. I put the dirty glasses in the sink so nobody would use them. My glass had some milk left in it from dinner so I gulped it down.

ACTIVITY PAGE

4.1

NAME: _____

DATE: _____

Word Shelf

The left-hand side of the table contains words that use the suffix you have been studying. Use the blanks on the right side to record additional words that use the same suffix. Then write those words and their definitions on the table on the following page.

| | |
|-----------------------------------|---|
| dis-
prefix meaning <i>not</i> | |
| disagree | Answers will vary but should be a word with the appropriate prefix. |
| disapprove | Answers will vary but should be a word with the appropriate prefix. |
| disobey | Answers will vary but should be a word with the appropriate prefix. |
| distrust | Answers will vary but should be a word with the appropriate prefix. |

NAME: _____ DATE: _____

4.2 ACTIVITY PAGE

dis-: Prefix Meaning “not”

| | |
|--|--|
| disagree —(verb) to not have the same opinion | Answers may vary but should include a word that uses the prefix <i>dis-</i> , the word's part of speech, and its definition. |
| disapprove —(verb) to not accept something | Answers may vary but should include a word that uses the prefix <i>dis-</i> , the word's part of speech, and its definition. |
| disobey —(verb) to not do what someone tells you to do | Answers may vary but should include a word that uses the prefix <i>dis-</i> , the word's part of speech, and its definition. |
| distrust —(verb) to not believe that someone or something is honest or truthful | Answers may vary but should include a word that uses the prefix <i>dis-</i> , the word's part of speech, and its definition. |

Choose the right word to complete each sentence. Write it on the line.

disobey disapprove dislike disconnect

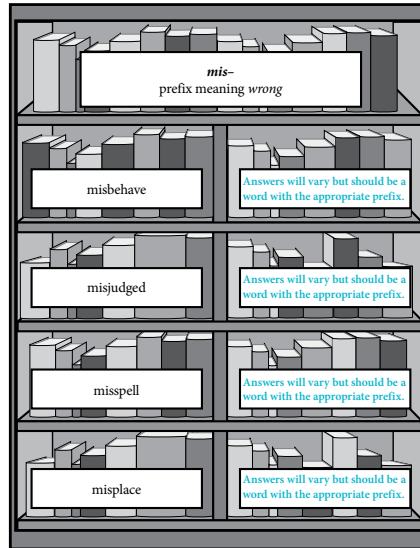
- Our teacher had to disconnect the projector from the computer to see if she could fix the display problem.
- We dislike people who call our house and insist they aren't selling something because they really are.
- You should not disobey a police officer if he tells you not to cross the street yet.
- Write your own sentence using the one word left in the box.

Sentences may vary but should include the word disapprove.

ACTIVITY PAGE **4.3** NAME: _____ DATE: _____

Word Shelf

The left-hand side of the table contains words that use the suffix you have been studying. Use the blanks on the right side to record additional words that use the same suffix. Then write those words and their definitions on the table on the following page.



NAME: _____ DATE: _____

4.4 ACTIVITY PAGE

mis-: Prefix Meaning “Wrong”

| | |
|---|--|
| misbehave —(verb) to act wrong | Answers may vary but should include a word that uses the prefix <i>mis-</i> , the word's part of speech, and its definition. |
| misjudged —(verb) formed an opinion that is wrong | Answers may vary but should include a word that uses the prefix <i>mis-</i> , the word's part of speech, and its definition. |
| misspell —(verb) to write or name the letters in a word in the wrong order | Answers may vary but should include a word that uses the prefix <i>mis-</i> , the word's part of speech, and its definition. |
| misplaced —(verb) put something in the wrong location | Answers may vary but should include a word that uses the prefix <i>mis-</i> , the word's part of speech, and its definition. |

Choose the right word to complete each sentence. Write it on the line.

misplaced misunderstand misjudged misused

- I have misplaced my keys because they are not where I put them every night.
- It is easy to misunderstand Mr. Connor because he speaks in such a quiet voice.
- Sam misjudged how large the couch was so we had a hard time getting it through the door of his new apartment.
- Write your own sentence using the one word left in the box.

Sentences may vary but should include the word misused.

NAME: _____ DATE: _____

4.5 ACTIVITY PAGE

Practice Prefixes *dis-* and *mis-*

If the sentence shows an example of the correct definition of the underlined word, write yes on the blank that follows. If the sentence does not show an example of the correct definition of the underlined word, write no.

- Dad disapproves of my goal to try out for the baseball team, so he said he will help me practice. no
- To misspell a word means you spelled it incorrectly when you wrote it on your paper. yes
- Carla misused the glue by using a few dabs on her paper instead of squirting it all out at one time. no
- The puppy disobeyed her master by chewing up his slippers. yes
- When I disconnect the leash from my dog's collar, he might try to run off. yes

Write a sentence for each word like the ones on page 37 that you can answer with yes.

1. disagree

Answers may vary. _____

2. misunderstand

Answers may vary. _____

3. misplaced

Answers may vary. _____

NAME: _____

4.6 TAKE-HOME

DATE: _____

Order Sentences

Select and mark the topic sentence (TS) and concluding sentence (CS) in this paragraph. Then, number the remaining sentences, which provide supporting details, in the correct order.

2. Next, spread the peanut butter on one slice of bread and the jelly on the other slice of bread.

TS Making a peanut butter and jelly sandwich is an easy thing to do.

1. First, get out a plate, the bread, the peanut butter, the jelly, and a knife and place it all on a counter.

CS Before you know it, you are ready to sink your teeth into your yummy sandwich!

3. Put your two pieces of bread together to make a sandwich.

NAME: _____

5.1

ACTIVITY PAGE

DATE: _____

Write Topic and Concluding Sentences

Read the sentences that go with each topic. Then, write a topic sentence and a concluding sentence for each topic. Remember to indent the topic sentence.

Topic: Summer

Answers may vary but should pertain to the subject. _____

One of the best things about summer is that we don't have school! I have the whole day to do lots of fun things. Another good thing about summer is that it is hot and sunny, so I can go swimming almost every day. Also, since it stays light out later at night, after dinner my mom lets me go to the park to play ball with my friends.

Answers may vary. _____

Topic: Class Trip

Answers may vary but should pertain to the subject. _____

First, we all got on a bus that took us from school to the harbor at Battery Park. Then, we took a boat to the Statue of Liberty. Then, we got to climb up inside the statue. When it was time for lunch, we had a picnic outside on the grass near the statue. Then, it was time to go back to school.

Answers may vary. _____

NAME: _____

6.1

ACTIVITY PAGE

DATE: _____

Joints and Muscles

1. Make a list of the joints in your body. (Hint: There are more joints than what are listed in *How Does Your Body Work?* Use the information in the chapter and think about other parts of your body.) Be ready to share your list with your classmates.

Answers may vary but should include elbow, shoulder, and knee.

2. Explain what cartilage does.

Cartilage cushions bones and keeps them from rubbing or banging against each other.

page 26

Blank Busters

| | | |
|------|-------|-------|
| life | thief | wolf |
| loaf | shelf | self |
| leaf | wife | knife |
| elf | half | |

Fill in the blanks with the correct spelling words. Sometimes you will use the singular form, and sometimes you will use the plural form. Sometimes you will use both. You will not use a word more than once.

- Last week we ran out of bread for lunch since we only bought one loaf. This week we need to buy two loaves.
- Several thieves stole things left in the cars that were parked on the street last night. One thief dropped a hat that the police kept for evidence.
- My uncle has been married twice and has had two wives. His current wife makes the best cookies.
- I can only reach the bottom shelf in the kitchen cabinet. The top two shelves are too high for me.
- Knives could hurt you if you are not careful. When you cut with a knife, you have to take your time and pay close attention to what you are doing.

- Dogs and wolves have many things in common. However, a dog would make a good pet, but a wolf would not.

| | | |
|------|-------|-------|
| life | thief | wolf |
| loaf | shelf | self |
| leaf | wife | knife |
| elf | half | |

- In the fall, the leaves change colors. I love it when I find a bright yellow or red leaf on the ground!
- When a frog begins its life, it lives in the water. When the frog grows to be an adult, it is almost as if it leads two lives, one in the water and one on land.
- After taking a vacation, she was her usual, happy self. Sometimes people need to take a break to get back to their normal selves after working hard for so long.
- You did not divide the pile of books into two equal halves. My half does not include enough books for the topic I am writing about.
- Sometimes during the holidays, I see people in stores dressed as elves. Once, someone dressed as an elf was handing out stickers to children.

Prefix Review: un-, non-, re-, pre-, mis-, and dis-

- Directions:
- Throw the dice and move the number of spaces indicated.
 - Read the word in the space that you land on and use it correctly in a sentence.
 - Then, write the word in the correct column on this page.
 - Next, write the part of speech for the way you used the word in the sentence.

| un- | non- | re- | Part of Speech |
|-------------------|-------------------|-------------------|-------------------|
| Answers may vary. | Answers may vary. | Answers may vary. | Answers may vary. |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| pre- | mis- | dis- | Part of Speech |
|-------------------|-------------------|-------------------|-------------------|
| Answers may vary. | Answers may vary. | Answers may vary. | Answers may vary. |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

NAME: _____
DATE: _____

7.5 TAKE-HOME

Review Prefixes
un-, non-, re-, pre-, dis-, and mis-

Circle the correct word, from the choices after each sentence, to complete the sentence.

| | | |
|--|----------------|-------------|
| 1. Robby approached the dog in a _____ way so the dog would know he wasn't going to hurt it. | nonthreatening | threatening |
| 2. Uncle Bill was _____ that someone scratched his new truck. | happy | unhappy |
| 3. Mary had to _____ the roast the night before the party and then finish cooking it that morning. | precook | cook |
| 4. I _____ that we should offer to cut the grass and rake leaves for our neighbor, Miss Andrews, since her health is not good. | disagree | agree |
| 5. She _____ how cold it was outside and forgot to take a hat and gloves, so she was very cold. | judged | misjudged |
| 6. The ribbons I cut for wrapping presents look _____ because two of them seem much longer than the others. | uneven | even |
| 7. My brother asked me to _____ the new bucket with water so we could wash the car. | refill | fill |
| 8. Rachel knows the best _____ ways to get her mom's attention from across the room so she doesn't have to yell. | nonverbal | verbal |

15 | Grade 3

Activity Book | Unit 3 65

Write the part of speech and the meaning for each word. Then write the root word for each word.

- disconnect
Part of Speech: verb Root Word: connect
Meaning: to separate or take apart
- misused
Part of Speech: verb Root Word: used
Meaning: to have been used incorrectly
- review
Part of Speech: verb Root Word: view
Meaning: to look at again
- unsure
Part of Speech: adjective Root Word: sure
Meaning: not sure
- prepay
Part of Speech: verb Root Word: pay
Meaning: to pay ahead or in advance

66 Unit 3 | Activity Book

Grade 3

NAME: _____
DATE: _____

8.1 ACTIVITY PAGE

Your Brain Signal

- You have N E R V E S all over your body.
- If a person is P A R A L Y Z E D, he is unable to move his legs and/or his arms.
- The S P I N A L cord extends from your tailbone to your skull and is like a super highway.
- The cerebellum has two H E M I S P H E R E S.
- The medulla controls involuntary movements in your lungs such as B R E A T H I N G.

Once you have answered the questions above, fill in the letters with the corresponding numbers below to answer the question:

What does the brain send out to the rest of the body?

M E S S A G E S

Grade 3

Activity Book | Unit 3 67

NAME: _____
DATE: _____

8.2 ACTIVITY PAGE

Review Prefixes
un-, non-, re-, pre-, dis-, and mis-

Circle the correct word, from the choices after each sentence, to complete the sentence.

| | | |
|---|---------------|--------------|
| 1. I _____ peaches, but I'll gladly eat apples instead. | like | dislike |
| 2. Grandma asked me to help her _____ the photos in her photo album because she had new photos. | do | redo |
| 3. Ben felt _____ enough to get out of bed and sit outside while his brother played in the backyard. | unwell | well |
| 4. Our assignment was to write a _____ paper about one of the systems of the human body. | fictional | nonfictional |
| 5. It is easy to _____ you when you try to talk with your mouth full of food! | misunderstand | understand |
| 6. Please _____ the oven to 350 degrees so it will be warm enough to start baking the cake batter we are preparing. | heat | preheat |
| 7. Will cannot eat or drink _____ products, like cheese and ice cream, because he is allergic to milk. | nondairy | dairy |
| 8. You should _____ this letter because it is hard to read your handwriting. | rewrite | write |

15 | Grade 3

Activity Book | Unit 3 69

Write the part of speech and the meaning for each word. Then, write the root word for each word.

- nonliving*
 Part of Speech: adjective Root Word: living
 Meaning: not alive
- misspell*
 Part of Speech: verb Root Word: spell
 Meaning: to spell incorrectly
- disobey*
 Part of Speech: verb Root Word: obey
 Meaning: not to obey
- preprint*
 Part of Speech: verb Root Word: print
 Meaning: to print ahead of time
- unsafe*
 Part of Speech: adjective Root Word: safe
 Meaning: not safe

NAME: _____
 DATE: _____

The Spinal Cord and Brain

Answer each of the following questions by first reading the question silently, then writing the answer on the line. Write the page number where you found the answer. If you need a hint, look in the brain on the back of this page. Some words may be used more than once.

- | | Page |
|--|-----------|
| 1. Which bones protect your brain? <u>skull or cranium</u> | <u>44</u> |
| 2. What is it called when you bruise your brain or hit your head really hard? <u>concussion</u> | <u>44</u> |
| 3. How many main parts is the brain divided into? <u>three</u> | <u>45</u> |
| 4. What is another name for the medulla? <u>brain stem</u> | <u>45</u> |
| 5. What is the job of the medulla? <u>It controls the important involuntary actions of the body.</u> | <u>45</u> |
| 6. The cerebellum helps you to control <u>voluntary</u> movements, like walking, running, and jumping. | <u>46</u> |
| 7. What is the name for the largest part of the brain? <u>cerebrum</u> | <u>48</u> |
| 8. The wrinkly outer covering of the cerebrum is called the <u>cerebral cortex</u> . | <u>49</u> |
| 9. What is another more common name people have given to the cerebral cortex? <u>gray matter</u> | <u>49</u> |

Choose one question out of the following three to answer. You will not find the answer on a page in How Does Your Body Work?, but please indicate the page number you reread that helped you form your idea.

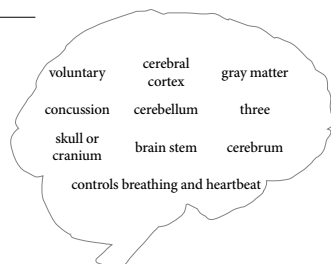
- Choice 1. Explain whether or not you can have a concussion in your big toe.
- Choice 2. Determine if scratching an itch is a voluntary or involuntary movement and state why.
- Choice 3. How is the medulla, also called the brain stem, similar to the stem of a tree?

Write the answer to the question you chose below.

Question that you chose: Choice 1, 2, or 3

Answer: Answers may vary.

page _____



NAME: _____
 DATE: _____

Identify Irrelevant Sentences

For each paragraph, underline the topic sentence and cross out the sentence that does not stay on the topic. Circle the concluding sentence.

Vegetables come in many different colors. Some vegetables are green like beans and lettuce. Some vegetables are yellow like squash. ~~Sometimes meat is red.~~ Other vegetables, like carrots, are even orange. The many colors of vegetables help to make them appealing.

I visit the dentist for a checkup two times a year. The dentist checks my teeth for cavities. ~~A vet helps sick animals.~~ Then, the dentist cleans my teeth and flosses them. After that, the dentist lets me pick out a toothbrush. When I leave the dentist's office, my teeth are so clean!

Clara jumps out of bed excitedly. Today is the day that her class is going to the zoo. As she brushes her teeth, Clara wonders what animals she will get to see at the zoo. ~~Last week, Clara went with her dad to get the car fixed.~~ She hopes that she'll get to see the tigers and the bears at the zoo. But she knows that even if she doesn't get to see them, her day will still be amazing.

NAME: _____
DATE: _____

9.3 TAKE-HOME

Topic and Irrelevant Sentences

Read all of the sentences in each set. One of the sentences in each set is a topic sentence; underline that sentence. Most of the other sentences in the set are supporting details for the topic sentence. But, there is one sentence in each set that does not belong because it does not stay on the topic. Cross out this sentence.

If you are interested in art, there are many art museums that you can visit.
If you like going to shows, you can choose from many different dramas and plays.

New York City is a wonderful place to visit.

There are also many different kinds of restaurants, so you can find just about anything you want to eat.

~~Valentine's Day is in February.~~

You must be sure to give a dog food and clean water each day.

Taking care of a dog as a pet is a big responsibility.

~~Birds make their nests in the spring.~~

You also need to walk a dog or let it outside at least twice a day.

It is important that a dog has a comfortable, dry place to sleep.

Francis Scott Key wrote a poem while watching the attack on Fort McHenry.

~~Andrew Jackson led the army in the Battle of New Orleans.~~

This poem later became a song known as "The Star-Spangled Banner," which is now our national anthem.

Key watched the American flag fly at Fort McHenry during the entire battle.

He was inspired to write the poem when he saw that the flag was still waving at Fort McHenry the morning after the battle.

ts | Grade 3

Activity Book | Unit 3 77

NAME: _____
DATE: _____

10.1 ACTIVITY PAGE

Help This Eye See!

Find the correct order in which light travels through the eye by reading the clues and choosing the correct word for each clue. Then write the word in the numbered blanks. Next, fill in the letters for the mystery word at the bottom of the page.

| | | |
|-------------|-------|--------|
| optic nerve | pupil | cornea |
| lens | brain | retina |

Clues

1. Protects the eye from dirt and germs C O R N E A₁
2. Gets bigger in the dark and smaller in bright light P U P I L₂
3. The one in your eye is a convex L E N S₃
4. This is made up of rods and cones R E T I N A₄
5. The eye highway for messages to travel on O P T I C N E R V E₅
6. This organ receives information through the optic nerve allowing us to see. B R A I N₆

Mystery Word = R A I N B O W_{4 1 2 3 6 5} **W**

Grade 3

Activity Book | Unit 3 79

NAME: _____
DATE: _____

10.3 ACTIVITY PAGE

Titles for Paragraphs

Write a title for each paragraph.

Title: Answers may vary.

Summer is the best season. When it is summertime, I get to swim in the lake by my house. I also get to go to the beach with my family. We cook outside and enjoy the sunshine. That is why I like summer best of all.

Title: Answers may vary.

Last Halloween, Linda dressed up in a pink, silk princess costume. She even wore a silver crown on her head. Her dress was all ruffled. She really looked like a princess. Linda's princess costume was great!

Title: Answers may vary.

Gertrude did not enjoy her walk in the forest. As she walked, branches from the trees scratched her arms and legs. It was very hot, and there were lots of flies. Then, there was a loud howling in the forest that really scared Gertrude. She decided that the next time she takes a walk, she will walk in the park!

Grade 3

Activity Book | Unit 3 83

NAME: _____
DATE: _____

11.2 TAKE-HOME

Write a Paragraph

Write a good paragraph. Remember to include a topic sentence, 3 or 4 supporting sentences, and a concluding sentence. Add a title.

Answers may vary but should include all the elements of a paragraph.

If you have extra time, try writing another paragraph on the back of this page about a different topic.

ts | Grade 3

Activity Book | Unit 3 89

NAME: _____
DATE: _____

12.1

ACTIVITY PAGE

Grammar

Circle nouns. Draw a box around adjectives and arrow them to the nouns they describe. Draw a wiggly line under verbs.

- A talented basketball player catches, dribbles, and dunks the ball with skill.
- The fluffy, sweet ball of soft fur is my new kitten. Powder Puff.
- Classic Tales filled me with excitement and joy as I read and reread it.
- Our new teacher assesses our daily work.
- Your background in science helps you understand the human body.

Draw a box around the topic sentence. Circle the concluding sentence. Create a title for the paragraph.

Title: Answers may vary.

Grandma's broken down barn was in great need of a paint job, and my brother and I were just the team to paint it. We were visiting Grandma during our summer vacation and were eager to see what farm life was all about.

We quickly discovered there is a lot to do on a farm. Since Grandma lived far away from any town, any jobs that needed to be done Grandma and her helpers did themselves. Grandma's chief helper had taken a week's vacation, so many of his jobs became ours. The cows needed to be milked, and the horses wanted to be out in the pasture. The stables needed to be cleaned out, and vegetables were ready to be picked in the garden. But the most important job Grandma has saved for us to do was to paint her barn that used to be red and had little paint left on it. Even though we were quickly becoming used to helping around the farm, we couldn't wait to get started painting!

Grade 3

Activity Book | Unit 3 91

Split the run-on sentences by inserting punctuation and capitalization.

- Studying the human body is fascinating. ^M My favorite chapter was about the skeletal system.
- Drinking milk every day is good for your growing body. ^E Exercising is also good for you.

Add either a subject or a predicate to the fragment to create a simple sentence.

- my math book Sentences may vary.

- makes me want to shout for joy Sentences may vary.

92 Unit 3 | Activity Book

Grade 3

NAME: _____
DATE: _____

13.1

ACTIVITY PAGE

Overcoming Disabilities, Part I

- What is the selection mostly about?
A. deafness and seeing-eye dogs
 B. deafness and blindness
C. seeing-eye dogs and braille
D. blindness and Helen Keller
- Which of the following is the best title for the list in the box shown below?

- Use a cane.
- Use a seeing-eye dog.
- Listen to voices.
- Learn to read using braille.

- Ways to Live with Deafness
- Ways to Live with Hearing Loss
- Ways to Live with Learning Problems
- Ways to Live with Blindness

Grade 3

Activity Book | Unit 3 97

- What does the word **gesture** mean in this question?

Did you know that there is a **gesture** or sign in American Sign Language for each letter in the alphabet?

sign or movement of a body part to communicate

page 72

- What does it mean to "read lips"?

To read lips means to carefully watch a person's lips move as he is speaking and figure out what the person is saying by how his lips move.

page 72

- Which of the following lists of words from "Overcoming Disabilities, Part I" is in alphabetical order?
A. communicate, cane, read, language
B. understand, language, read, message
 C. blind, braille, cane, communicate

98 Unit 3 | Activity Book

Grade 3

NAME: _____

13.2

ACTIVITY PAGE

DATE: _____

Introduce Subject Pronouns

Replace the words in parentheses with the correct pronoun from the box. Write the pronoun on the line.

| | |
|----------------|--------------|
| I | We |
| You (singular) | You (plural) |
| He | They |
| She | |
| It | |

1. He (the boy) sailed around the world.
2. We (everyone in my class, including me) are terrific third graders.
3. You (the person who you are talking to) like ice cream.
4. She (a girl named Wanda) sits next to me at lunch every day.
5. I (your name) enjoyed the grammar lesson and learned a lot.
6. They (my dogs) eat every bite in their bowls.
7. You (the three people you are speaking to) make up my grammar team.
8. It (your favorite book) fascinated me even when I read it a second time.

Grade 3

Activity Book | Unit 3 99

Read each sentence below and mark the subject by writing an 'S' over top of it. Write a new sentence replacing the subject with the appropriate subject pronoun. Mark the pronoun as the subject by underlining it in the new sentence. Then, answer the question.

Example: S

A. My brother teaches me to shoot hoops in our driveway.

B. He teaches me to shoot hoops in our driveway.

Who does the pronoun refer to? My brother

1. A. S The black dogs sleep under the porch.
B. They sleep under the porch.

Who does the pronoun refer to? The black dogs

2. A. S S S Sally, Sandy, and Sherman watch the funny movie.
B. They watch the funny movie.

Who does the pronoun refer to? Sally, Sandy, and Sherman

Review: Change the fragment into a complete sentence.

3. my pet hamster Answers may vary, but the sentence should include the words "my pet hamster."

100 Unit 3 | Activity Book

Grade 3

NAME: _____

13.3

ACTIVITY PAGE

DATE: _____

Overcoming Disabilities, Part II

1. When did Ray Charles become blind?
Ray Charles went blind when he was seven years old.
page 78
2. Which sentence from the selection tells you about the success of Ray Charles?
 A. Ray Charles won 10 Grammy Awards and made millions of dollars as a singer.
B. He couldn't see, but there was nothing wrong with his ears.
C. Ray Charles went blind when he was seven years old.
D. He loved music and decided to become a musician.
3. Why did Helen Keller have terrible temper tantrums?
As a child Helen Keller would often try to communicate and fail. Then, she would get angry and cry. Sometimes that led to temper tantrums.
page 80

Grade 3

Activity Book | Unit 3 101

4. What does the word **communicate** mean in this sentence?

They did not know how to help her **communicate**.

- A. hear her parents call
 - B. carry her dolls outside
 - C. tell her feelings and wants
 - D. turn the television off
5. What was special about Helen Keller's college degree?
Helen Keller was the first deaf and blind person to receive a college degree.

page 84

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Grade 3

- Why had Otzi's body not decayed much?
Snow and ice had preserved the body.
- Which of Otzi's bones had been strengthened by traveling long distances on sloping ground?
A. tibia
B. fibula
C. sternum
D. cranium
- What does the word **sloping** mean in the following sentence?

It had been strengthened by traveling long distances on **sloping** ground.

A. flat
B. rough
C. slanted
D. sandy
- A scientist found tiny specks of pollen and dust in Otzi's tooth enamel.
- Why was using x-rays a good way to examine Otzi's body?
A. X-rays show a picture of the outside of the body.
B. X-rays show a picture of the inside of the body.
C. X-rays show how muscles work.
D. X-rays show how the nervous system works.

NAME: _____

14.1 ASSESSMENT
CONTINUED

- DATE: _____
- Why did the author write this selection?
A. to tell readers about what scientists learned from a preserved iceman
B. to question readers about scientists who examine bones
C. to educate readers about scientists in the Alps
D. to prevent readers from becoming scientists who preserve things from nature

- According to the selection, what does the word *kinsmen* mean?
A. animals
B. kings
C. relatives
D. pets

- 8–10. Select and mark the topic sentence (TS) and concluding sentence (CS) in this paragraph. Then, number the remaining sentences, which provide supporting details, in the correct order.
- 2 Next, you pour the hot water in a cup and drop in the tea bag.
4 Then, remove the tea bag carefully, and add sugar or milk if you wish.
TS Making a cup of hot tea is an easy thing to do.
3 You must wait 3–5 minutes for the tea to steep, or become tea.
1 First, you heat water in a kettle on the stove.
CS Before you know it, your tea is ready to drink!

- If scientists *misjudged* something about Otzi, what does that mean they did?
judged it incorrectly
- Scientists may *disagree* about what features of Otzi's body indicate, which means scientists may _____.
A. not believe that someone is honest
B. not enjoy something
C. not do what someone tells them to do
D. not have the same opinion

- Put the following words from the selection in alphabetical order:

| | | | | |
|----------|------------|----------|--------|--------|
| skeleton | scientists | fracture | frozen | iceman |
|----------|------------|----------|--------|--------|

- fracture
- frozen
- iceman
- scientists
- skeleton

NAME: _____

14.1 ASSESSMENT
CONTINUED

- DATE: _____
- Where does this story take place?
It took place at Megaland.

- Put the following sentences in order as they appear in the selection, using the numbers 1–5.
5 The dad texted Amy's dad and got a text to meet him at the Misty Mountain ride after the parade.
1 Amy could not find her parents after she got off the spin-around ride.
4 Amy noticed the dad tapping away on his cell phone, not paying attention to her.
3 The mom asked Amy questions.
2 Amy found a mom and told her she was lost.

- According to the selection, what does *swept* mean?
A. seated quickly
B. pushed quickly
C. ran slowly
D. hopped slowly

- Why couldn't Amy and the other mom and dad get to the security office?
The guard said they could not cross the road until the parade was over.

18. What might have happened if Amy and the other mom and dad were able to go right to the security office?
- A. The dad might not have looked up Amy's dad on the Internet.
 - B. The mom might have taken Amy on another ride.
 - C. Amy's parents might have let her ride the spin-around ride again.
 - D. The other mom might have bought lunch for Amy before riding the next ride.

19. What did Amy's mom tell her to do if she ever got lost?

Amy's mom told her to look for a mom with kids.

20. Why did the author write this selection?
- A. to inform readers about rides at an amusement park
 - B. to entertain readers with a story about a girl who was lost
 - C. to challenge readers to take more vacations
 - D. to ask readers questions about parades with guards

21. Circle the sentence that does not stay on topic in the following paragraph.

How Does Your Body Work? is a fascinating book to read. It is full of interesting chapters about our skeletal, muscular, and nervous systems. It even describes our respiratory system and shows images of the lungs! I know that I want to reread the entire book to make sure I did not miss a single detail. We are so lucky to have exciting Readers to study here at school!

NAME: _____
DATE: _____

22. Which prefixes have the same meaning, which is "not"?
- A. *mis-* and *dis-*
 - B. *re-* and *un-*
 - C. *non-* and *un-*
 - D. *re-* and *pre-*

23. Replace the words in parentheses with the correct subject pronoun.

They (my kittens) lap up every drop of milk in their bowls.

24. Name the root word and prefixes in the following words.

| | |
|--------|---------|
| review | preview |
|--------|---------|

Root Word: view

Prefix: re- Prefix: pre-

25. If this selection was *nonfictional*, then it would be what?
- A. related to something that is made up
 - B. not made with or does not contain milk
 - C. able to soak up liquid
 - D. not related to something that is made up

NAME: _____
DATE: _____

Our Interconnected Systems

Title: Answers may vary.

A description of this system:

Answers may vary.

How this system works with other systems:

Answers may vary.

A drawing of the system(s):

Answers may vary.

My star rating—The chapter was . . .

1 star = not so great 4 stars = awesome!



NAME: _____ PP.1 ACTIVITY PAGE
 DATE: _____

Directions: Write words and phrases and/or draw pictures of the different human body systems and senses.

KWL Chart: Human Body Systems

Skeletal System

| K | W | L |
|-------------------|-------------------|-------------------|
| Answers may vary. | Answers may vary. | Answers may vary. |

Grade 3 Activity Book | Unit 3 125

KWL Chart: Human Body Systems

Muscular System

| K | W | L |
|-------------------|-------------------|-------------------|
| Answers may vary. | Answers may vary. | Answers may vary. |

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NAME: _____ PP.1 CONTINUED ACTIVITY PAGE
 DATE: _____

KWL Chart: Human Body Systems

Nervous System

| K | W | L |
|-------------------|-------------------|-------------------|
| Answers may vary. | Answers may vary. | Answers may vary. |

Grade 3 Activity Book | Unit 3 127

KWL Chart: Human Body Systems

Eyes

| K | W | L |
|-------------------|-------------------|-------------------|
| Answers may vary. | Answers may vary. | Answers may vary. |

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NAME: _____
 DATE: _____

PP.1 ACTIVITY PAGE
 CONTINUED

KWL Chart: Human Body Systems

Ears

| K | W | L |
|-------------------|-------------------|-------------------|
| Answers may vary. | Answers may vary. | Answers may vary. |

Grade 3

Activity Book | Unit 3 129

NAME: _____
 DATE: _____

PP.2 ACTIVITY PAGE

Directions: Write the working title of your narrative at the top of the page. Write the revised sentences from your first draft in three paragraphs to tell the beginning, middle, and end of your narrative.

Answers may vary but should include three paragraphs, a beginning, a middle, and an end.

Grade 3

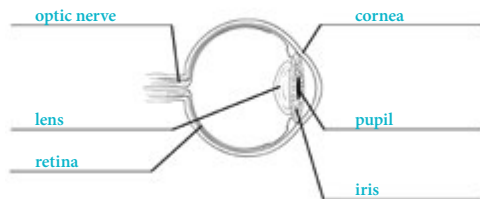
Activity Book | Unit 3 131

NAME: _____
 DATE: _____

PP.4 ACTIVITY PAGE

Directions: Fill in the labels for the parts of the eye using the words in the box.

| | | |
|-------------|--------|-------|
| cornea | iris | pupil |
| optic nerve | retina | lens |



Grade 3

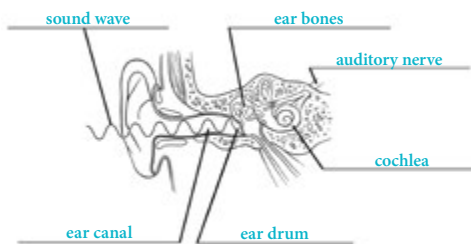
Activity Book | Unit 3 135

NAME: _____
 DATE: _____

PP.5 ACTIVITY PAGE

Directions: Label the diagram of the human ear using the words in the box.

| | | |
|-----------|----------------|---------|
| ear canal | sound wave | eardrum |
| ear bones | auditory nerve | cochlea |



Grade 3

Activity Book | Unit 3 137

TEXAS ESSENTIAL KNOWLEDGE AND SKILLS - GRADE 3

Unit 3

Correlation—Teacher’s Guide

| | | |
|---|---|---|
| (1) Developing and sustaining foundational language skills: listening, speaking, discussion, and thinking—oral language. The student develops oral language through listening, speaking, and discussion. The student is expected to: | | |
| TEKS 3.1.A | listen actively, ask relevant questions to clarify information, and make pertinent comments | U3: p. 8, U3: p. 12, U3: p. 34, U3: p. 37, U3: p. 58, U3: p. 61, U3: p. 96, U3: p. 100, U3: p. 138, U3: p. 141, U3: p. 168, U3: p. 171, U3: p. 210, U3: p. 212, U3: p. 236, U3: p. 239, U3: p. 262, U3: p. 265 |
| TEKS 3.1.B | follow, restate, and give oral instructions that involve a series of related sequences of action | |
| TEKS 3.1.C | speak coherently about the topic under discussion, employing eye contact, speaking rate, volume, enunciation, and the conventions of language to communicate ideas effectively | U3: p. 8, U3: p. 12 |
| TEKS 3.1.D | work collaboratively with others by following agreed-upon rules, norms, and protocols | |
| TEKS 3.1.E | develop social communication such as conversing politely in all situations | U3: p. 138, U3: p. 156, U3: p. 159 |
| (2) Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking—beginning reading and writing. The student develops word structure knowledge through phonological awareness, print concepts, phonics, and morphology to communicate, decode, and spell. The student is expected to: | | |
| (A) demonstrate and apply phonetic knowledge by: | | |
| TEKS 3.2.A.i | decoding multisyllabic words with multiple sound-spelling patterns, such as eigh, ough, and en | |
| TEKS 3.2.A.ii | decoding multisyllabic words with closed syllables, open syllables, VCe syllables, vowel teams, including digraphs and diphthongs, r-controlled syllables, and final stable syllables | |
| TEKS 3.2.A.iii | decoding compound words, contractions, and abbreviations | |
| TEKS 3.2.A.iv | decoding words using knowledge of syllable division such as VCCV, VCV, and VCCCV with accent shifts | U3: p. 34, U3: p. 46, U3: p. 58, U3: p. 71, U3: p. 96, U3: p. 107, U3: p. 120, U3: p. 123, U3: p. 138, U3: p. 150, U3: p. 168, U3: p. 180, U3: p. 210, U3: p. 222, U3: p. 236, U3: p. 248, U3: p. 280, U3: p. 284 |
| TEKS 3.2.A.v | decoding words using knowledge of prefixes | U3: p. 80, U3: p. 90, U3: p. 138, U3: p. 156, U3: p. 168, U3: p. 190 |
| TEKS 3.2.A.vi | decoding words using knowledge of suffixes, including how they can change base words such as dropping e, changing y to i, and doubling final consonants | |
| TEKS 3.2.A.vii | identifying and reading high-frequency words from a research-based list | |
| (B) demonstrate and apply spelling knowledge by: | | |
| TEKS 3.2.B.i | spelling multisyllabic words with closed syllables, open syllables, VCe syllables, vowel teams, including digraphs and diphthongs, r-controlled syllables, and final stable syllables | |
| TEKS 3.2.B.ii | spelling homophones | |
| TEKS 3.2.B.iii | spelling compound words, contractions, and abbreviations | |

TEXAS ESSENTIAL KNOWLEDGE AND SKILLS - GRADE 3

| Unit 3 | | Correlation—Teacher’s Guide |
|---|---|--|
| TEKS 3.2.B.iv | spelling multisyllabic words with multiple sound-spelling patterns | U3: p. 8, U3: p. 10, U3: p. 27, U3: p. 58, U3: p. 78, U3: p. 96, U3: p. 114, U3: p. 236, U3: p. 255, U3: p. 262, U3: p. 276 |
| TEKS 3.2.B.v | spelling words using knowledge of syllable division such as VCCV, VCV, and VCCCV | |
| TEKS 3.2.B.vi | spelling words using knowledge of prefixes | U3: p. 80, U3: p. 90 |
| TEKS 3.2.B.vii | spelling words using knowledge of suffixes, including how they can change base words such as dropping e, changing y to i, and doubling final consonants | U3: p. 8, U3: p. 27, U3: p. 120, U3: p. 134, U3: p. 236, U3: p. 255 |
| TEKS 3.2.C | alphabetize a series of words to the third letter | U3: p. 96, U3: p. 114, U3: p. 116, U3: p. 192, U3: p. 206, U3: p. 207 |
| TEKS 3.2.D | write complete words, thoughts, and answers legibly in cursive leaving appropriate spaces between words. | |
| (3) Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking—vocabulary. The student uses newly acquired vocabulary expressively. The student is expected to: | | |
| TEKS 3.3.A | use print or digital resources to determine meaning, syllabication, and pronunciation | |
| TEKS 3.3.B | use context within and beyond a sentence to determine the meaning of unfamiliar words and multiple-meaning words | U3: p. 310, U3: p. 312 |
| TEKS 3.3.C | identify the meaning of and use words with affixes such as <i>im-</i> (into), <i>non-</i> , <i>dis-</i> , <i>in-</i> (not, non), <i>pre-</i> , <i>-ness</i> , <i>-y</i> , and <i>-ful</i> | U3: p. 80, U3: p. 90 |
| TEKS 3.3.D | identify and explain the meaning of antonyms, synonyms, idioms, homophones, and homographs in a text | U3: p. 8, U3: p. 12, U3: p. 13, U3: p. 24, U3: p. 262, U3: p. 265, U3: p. 266 |
| (4) Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking—fluency. The student reads grade-level text with fluency and comprehension. The student is expected to use appropriate fluency (rate, accuracy, and prosody) when reading grade-level text. | | |
| TEKS 3.4 | use appropriate fluency (rate, accuracy, and prosody) when reading grade-level text | U3: p. 310, U3: p. 313 |
| (5) Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking—self-sustained reading. The student reads grade-appropriate texts independently. The student is expected to self-select text and read independently for a sustained period of time. | | |
| TEKS 3.5 | self-select text and read independently for a sustained period of time | U3: p. 162, U3: p. 305 |
| (6) Comprehension skills: listening, speaking, reading, writing, and thinking using multiple texts. The student uses metacognitive skills to both develop and deepen comprehension of increasingly complex texts. The student is expected to: | | |
| TEKS 3.6.A | establish purpose for reading assigned and self-selected texts | U3: p. 162 |
| TEKS 3.6.B | generate questions about text before, during, and after reading to deepen understanding and gain information | U3: p. 8, U3: p. 12, U3: p. 13, U3: p. 138, U3: p. 141, U3: p. 149, U3: p. 210, U3: p. 212, U3: p. 222, U3: p. 236, U3: p. 239 |
| TEKS 3.6.C | make, correct, or confirm predictions using text features, characteristics of genre, and structures | |
| TEKS 3.6.D | create mental images to deepen understanding | |
| TEKS 3.6.E | make connections to personal experiences, ideas in other texts, and society | |

TEXAS ESSENTIAL KNOWLEDGE AND SKILLS - GRADE 3

| Unit 3 | | Correlation—Teacher’s Guide |
|--|--|---|
| TEKS 3.6.F | make inferences and use evidence to support understanding | U3: p. 96, U3: p. 100, U3: p. 262, U3: p. 265 |
| TEKS 3.6.G | evaluate details read to determine key ideas | U3: p. 34, U3: p. 46, U3: p. 58, U3: p. 61, U3: p. 71, U3: p. 80, U3: p. 83, U3: p. 96, U3: p. 107, U3: p. 138, U3: p. 150, U3: p. 168, U3: p. 171, U3: p. 192, U3: p. 195 |
| TEKS 3.6.H | synthesize information to create new understanding | U3: p. 192, U3: p. 195 |
| TEKS 3.6.I | monitor comprehension and make adjustments such as re-reading, using background knowledge, asking questions, and annotating when understanding breaks down | |
| (7) Response skills: listening, speaking, reading, writing, and thinking using multiple texts. The student responds to an increasingly challenging variety of sources that are read, heard, or viewed. The student is expected to: | | |
| TEKS 3.7.A | describe personal connections to a variety of sources including self-selected texts | |
| TEKS 3.7.B | write a response to a literary or informational text that demonstrates an understanding of a text | U3: p. 8, U3: p. 26, U3: p. 80, U3: p. 83, U3: p. 89 |
| TEKS 3.7.C | use text evidence to support an appropriate response | U3: p. 8, U3: p. 12, U3: p. 34, U3: p. 37, U3: p. 58, U3: p. 61, U3: p. 120, U3: p. 123, U3: p. 138, U3: p. 141, U3: p. 168, U3: p. 180, U3: p. 210, U3: p. 212, U3: p. 236, U3: p. 239, U3: p. 248, U3: p. 262, U3: p. 265, U3: p. 280, U3: p. 284, U3: p. 293 |
| TEKS 3.7.D | retell and paraphrase texts in ways that maintain meaning and logical order | U3: p. 236, U3: p. 239, U3: p. 245 |
| TEKS 3.7.E | interact with sources in meaningful ways such as notetaking, annotating, freewriting, or illustrating | U3: p. 8, U3: p. 26 |
| TEKS 3.7.F | respond using newly acquired vocabulary as appropriate | |
| TEKS 3.7.G | discuss specific ideas in the text that are important to the meaning | U3: p. 210, U3: p. 222 |
| (8) Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts—literary elements. The student recognizes and analyzes literary elements within and across increasingly complex traditional, contemporary, classical, and diverse literary texts. The student is expected to: | | |
| TEKS 3.8.A | infer the theme of a work, distinguishing theme from topic | |
| TEKS 3.8.B | explain the relationships among the major and minor characters | |
| TEKS 3.8.C | analyze plot elements, including the sequence of events, the conflict, and the resolution | |
| TEKS 3.8.D | explain the influence of the setting on the plot | U3: p. 310, U3: p. 312 |
| (9) Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts—genres. The student recognizes and analyzes genre-specific characteristics, structures, and purposes within and across increasingly complex traditional, contemporary, classical, and diverse texts. The student is expected to: | | |
| TEKS 3.9.A | demonstrate knowledge of distinguishing characteristics of well-known children's literature such as folktales, fables, fairy tales, legends, and myths | |
| TEKS 3.9.B | explain rhyme scheme, sound devices, and structural elements such as stanzas in a variety of poems | |

TEXAS ESSENTIAL KNOWLEDGE AND SKILLS - GRADE 3

| Unit 3 | | Correlation—Teacher’s Guide |
|---|---|---|
| TEKS 3.9.C | discuss the elements in drama such as characters, dialogue, setting, and acts | |
| (D) recognize characteristics and structures of informational text, including: | | |
| TEKS 3.9.D.i | the central idea with supporting evidence | U3: p. 310, U3: p. 312 |
| TEKS 3.9.D.ii | features such as sections, tables, graphs, timelines, bullets, numbers, bold and italicized font to support understanding | |
| TEKS 3.9.D.iii | organizational patterns such as cause and effect and problem and solution | |
| (E) recognize characteristics and structures of argumentative text by: | | |
| TEKS 3.9.E.i | identifying the claim | |
| TEKS 3.9.E.ii | distinguishing facts from opinion | |
| TEKS 3.9.E.iii | identifying the intended audience or reader | |
| TEKS 3.9.F | recognize characteristics of multimodal and digital texts | |
| (10) Author’s purpose and craft: listening, speaking, reading, writing, and thinking using multiple texts. The student uses critical inquiry to analyze the authors’ choices and how they influence and communicate meaning within a variety of texts. The student analyzes and applies author’s craft purposefully in order to develop his or her own products and performances. The student is expected to: | | |
| TEKS 3.10.A | explain the author’s purpose and message within a text | U3: p. 310, U3: p. 312 |
| TEKS 3.10.B | explain how the use of text structure contributes to the author’s purpose | |
| TEKS 3.10.C | explain the author’s use of print and graphic features to achieve specific purposes | |
| TEKS 3.10.D | describe how the author’s use of imagery, literal and figurative language such as simile, and sound devices such as onomatopoeia achieves specific purposes | |
| TEKS 3.10.E | identify the use of literary devices, including first- or third-person point of view | |
| TEKS 3.10.F | discuss how the author’s use of language contributes to voice | |
| TEKS 3.10.G | identify and explain the use of hyperbole | |
| (11) Composition: listening, speaking, reading, writing, and thinking using multiple texts—writing process. The student uses the writing process recursively to compose multiple texts that are legible and uses appropriate conventions. The student is expected to: | | |
| TEKS 3.11.A | plan a first draft by selecting a genre for a particular topic, purpose, and audience using a range of strategies such as brainstorming, freewriting, and mapping | |
| (B) develop drafts into a focused, structured, and coherent piece of writing by: | | |
| TEKS 3.11.B.i | organizing with purposeful structure including an introduction and conclusion | U3: p. 96, U3: p. 113, U3: p. 192, U3: p. 209, U3: p. 236, U3: p. 259 |
| TEKS 3.11.B.ii | developing an engaging idea with relevant details | U3: p. 236, U3: p. 259 |

TEXAS ESSENTIAL KNOWLEDGE AND SKILLS - GRADE 3

Unit 3

Correlation—Teacher’s Guide

| | | |
|--|---|--|
| TEKS 3.11.C | revise drafts by adding, revise drafts to improve sentence structure and word choice by adding, deleting, combining, and rearranging ideas for coherence and clarity deleting, or rearranging words, phrases or sentences | U3: p. 34, U3: p. 55 |
| (D) edit drafts using standard English conventions, including: | | |
| TEKS 3.11.D | edit drafts using standard English conventions | |
| TEKS 3.11.D.i | complete simple and compound sentences with subject-verb agreement | |
| TEKS 3.11.D.ii | past, present, and future verb tense | |
| TEKS 3.11.D.iii | singular, plural, common, and proper nouns | U3: p. 120, U3: p. 134, U3: p. 138, U3: p. 156, U3: p. 192, U3: p. 206, U3: p. 210, U3: p. 229, U3: p. 310, U3: p. 316 |
| TEKS 3.11.D.iv | adjectives, including their comparative and superlative forms | |
| TEKS 3.11.D.v | adverbs that convey time and adverbs that convey manner | |
| TEKS 3.11.D.vi | prepositions and prepositional phrases | |
| TEKS 3.11.D.vii | pronouns, including subjective, objective, and possessive cases | U3: p. 280, U3: p. 291 |
| TEKS 3.11.D.viii | coordinating conjunctions to form compound subjects, predicates, and sentences | |
| TEKS 3.11.D.ix | capitalization of official titles of people, holidays, and geographical names and places | |
| TEKS 3.11.D.x | punctuation marks including apostrophes in contractions and possessives and commas in compound sentences and items in a series | U3: p. 34 |
| TEKS 3.11.D.xi | correct spelling of words with grade-appropriate orthographic patterns and rules and high-frequency words | |
| TEKS 3.11.E | publish written work for appropriate audiences | |
| (12) Composition: listening, speaking, reading, writing, and thinking using multiple texts—genres. The student uses genre characteristics and craft to compose multiple texts that are meaningful. The student is expected to: | | |
| TEKS 3.12.A | compose literary texts, including personal narratives and poetry, using genre characteristics and craft | |

TEXAS ESSENTIAL KNOWLEDGE AND SKILLS - GRADE 3

| Unit 3 | | Correlation—Teacher’s Guide |
|--|---|---|
| TEKS 3.12.B | compose informational texts, including brief compositions that convey information about a topic, using a clear central idea and genre characteristics and craft | U3: p. 8, U3: p.10, U3: p. 26, U3: p. 120, U3: p. 136, U3: p. 210, U3: p. 231, U3: p. 310, U3: p. 316 |
| TEKS 3.12.C | compose argumentative texts, including opinion essays, using genre characteristics and craft | |
| TEKS 3.12.D | compose correspondence such as thank you notes or letters | |
| (13) Inquiry and research: listening, speaking, reading, writing, and thinking using multiple texts. The student engages in both short-term and sustained recursive inquiry processes for a variety of purposes. The student is expected to: | | |
| TEKS 3.13.A | generate questions on a topic for formal and informal inquiry | |
| TEKS 3.13.B | develop and follow a research plan with adult assistance | |
| TEKS 3.13.C | identify and gather relevant information from a variety of sources | |
| TEKS 3.13.D | identify primary and secondary sources | |
| TEKS 3.13.E | demonstrate understanding of information gathered | U3: p. 58, U3: p. 61 |
| TEKS 3.13.F | recognize the difference between paraphrasing and plagiarism when using source materials | |
| TEKS 3.13.G | create a works cited page | |
| TEKS 3.13.H | use an appropriate mode of delivery, whether written, oral, or multimodal, to present results | |

ENGLISH LANGUAGE PROFICIENCY STANDARDS - GRADE 3

Unit 3

Correlation—Teacher's Guide

(1) Cross-curricular second language acquisition/learning strategies. The ELL uses language learning strategies to develop an awareness of his or her own learning processes in all content areas. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. The student is expected to:

| | | |
|----------|--|--|
| ELPS 1.A | use prior knowledge and experiences to understand meanings in English | |
| ELPS 1.B | monitor oral and written language production and employ self-corrective techniques or other resources | U3: p. 94 |
| ELPS 1.C | use strategic learning techniques such as concept mapping, drawing, memorizing, comparing, contrasting, and reviewing to acquire basic and grade-level vocabulary | U3: p. 117, U3: p. 135, U3: p. 208, U3: p. 293 |
| ELPS 1.D | speak using learning strategies such as requesting assistance, employing non-verbal cues, and using synonyms and circumlocution (conveying ideas by defining or describing when exact English words are not known) | U3: p. 40, U3: p. 127 |
| ELPS 1.E | internalize new basic and academic language by using and reusing it in meaningful ways in speaking and writing activities that build concept and language attainment | D3: p. 51, D3: p. 57, D3: p. 91, D3: p. 136 |
| ELPS 1.F | use accessible language and learn new and essential language in the process | |
| ELPS 1.G | demonstrate an increasing ability to distinguish between formal and informal English and an increasing knowledge of when to use each one commensurate with grade-level learning expectations | |
| ELPS 1.H | develop and expand repertoire of learning strategies such as reasoning inductively or deductively, looking for patterns in language, and analyzing sayings and expressions commensurate with grade-level learning expectations | |

(2) Cross-curricular second language acquisition/listening. The ELL listens to a variety of speakers including teachers, peers, and electronic media to gain an increasing level of comprehension of newly acquired language in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in listening. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. The student is expected to:

| | | |
|----------|---|------------|
| ELPS 2.A | distinguish sounds and intonation patterns of English with increasing ease | |
| ELPS 2.B | recognize elements of the English sound system in newly acquired vocabulary such as long and short vowels, silent letters, and consonant clusters | U3: p. 135 |
| ELPS 2.C | learn new language structures, expressions, and basic and academic vocabulary heard during classroom instruction and interactions | |
| ELPS 2.D | monitor understanding of spoken language during classroom instruction and interactions and seek clarification as needed | |
| ELPS 2.E | use visual, contextual, and linguistic support to enhance and confirm understanding of increasingly complex and elaborated spoken language | |

ENGLISH LANGUAGE PROFICIENCY STANDARDS - GRADE 3

| Unit 3 | | Correlation—Teacher's Guide |
|--|--|--|
| ELPS 2.F | listen to and derive meaning from a variety of media such as audio tape, video, DVD, and CD ROM to build and reinforce concept and language attainment | |
| ELPS 2.G | understand the general meaning, main points, and important details of spoken language ranging from situations in which topics, language, and contexts are familiar to unfamiliar | U3: p. 18, U3: p. 40, U3: p. 44, U3: p. 64 |
| ELPS 2.H | understand implicit ideas and information in increasingly complex spoken language commensurate with grade-level learning expectations | |
| ELPS 2.I | demonstrate listening comprehension of increasingly complex spoken English by following directions, retelling or summarizing spoken messages, responding to questions and requests, collaborating with peers, and taking notes commensurate with content and grade-level needs | U3: p. 45, U3: p. 69, U3: p. 105, U3: p. 113, U3: p. 150, U3: p. 156, U3: p. 179, U3: p. 222, U3: p. 274 |
| <p>(3) Cross-curricular second language acquisition/speaking. The ELL speaks in a variety of modes for a variety of purposes with an awareness of different language registers (formal/informal) using vocabulary with increasing fluency and accuracy in language arts and all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in speaking. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. The student is expected to:</p> | | |
| ELPS 3.A | practice producing sounds of newly acquired vocabulary such as long and short vowels, silent letters, and consonant clusters to pronounce English words in a manner that is increasingly comprehensible | |
| ELPS 3.B | expand and internalize initial English vocabulary by learning and using high-frequency English words necessary for identifying and describing people, places, and objects, by retelling simple stories and basic information represented or supported by pictures, and by learning and using routine language needed for classroom communication | |
| ELPS 3.C | speak using a variety of grammatical structures, sentence lengths, sentence types, and connecting words with increasing accuracy and ease as more English is acquired | |
| ELPS 3.D | speak using grade-level content area vocabulary in context to internalize new English words and build academic language proficiency | U3: p. 18, U3: p. 40, U3: p. 48, U3: p. 51, U3: p. 64, U3: p. 77, U3: p. 146, U3: p. 150, U3: p. 222, U3: p. 248 |
| ELPS 3.E | share information in cooperative learning interactions | |
| ELPS 3.F | ask and give information ranging from using a very limited bank of high-frequency, high-need, concrete vocabulary, including key words and expressions needed for basic communication in academic and social contexts, to using abstract and content-based vocabulary during extended speaking assignments | U3: p. 41, U3: p. 43, U3: p. 44, U3: p. 55, U3: p. 146, U3: p. 222 |
| ELPS 3.G | express opinions, ideas, and feelings ranging from communicating single words and short phrases to participating in extended discussions on a variety of social and grade-appropriate academic topics | U3: p. 40, U3: p. 41 |

ENGLISH LANGUAGE PROFICIENCY STANDARDS - GRADE 3

Unit 3

Correlation—Teacher's Guide

| | | |
|---|--|--|
| ELPS 3.H | narrate, describe, and explain with increasing specificity and detail as more English is acquired | |
| ELPS 3.I | adapt spoken language appropriately for formal and informal purposes | |
| ELPS 3.J | respond orally to information presented in a wide variety of print, electronic, audio, and visual media to build and reinforce concept and language attainment | |
| <p>(4) Cross-curricular second language acquisition/reading. The ELL reads a variety of texts for a variety of purposes with an increasing level of comprehension in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in reading. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. For kindergarten and grade 1, certain of these student expectations apply to text read aloud for students not yet at the stage of decoding written text. The student is expected to:</p> | | |
| ELPS 4.A | learn relationships between sounds and letters of the English language and decode (sound out) words using a combination of skills such as recognizing sound-letter relationships and identifying cognates, affixes, roots, and base words | |
| ELPS 4.B | recognize directionality of English reading such as left to right and top to bottom | U3: p. 53 |
| ELPS 4.C | develop basic sight vocabulary, derive meaning of environmental print, and comprehend English vocabulary and language structures used routinely in written classroom materials | |
| ELPS 4.D | use prereading supports such as graphic organizers, illustrations, and pretaught topic-related vocabulary and other prereading activities to enhance comprehension of written text | U3: p. 89 |
| ELPS 4.E | read linguistically accommodated content area material with a decreasing need for linguistic accommodations as more English is learned | |
| ELPS 4.F | use visual and contextual support and support from peers and teachers to read grade-appropriate content area text, enhance and confirm understanding, and develop vocabulary, grasp of language structures, and background knowledge needed to comprehend increasingly challenging language | U3: p. 113, U3: p. 133, U3: p. 156, U3: p. 255 |
| ELPS 4.G | demonstrate comprehension of increasingly complex English by participating in shared reading, retelling or summarizing material, responding to questions, and taking notes commensurate with content area and grade level needs | U3: p. 113, U3: p. 133, U3: p. 190, U3: p. 203, U3: p. 229, U3: p. 290, U3: p. 299 |
| ELPS 4.H | read silently with increasing ease and comprehension for longer periods | |
| ELPS 4.I | demonstrate English comprehension and expand reading skills by employing basic reading skills such as demonstrating understanding of supporting ideas and details in text and graphic sources, summarizing text, and distinguishing main ideas from details commensurate with content area needs | U3: p. 64, U3: p. 113 |

ENGLISH LANGUAGE PROFICIENCY STANDARDS - GRADE 3

| Unit 3 | | Correlation—Teacher's Guide |
|--|--|---|
| ELPS 4.J | demonstrate English comprehension and expand reading skills by employing inferential skills such as predicting, making connections between ideas, drawing inferences and conclusions from text and graphic sources, and finding supporting text evidence commensurate with content area needs | |
| ELPS 4.K | demonstrate English comprehension and expand reading skills by employing analytical skills such as evaluating written information and performing critical analyses commensurate with content area and grade-level needs | |
| <p>(5) Cross-curricular second language acquisition/writing. The ELL writes in a variety of forms with increasing accuracy to effectively address a specific purpose and audience in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in writing. In order for the ELL to meet grade-level learning expectations across foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. For kindergarten and grade 1, certain of these student expectations do not apply until the student has reached the stage of generating original written text using a standard writing system. The student is expected to:</p> | | |
| ELPS 5.A | learn relationships between sounds and letters of the English language to represent sounds when writing in English | |
| ELPS 5.B | write using newly acquired basic vocabulary and content-based grade-level vocabulary | |
| ELPS 5.C | spell familiar English words with increasing accuracy, and employ English spelling patterns and rules with increasing accuracy as more English is acquired | U3: p. 27, U3: p. 78, U3: p. 90, U3: p. 157, U3: p. 255, U3: p. 276 |
| ELPS 5.D | edit writing for standard grammar and usage, including subject-verb agreement, pronoun agreement, and appropriate verb tenses commensurate with grade-level expectations as more English is acquired | |
| ELPS 5.E | employ increasingly complex grammatical structures in content area writing commensurate with grade level expectations such as (i) using correct verbs, tenses, and pronouns/antecedents; (ii) using possessive case (apostrophe -s) correctly; and, (iii) using negatives and contractions correctly | |
| ELPS 5.F | write using a variety of grade-appropriate sentence lengths, patterns, and connecting words to combine phrases, clauses, and sentences in increasingly accurate ways as more English is acquired | U3: p. 114 |
| ELPS 5.G | narrate, describe, and explain with increasing specificity and detail to fulfill content area writing needs as more English is acquired | U3: p. 27, U3: p. 137, U3: p. 209, U3: p. 232, U3: p. 259 |

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Credits

9 (Ricardo and Dr. Welbody in Doctor's Office): Apryl Stott; 9 (Ricardo and Dr. Welbody in Doctor's Office): Apryl Stott; 10 (A Group of People Together, a Network of Systems): Apryl Stott; 11 (The Skeletal System): Shutterstock; 11 (The Muscular System): Shutterstock; 12 (The Nervous System): Shutterstock; 13 (The Digestive System): Shutterstock; 13 (The Excretory System): Shutterstock; 14 (The Circulatory System): Shutterstock; 15 (The Respiratory System): Shutterstock; 15 (The Interconnected Human Body Systems): Shutterstock; 17 (Ricardo Waving Good-bye): Apryl Stott; 33 (Ricardo): Apryl Stott; 33 (The Human Skeleton): Shutterstock; 34 (Dairy Products and Metallic Calcium, inset): Shutterstock; 34 (Bone Marrow): Shutterstock; 35 (Axial Bones and Individual Vertebrae): Shutterstock; 36 (Human Skull Showing Interlocking Bones): Shutterstock; 37 (Rib Cage and Flexible Skeleton): Shutterstock; 38 (Ricardo): Apryl Stott; 42 (Dr. Welbody): Apryl Stott; 42 (Human skeleton, inset): Shutterstock; 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