Amplify CKLA

GRADE 3

Unit 5

Take-Home Pages

Grade 3 | Unit 5

Our Solar System and Beyond: Astronomy

Take-Home Pages

Amplify CKLA | Core Knowledge

Grade 3

Our Solar System and Beyond: Astronomy

NAME: _____

DATE: _____

Dear Caregiver,

Please help your student succeed in spelling by taking a few minutes each evening to review the words together. Helpful activities for your student to do include: spelling the words orally, writing sentences using the words, or simply copying the words.

Spelling Words

This week, we are reviewing all five spelling patterns for /j/ that we have already learned. Your student will be tested on these words.

Students have been assigned three Challenge Words, *answer*, *great*, and *grate*. Challenge Words are words used very often. The Challenge Words do not follow the spelling patterns for this week and need to be memorized.

The Content Word for this week is *Jupiter*. This word is directly related to the material that we are reading in *What's in Our Universe?* The Content Word is an optional spelling word for your student. If your student would like to try it but gets it incorrect, it will not count against them on the test for trying. We encourage everyone to stretch themselves a bit and try to spell this word.

The spelling words, including the Challenge Words and the Content Word, are listed below:

1. jellyfish	8. eject	15. average
2. germy	9. budget	16. fudge
3. digest	10. lodging	17. giraffe
4. fringe	11. gymnasium	**Challenge Word**: *answer*
5. nudging	12. jewel	**Challenge Word**: *great/grate*
6. ridge	13. bridging	**Content Word**: *Jupiter*
7. exchange	14. dodge	

Student Reader

The chapters your student will read this week in *What's in Our Universe?* include information about our solar system: the sun, Earth, our moon, the eight planets, asteroids, comets, and meteors. Be sure to ask your student each evening about what they are learning.

Students will take home text copies of the chapters in the reader throughout the unit. Encouraging students to read a text directly related to this domain-based unit will provide content and vocabulary reinforcement. Your student will also bring home a copy of the glossary for use in reading the text copies to an adult. The bolded words on the text copies are the words found in the glossary.

NAME: _____

DATE: _____

The Sun, Earth, and Our Solar System

Look up in the sky at noon. What do you see? If it is not cloudy, you will see the sun shining brightly in the sky.

The sun provides energy—both light and heat energy. The sun's light and heat give life to plants and animals. Without the sun, Earth would be freezing cold. Have you ever wondered what the sun is made of or why it gives off so much light and heat?

You may be surprised to know that the sun is a star. It is in fact the closest star to Earth. It is made up of different, hot gases. How hot? A hot summer day on Earth is 100 degrees Fahrenheit. On the sun, it is 10,000 degrees Fahrenheit! The sun stays that hot all the time! The sun's gases create the light and heat energy it gives off.

Long ago, people believed that the sun moved around Earth. This seemed to make sense. Each morning at the start of the day, the sun rose in the east. At the end of the day, the sun set in the west—exactly opposite from where it had come up. To explain this change, people said the sun moved around Earth. But now we know that this is not what really happens. The sun does not move around Earth. It is Earth that moves around the sun!

The sun is in the center of a group of eight **planets**. All of these **planets**, including Earth, circle, or **orbit**, around the sun. The sun, **planets**, and other objects in space that **orbit** the sun are called the **solar system**. The word *solar* has the Latin root word *sol*, which means "sun." Everything in the **solar system** relates to the sun.

Our **planet**, Earth, moves in two ways. We have just learned that Earth circles around the sun. It takes about 365 days, which is one year, for Earth to **orbit** the sun.

Earth also moves by spinning, or **rotating**, on its **axis**. It is this spinning that makes day and night on Earth and the motion of the sun across the sky from sunrise to sunset. It takes one day for Earth to make one complete **rotation** on its axis. As Earth **rotates** and spins, different parts of it face the sun. When the part facing the sun gets sunlight, it is daytime on that side of Earth. The part that faces away from the sun gets no sunlight. So, on that side of Earth, it is nighttime. Did you know that when it is daytime where we live, it is nighttime on the other side of Earth?

When Earth **rotates** on its **axis**, it is **tilted**. At certain times of the year, one part of Earth is **tilted** toward the sun. The sunlight is more direct and it feels hotter. For people living on this part of Earth, it is summer. For people living on the part of Earth **tilted** away from the sun, there is less sunlight and it is winter. So, when it is summertime for us, there are people living on other parts of Earth where it is winter! So, the fact that Earth is **tilted** on its **axis** is what creates the seasons of the year.

NAME: _____

DATE: _____

Dear Caregiver,

Over the next several days, your student will be learning about astronomy, the solar system, and galaxies. They will review the organization of the solar system, with the sun at the center and Earth and the other planets orbiting it. They will learn that gravity is an important force in the universe and will also learn about galaxies, specifically the Milky Way and Andromeda galaxies.

Below are some suggestions for activities that you may do at home to reinforce what your student is learning about astronomy.

1. Solar System Model

During this domain your student will be seeing images of the planets and their positions in the solar system. You may wish to reinforce this by working with them to make your own model of the solar system out of play dough, clay, or papier-mâché. You may wish to reference the diagram of our solar system at the end of this letter. In your model, be sure to include the sun, the eight planets, and the asteroid belt found between Mars and Jupiter. You may also wish to include Earth's moon, the moons of other planets, and/or the dwarf planets Pluto and Ceres. (Pluto is no longer grouped with the eight planets.) You may wish to try to recreate the colors of the planets as shown in photographs taken by the Hubble telescope. (As you create your models, you may wish to depict the orbits of the planets as well.)

2. Gravity, Forces, and Mass

Your student will be learning about a force called *gravity.* In this lesson, your student will be introduced to many new words that you may want to review at home. Two of the words used are *force,* which is a pull or push on an object or system, and *mass,* which is the amount of material something is made of.

3. Out-of-This-World Images

Your student has learned that a great deal of what we know about space has been discovered through scientific observation. They have heard that scientists use

telescopes to observe outer space and that the most famous of these is the Hubble telescope. Your student has also learned about galaxies, what they are made of, and how they are shaped. You may wish to go online with your student to view photographs of the planets in our solar system, objects in the universe, and various galaxies. You may also wish to search for related television programs on Discovery, National Geographic, and PBS channels.

4. Words to Use

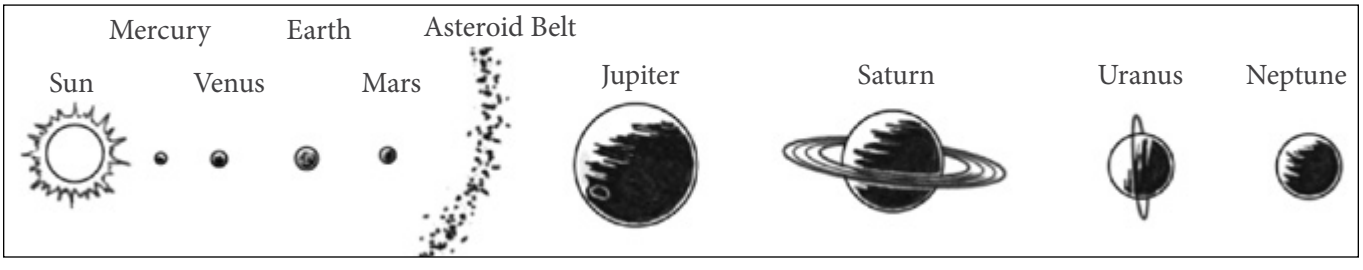
Below are several of the words that your student will be learning about and using. Try to use these words as they come up in everyday speech with your student.

- *satellite*—The moon is Earth's only natural satellite; Jupiter, however, has more than sixty natural satellites.
- *rotates*—We experience daylight and the darkness of night because planet Earth rotates around its axis once each day and causes different parts of Earth to face the sun.
- *cluster*—Our Milky Way Galaxy is a cluster of billions of stars.
- *gravity*—Gravity is a force of attraction between two objects that pulls the object with less mass toward the object with greater mass.

5. Read Aloud Each Day

Reading to your student every day is very beneficial to their literacy development. Set aside time to read to your student and to listen to your student read to you. At a local library, you can look for books related to astronomy, as well as visit informational websites.

Celebrate times when your student shares what they have learned at school.



NAME: _____

DATE: _____

The Moon

Look up in the sky at night. What do you see? If it is not cloudy, you may be able to see the moon.

When you see the moon at night, it might look white. It might look gray or silver. Sometimes, it seems to shine and glow. But the moon does not give off light the way the sun does. The moon is a ball of rock that gives off no light of its own. It simply reflects light from the sun. That means light from the sun hits the moon and bounces off.

You already know that Earth **orbits** around the sun. But did you know that the moon **orbits** around Earth? It takes just about one month for the moon to completely circle Earth. If you look up at the night sky each night of the month, you may think that the size and shape of the moon is changing. However, the size and shape are not really changing. The moon is still a round ball. It looks different at different times of the month because of the way the light from the sun is reflected and how much of the moon we can see from Earth.

The way that Earth, the moon, and the sun move can also make other interesting things to look at in the sky. When Earth, the moon, and the sun all move together in a direct line, something called an **eclipse** can take place.

We can see two kinds of **eclipses** from Earth. One kind happens when the moon gets in between the sun and Earth. When that happens, we can't see the sun for a while. At least, we can't see part of it. We call this a solar **eclipse** or an **eclipse** of the sun.

The other kind of **eclipse**, called a lunar eclipse, also involves the sun, the moon, and Earth. It takes place when the moon passes behind Earth and into its shadow. It is Earth's shadow that you see. Earth has blocked out the sun and left part of the moon in darkness.

Eclipses do not happen often because the sun, Earth, and the moon all have to line up just right. Solar **eclipses** can only be seen from a narrow strip of Earth at a time. While they happen once or twice a year, it is very, very rare to see one. **Eclipses** of the moon happen more often, several times each year. They can be seen from half of Earth at a time, so are more often visible.

Whether or not you can see an **eclipse** depends on where you are on Earth. You must never look directly at a solar **eclipse**. The sun is very bright and could burn your eyes. But, it is safe to look at an **eclipse** of the moon. If an **eclipse** is predicted, it is usually big news, so you will likely hear about it.

NAME: _____

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Practice Conjunction *so*

Match the sentences by writing the number of the cause *in the blank that identifies the appropriate* effect. *Rewrite the sentences below, inserting the conjunction* so. *Remember to add correct capitalization and punctuation.*

Causes	**Effects**	
1. The day was very hot.	_____	We adopted her immediately.
2. The day was very cold.	_____	We bundled up in several layers of clothing.
3. The puppy was shivering and afraid.	_____	We asked our grandfather if we could go swimming at the park.
4. The kitten was cute.	_____	He hid behind the couch to escape the thunder.

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

NAME: _____

DATE: _____

The Planets Closest to the Sun: Mercury, Venus, Earth, and Mars

Our planet Earth is one of eight planets in our solar system that orbit around the sun. The other planets are Mercury, Venus, Mars, Jupiter, Saturn, Uranus, and Neptune. People have been looking at the planets for thousands of years. People from Mesopotamia, Greeks, Maya, Inca, and Aztec were all interested in the planets. They used just their **naked eye** to study the planets. Now, we have telescopes and other tools that help us get a better look at the planets.

The four planets closest to the sun—Mercury, Venus, Earth, and Mars—are small planets. These planets have a rocky, or solid, surface.

Mercury and Venus are closer to the sun than Earth. The other planets are farther away.

Earth needs 365 days to make one orbit around the sun. That is the length of one year on Earth.

The closer a planet is to the sun, the less time it needs to make an orbit around the sun. Mercury is the closest planet to the sun. It needs just 88 days to make one orbit. Venus is the next closest to the sun. It needs just 225 days to make an orbit. The planets that are farther away take much longer. It takes Neptune 165 years to orbit the sun!

Besides being closest to the sun, Mercury is the smallest of all the planets. The English name for the planet comes from the Romans. They named the planet after the Roman god Mercury. The Greek name for this same god is Hermes.

Venus is the second planet from the sun and is closest to Earth. This planet was named after the Roman goddess of love. For a long time, scientists thought that Venus might be a lot like Earth. After all, it is close to Earth. It is about the same size as Earth and it is covered with clouds, like Earth. But this idea turned out to be wrong, too. We know now that Venus and Earth are different in lots of ways.

Scientists had to change their ideas to fit the new facts. They have now concluded that Venus is much hotter than Earth. It would not be a good place for us to live or even visit.

Mars is the fourth planet from the sun. It is named after the Roman god of war. When you look at Mars in the night sky, it looks quite red. This is because the rocks on Mars contain rust.

Many space **probes** and robots have landed on Mars. They have taken photographs and also dug up rocks.

One **probe** that went to Mars not long ago found some ice. That was big news. Ice is frozen water. If there is water on Mars, there might be life. Some experts argue that nothing could live on Mars. They say it is too cold and too dry. Others think there might be life on Mars. They think there might be something alive down under the rocks. Still others think there might have been life on Mars at one time but there isn't any now.

NAME: _____

DATE: _____

The Planets Closest to the Sun

If a statement is true, write "true" on the line. If a statement is false, write "false" on the line.

1. Venus is a good place for us to live and visit.

   _____

2. The planet Mars looks red because its rocks have rust in them.

   _____

3. It takes Mercury less time to orbit the sun than the Earth does because Mercury is much closer to the sun.

   _____

4. The four planets closest to the sun have a rocky and solid surface.

   _____

5. Write an interesting fact about Mercury, Venus, and Mars. (Do not use a fact from the earlier questions on this worksheet.)

Mercury: _____

_____

_____

Venus: _____

_____

_____

Mars: _____

_____

_____

6. Compare and contrast an inner planet and our moon.

Inner Planet		Moon
	size?	
	surface?	
	appearance?	
	interesting fact?	

NAME: _____

DATE: _____

Suffixes *–ful* and *–less*

Write the correct suffix in the blank to complete the sentence. Explain why the suffix you added makes the correct word for the sentence.

1. She had a hope _____ (–ful, –less) expression on her face as she checked the weather and saw that the rain would stop before the outdoor concert that night.

   Why did you choose your answer? _____

   _____

2. With a fear _____ (–ful, –less) look in his eyes, Jack touched the snake that the zookeeper brought around to the group even though he was terrified of snakes.

   Why did you choose your answer? _____

   _____

3. Her last visit to the doctor was pain _____ (–ful, –less) because she felt great and did not need any shots or medicine.

   Why did you choose your answer? _____

   _____

4. He used a care _____ and steady hand to paint the details on the outside of the wooden box so the design would look perfect.
(–ful, –less)

   Why did you choose your answer? _____

   _____

5. The power _____ camera needed to have a charged battery to start back up again.
(–ful, –less)

   Why did you choose your answer? _____

   _____

6. The hope _____ search for Grandpa's missing glasses took all morning and finally stopped when he said he would just go to the eye doctor to get a new pair.
(–ful, –less)

   Why did you choose your answer? _____

   _____

7. She had the fear _____ thought that during her next swim practice, she would try to swim the entire length of the pool without stopping.
(–ful, –less)

   Why did you choose your answer? _____

   _____

NAME: _____

DATE: _____

The Outer Planets: Jupiter, Saturn, Uranus, and Neptune

Do you remember the names of the four planets closest to the sun? If you said, "Mercury, Venus, Earth, and Mars," you are right! There are four more planets called the outer planets. So there are eight planets in all.

Jupiter is the very next planet after Mars. After Jupiter come Saturn, Uranus, and Neptune in that order. Neptune is the planet that is farthest from the sun. Uranus is difficult to see with the naked eye and Neptune is impossible to see without help. Neptune is only visible using a telescope.

The outer planets are very large and are mostly made of gas. Scientists often call these planets **gas giants**. Of all the planets, Jupiter is the largest: 1,300 Earths could fit inside Jupiter! It is made mostly of **hydrogen** gas, the most common gas in the universe.

The gases on Jupiter seem to be blowing around. When you see images of Jupiter, you can see a giant red spot. It looks like an eye! Experts think it is a big wind storm, like a huge hurricane.

Jupiter also has 63 known moons that orbit it. Some of these moons are very large, even larger than Earth's moon.

Saturn is known for its many large rings that orbit the planet. These rings are made of ice and dust. The ice reflects light and makes the rings glow. Saturn also has many moons that orbit it.

The last two planets are Uranus and Neptune. These planets are the farthest from the sun so they are very cold. Uranus and Neptune also have rings, but they aren't easily seen like Saturn's. Both planets also have moons.

So now you know the names of all eight planets. Try asking the adults in your family how many planets there are. They may tell you that there are nine planets. When the adults in your family were in school, people said that there was a ninth planet called Pluto. But in 2006, scientists decided that Pluto did not have all of the characteristics needed to be classified as a planet. They removed Pluto's name from the list of planets, so now there are only eight planets.

NAME: _____

DATE: _____

The Outer Planets

1. The planets below are in the wrong order. Use the numbers 1–8 to put them in the right order from closest to the sun to farthest away from the sun.

   A. _____ Mars
   B. _____ Neptune
   C. _____ Venus
   D. _____ Mercury
   E. _____ Uranus
   F. _____ Saturn
   G. _____ Earth
   H. _____ Jupiter

2. Which planet is the only one that cannot be seen from Earth with the naked eye?

   A. Neptune is the only one that cannot be seen with the naked eye.
   B. Uranus is the only one that cannot be seen with the naked eye.
   C. Jupiter is the only one that cannot be seen with the naked eye.
   D. Saturn is the only one that cannot be seen with the naked eye.

3. What feature is the planet Saturn most known for?

   _____

   _____

4. Out of all eight planets, which one is the largest?
   A. Mercury is the largest of all eight planets.
   B. Jupiter is the largest of all eight planets.
   C. Saturn is the largest of all eight planets.
   D. Neptune is the largest of all eight planets.

5. Jupiter is made up mostly of a gas that is the most common gas in the universe. What type of gas is it?

_____

_____

6. Choose an inner planet (Mercury, Venus, Earth, Mars) and compare and contrast it with an outer planet (Jupiter, Saturn, Uranus, Neptune).

Inner Planet		Outer Planet
	size?	
	rings?	
	surface?	
	distance from Earth?	
	interesting fact?	

NAME: _____

DATE: _____

6.1 Take-Home

Dear Caregiver,

Please help your student succeed in spelling by taking a few minutes each evening to review the words together. Helpful activities for your student to do include: spelling the words orally, writing sentences using the words, or simply copying the words.

Spelling Words

This week, we are reviewing all four spelling patterns for /n/ that we have already learned. Your student will be assessed on these words.

Students have been assigned three Challenge Words, *very*, *vary*, and *enough*. Challenge Words are words used very often. The Challenge Words do not follow the spelling patterns for this week and need to be memorized.

The Content Word for this week is *astronomer*. This word is directly related to the material that we are reading in *What's in Our Universe?* The Content Word is an optional spelling word for your student. If your student would like to try it but gets it incorrect, it will not count against them on the test for trying. We encourage everyone to stretch themselves a bit and try to spell this word.

The spelling words, including the Challenge Words and the Content Word, are listed below:

1. gnat	8. design	15. knuckle
2. skinny	9. knobby	16. campaign
3. knotted	10. crewed	17. recently
4. flannel	11. knowledge	**Challenge Word**: *very/vary*
5. knighted	12. channel	**Challenge Word**: *enough*
6. nearby	13. annoy	**Content Word**: *astronomer*
7. understand	14. gnarly	

Student Reader

The chapters your student will read this week in *What's in Our Universe?* include information about our solar system: galaxies and stars. Students will also read chapters about gravity and exploring space. Be sure to ask your student each evening about what they are learning.

Students will take home text copies of the chapters in the reader throughout the unit. Encouraging students to read a text directly related to this domain-based unit will provide content and vocabulary reinforcement. Please remind your student that the glossary can be used for finding the meaning of the bolded words.

NAME: _____

DATE: _____

Galaxies and Stars

Look up in the sky at night. What do you see besides the moon? If it is not cloudy, you may be able to see lots of stars glittering in the sky.

Remember that the sun is also a star. The stars in the night sky do not look like the sun. They do not look as big or as bright. But they are, in fact, very much alike. The stars in the night sky are big balls of hot gas, just like the sun.

So why don't they look the same? The night stars are much, much farther away from Earth than the sun. That is why they look like tiny specks of light. If we could get close to the stars, they would look bigger, brighter, and more like the sun. But the stars we see at night are so far away that no one from Earth has ever been able to get close to them.

Scientists who study the stars and outer space are called **astronomers**. The Greek root word *astron* means star. The prefix *astro* is used in many other English words.

All stars are big balls of hot gas, but **astronomers** have discovered that stars differ in many ways. Stars can be different sizes and colors. Some stars are closer to Earth than others and some stars are hotter than others. Stars that are the hottest and closest to Earth appear brighter than other stars.

Astronomers also discovered that stars cluster together in large groups. A large group of stars that cluster together in one area is called a **galaxy**. There are **billions** and **billions** of stars in one **galaxy**. That's a lot of stars!

The **galaxy** to which our sun and solar system belong is called the **Milky Way Galaxy**. It has a spiral shape when viewed from space. From Earth, it looks like a "milky" band of white light.

The nearest spiral galaxy to the **Milky Way Galaxy** is called the **Andromeda Galaxy**. It is **billions** and **billions** of miles from the **Milky Way Galaxy**. There's that number **billions** again. You have probably heard of a million before. A million is a huge number. So what's a **billion**? It's one thousand million! It is safe to say that the **Andromeda Galaxy** is a long, long, long way away! Even so, it is sometimes possible to see the **Andromeda Galaxy** at night.

Scientists think there are **billions** of **galaxies** in the universe. There's that number **billions** again. There are **billions** of stars in each **galaxy** and **billions** of **galaxies** in the universe—that is almost more than you can think about!

NAME: _____

DATE: _____

Dictionary Skills

Use the following portion of a dictionary page to answer the questions below.

jester **jiffy**

jet 1. *noun* A stream of liquid forced out a small opening. 2. *noun* A plane powered by jet engines. 3. *verb* To travel by jet.

jewel 1. *noun* A gem used in jewelry. 2. *noun* A thing greatly valued.

1. What are the two guide words on the page? _____

2. What are the two entry words on the page? _____

3. How many definitions are there for *jet*? _____

4. Would the word *jest* be on this page? _____

5. Circle the words that would come before *jester* from the following list:
   jeep, *jigsaw*, *jettison*

6. Which definition of *jet* matches the use of the word in the sentence:

   When you shake up a soda and open it, a *jet* of soda will shoot out of the can opening. _____

   What part of speech is *jet* in this sentence? _____

7. Choose one of the two remaining definitions for *jet* and write a sentence using *jet* in that form. _____

   _____

   _____

8. Which definition of *jewel* matches the use of the word in the sentence:

   The smallest puppy in the litter was the *jewel* of the bunch.

   _____

   What part of speech is *jewel* in this sentence? _____

9. Write a sentence using definition 1 for *jewel*. _____

   _____

   _____

NAME: _____

DATE: _____

Dear Caregiver,

Over the next few days, your student will be learning more about the universe, one theory of its possible origins, and space exploration, focusing on key figures such as Mae Jemison.

Below are some suggestions for activities that you may do at home to reinforce what your student is learning about astronomy.

1. Space Exploration

Over the next few days, your student will be learning about NASA-led space exploration. You may want to review with your student that space exploration is one way astronomers learn more about the universe. Your student will hear about the Apollo 11 mission to the moon and the astronaut Mae Jemison. Ask your student to share what they remember about these two topics. (Neil Armstrong and Buzz Aldrin were the first to set foot on the moon; they traveled on a rocket; etc. Mae Jemison was the first female African American astronaut.) You may wish to supplement what your student has learned by visiting the NASA website to research current NASA endeavors and the most recent astronauts and space explorations.

2. Stargazing

Go outside one evening and stargaze with your student. Point out any constellations you know. You may also wish to point out any of the planets visible in the night sky, like Venus or Mars. If you have access to technology, such as a computer tablet or smartphone, you may wish to use a stargazing application.

If you live in a city, it may be hard to see stars because light pollution will interfere with the light from the stars. Sometimes the outskirts of a city, or even a high point in the city, have less light pollution, making stars more visible. You may want to consider traveling to one of these areas to stargaze. You may also wish to visit a science museum or planetarium to observe constellations more closely.

3. Universe Theories

Your student will be hearing one theory of how the universe may have begun called the Big Bang theory. Share with your student that there are many theories of how the universe began. You may wish to research some of these different theories together, discussing what a theory is with your student.

4. Words to Use

Below are several of the words that your student will be learning about and using. Try to use these words as they come up in everyday speech with your student.

- *expanding*—The balloon is expanding with each breath I blow into it.
- *triumph*—The Apollo 11 trip was considered a triumph because it was the first spacecraft to successfully take astronauts to the moon.
- *theory*—The Big Bang theory says that all matter in the universe was compressed in a small, hot, dense speck that suddenly expanded.
- *reusable*—With advances in technology, reusable spacecraft have been developed.

5. Read Aloud Each Day

It is very important that you read with your student every day. Set aside time to read to your student and to listen to your student read to you. Please refer back to the list of recommended resources related to astronomy that may be found at the library, as well as the list of informational websites.

Be sure to praise your student whenever they share what has been learned at school.

NAME: _____

DATE: _____

8.1 Take-Home

Exploring Space

As you have learned in the last chapters, people have been interested in studying space since ancient times. It was possible to see only some stars and planets with the naked eye. Since they were far, far away, it was impossible to see anything in very much detail.

In 1609, an astronomer named Galileo [ga-li-LAE-oe] created a telescope that he used to observe the night sky. Galileo's telescope made things appear three times larger. Using his telescope, he discovered four of the many moons that orbit the planet Jupiter. He also observed the planet Saturn and the Milky Way.

Since Galileo's time, scientists have created more and more powerful telescopes. Some telescopes are housed in large **observatories** on Earth. Often, these **observatories** are on the top of mountains, far away from any cities or lights. This allows astronomers to clearly see the stars and planets.

Other telescopes are **launched** into space using rockets. They travel far above Earth and have a better view of the universe than telescopes on Earth. One of these telescopes is the **Hubble Telescope**. It was launched in 1990 by **NASA**, the American group of scientists who study outer space. The **Hubble Telescope** is still in space today, orbiting Earth. Since its **launch**, it has sent back thousands of photos to **NASA**. **Hubble's** photos have led to many new discoveries about the universe. For example, using photos from **Hubble**, scientists now think that the universe is about 13 to 14 billion years old!

Besides sending telescopes into space, **NASA** has also launched rocket ships into space. Scientists believed it was too dangerous for humans to ride the first rocket ships into space. They did not know what effects space travel

might have on humans. So, **NASA** first sent apes into space on rocket ships. "Why apes?" you might ask. Think back to what you learned in a previous reader about animals. Apes are mammals and belong to the same group of animals, called primates, as humans. By studying the apes, scientists hoped to learn how space travel might affect humans. In 1961, **NASA** sent the first American **astronaut** into space on a rocket ship. His name was Alan Shepard. He stayed in space for only 15 minutes.

After 1961, **NASA** sent more **crewed** flights into space. These flights orbited Earth but did not stop or land anywhere in space. Then, in 1969, the United States sent a rocket ship to the moon. The rocket ship was called **Apollo 11**.

Have you ever tried to throw a ball up in the air? The ball goes up at first. Then, it comes back down. No matter how hard you throw it, it comes back down because of **gravity**. **Gravity** is a force of **attraction** that pulls things toward one another. Earth's **gravity** pulls the ball back down to Earth.

Earth's **gravity** is a challenge for rocket ships like **Apollo 11**. In order to fly off into outer space, the rocket ship has to push up with a lot of force. It has to push up with so much force that **gravity** cannot pull it back down.

Apollo 11 fired a lot of strong rockets. It lifted off and went up slowly at first. Then, it got faster and faster. This is what it looked like after a few seconds. After just a few seconds more, it shot up out of Earth's atmosphere and into outer space.

NAME: _____

DATE: _____

10.1 Take-Home

Dear Caregiver,

Please help your student succeed in spelling by taking a few minutes each evening to review the words together. Helpful activities for your student to do include: spelling the words orally, writing sentences using the words, or simply copying the words.

Spelling Words

This week, we are reviewing the spellings of /ae/, /k/, /s/, /j/, and /n/ that students have already learned. Your student will be assessed on these words.

Students have been assigned two Challenge Words, *different* and *thought*. Challenge Words are words used very often. The Challenge Word *different* does follow the spelling patterns for this week as the 'n' is pronounced /n/.

The Content Word for this week is *atmosphere*. This word is directly related to the material that we are reading in *What's in Our Universe?* The Content Word is an optional spelling word for your student. If your student would like to try it but gets it incorrect, it will not count against them on the test for trying. We encourage everyone to stretch themselves a bit and try to spell this word.

The spelling words, including the Challenge Words and the Content Word, are listed below:

1. yesterday	8. annoy	15. character
2. quickly	9. knowledge	16. budget
3. jewel	10. refrigerate	17. accomplish
4. recently	11. gymnasium	18. listen
5. subject	12. design	**Challenge Word**: *different*
6. awaited	13. digest	**Challenge Word**: *thought*
7. fascinate	14. kindness	**Content Word**: *atmosphere*

Student Reader

The chapters your student will read this week in *What's in Our Universe*? include information about walking on the moon, what it's like in space, the space shuttle and the International Space Station. Students may read chapters about Dr. Mae Jemison and the Big Bang. Be sure to ask your student each evening about what they are learning.

Students will take home text copies of the chapters in the reader throughout the unit. Encouraging students to read a text directly related to this domain-based unit will provide content and vocabulary reinforcement. Please remind your student that the glossary can be used for finding the meaning of the bolded words.

NAME: _____

DATE: _____

11.1 Take-Home

Dictionary Skills

Use the following portion of a dictionary page to answer the questions below.

name **neck**

name 1. *noun* A word used to call a person, place, or thing. 2. *noun* A bad word or phrase used to hurt someone. 3. *noun* A person's reputation. 4. *verb* To state the name of something. 5. *verb* To select someone for a job.

neat 1. *adjective* Not messy. 2. *adjective* Great or excellent.

1. Would the word *narrate* be on this page? _____

2. Circle the words that would come before *name* from the following list:
   nails, *nag*, *namely*

3. Which definition of *neat* matches the use of the word in the sentence:

   My desk at school is always *neat*. _____

   What part of speech is *neat* in this sentence? _____

4. Write a sentence using definition 2 for *neat*. _____

   _____

   _____

5. Write a sentence using definition 1 for *name*. _____

_____

_____

6. Write a sentence using definition 2 for *name*. _____

_____

_____

7. Write a sentence using definition 3 for *name*. _____

_____

_____

8. Write a sentence using definition 4 for *name*. _____

_____

_____

NAME: _____

DATE: _____

The Space Shuttle

Interest in crewed space **exploration** soared after Apollo 11. Other astronauts went to the moon. But scientists were also interested in exploring other parts of space beyond the moon. It was very expensive and took a lot of time to build and send spaceships into space. Do you remember that when Apollo 11 returned from space, it landed in the sea? It was not able to land safely on the ground, so this type of spacecraft always had to land in the sea. Once it landed in the sea, this kind of spacecraft could not be used again.

In 1981, a **reusable** spacecraft, called a **space shuttle**, was built. It was able to fly up into space and then zoom back down to Earth. When it returned to Earth, the pilot was able to land the spacecraft on a runway almost like an airplane. It glided down from space and landed on a runway, but it had to be a very long runway.

The **space shuttle** was flown back into space again and again. It **shuttled** back and forth between Earth and space. That is why it was called the **space shuttle**.

The image on the previous page shows the launch of a **space shuttle**. The **space shuttle** itself is the white part that looks like a jet plane. The other parts are **booster rockets**. The **booster rockets** helped the **space shuttle** get off the ground. They helped the **space shuttle** overcome Earth's gravity. Once the **space shuttle** got up into space, it dropped the **booster rockets** because it no longer needed them.

In the thirty years between 1981 and 2011, different **space shuttles** carried astronauts up into space on many missions. The **space shuttle** was also used

to bring **research** equipment and tools into space. The astronauts did many experiments to find out more about space. Scientists were **especially** interested in learning about what effect the lack of gravity would have on humans and other living things.

The **space shuttle** was also used to help build an amazing **space station**. Astronauts could live at the **space station** for months at a time. Often, the **space shuttle** carried supplies back and forth from Earth to the **space station**. It also provided a ride home to Earth when it was time for the astronauts to return.

The last **space shuttle** mission took place in July 2011. NASA scientists and Americans were proud of everything the astronauts had accomplished in thirty years. With the end of the **space shuttle** missions, NASA is planning other ways to explore space. Those plans include launching **uncrewed** probes and **satellites**. NASA scientists hope to learn more about the moon's gravity and are even talking about trying to explore asteroids!

NAME: _____

DATE: _____

Dr. Mae Jemison

Do you know what a role model is? A role model is someone who sets an example for others by the way they live. Many students admire people who are famous athletes, movie stars, or singers and use them as role models. They see them on TV, in newspapers and magazines, and decide they want to be like them. But some of the best role models are people that you probably would not see on TV or in newspapers. They have jobs such as doctors, teachers, or policemen. Some are scientists and astronauts. One such person is Mae Jemison.

Mae Jemison was born October 17, 1956, in Decatur, Alabama. Her family moved to Chicago, Illinois, when she was young. Mae always took great pride in her schoolwork. She was interested in science, but was also interested in the arts. She finished high school early at age 16! From there, she went to Stanford University in California.

After graduating from Stanford University, Mae entered medical school to become a doctor. She wanted to use her medical training to help people in different countries on the continent of Africa. To do this, she joined the **Peace Corps** as a volunteer. As part of the Peace Corps, Mae treated patients and also helped train other **health care** workers. She worked hard to help improve **health care** in the countries where she worked.

After the **Peace Corps**, Mae came back to the United States. She set her sights on a different goal. Her greatest dream was to become an astronaut and travel into space. She decided to apply to NASA to become an astronaut. But the first time she applied, she was not accepted. Instead of giving up, she tried again

and NASA accepted her the second time! She was one of only 15 people chosen from a group of 2,000 people who wanted to become astronauts!

Her training to become an astronaut was hard. She had to get into great shape and train to get used to being free of the effects of gravity in space. She also had to study and pass many tests about space travel. Mae Jemison succeeded in both.

In 1992, Mae was chosen for a mission on the ***Endeavour*** space shuttle. A rocket launched the ***Endeavour*** into orbit around Earth. Mae became the first Black female astronaut in space!

The mission was to study the effects of **weightlessness** on plants and animals. Mae conducted experiments during the mission with fellow astronaut Jan Davis. They collected information that the scientists at NASA could study. The mission was a great success.

After her successful mission, Mae retired from NASA. She became a professor at Dartmouth College, sharing her love of science and space with other students. She also started her own company called The Jemison Group, Inc. Mae's company searches for ways that science can help improve the lives of people in countries around the world. Mae Jemison is truly a role model that we can all admire!

Grade 3

Answer Key

TAKE-HOME ANSWER KEY

NAME: _____
DATE: _____

2.2 Take-Home

Practice Conjunction *so*

Match the sentences by writing the number of the cause *in the blank that identifies the appropriate* effect. *Rewrite the sentences below, inserting the conjunction* so. *Remember to add correct capitalization and punctuation.*

Causes	Effects	
1. The day was very hot.	4	We adopted her immediately.
2. The day was very cold.	2	We bundled up in several layers of clothing.
3. The puppy was shivering and afraid.	1	We asked our grandfather if we could go swimming at the park.
4. The kitten was cute.	3	He hid behind the couch to escape the thunder.

1. The day was very hot, so we asked our grandfather if we could go swimming at the park.
2. The day was very cold, so we bundled up in several layers of clothing.
3. The puppy was shivering and afraid, so he hid behind the couch to escape the thunder.
4. The kitten was cute, so we adopted her immediately.

Unit 5 Take-Home Pages 11

NAME: _____
DATE: _____

3.2 Take-Home

The Planets Closest to the Sun

If a statement is true, write "true" on the line. If a statement is false, write "false" on the line.

1. Venus is a good place for us to live and visit.
   false
2. The planet Mars looks red because its rocks have rust in them.
   true
3. It takes Mercury less time to orbit the sun than the Earth does because Mercury is much closer to the sun.
   true
4. The four planets closest to the sun have a rocky and solid surface.
   true

Unit 5 Take-Home Pages 15

5. Write an interesting fact about Mercury, Venus, and Mars. (Do not use a fact from the earlier questions on this worksheet.)

   Mercury: Answers may vary.

   Venus: Answers may vary.

   Mars: Answers may vary.

6. Compare and contrast an inner planet and our moon.

Inner Planet		Moon
Answers may vary.	size?	The moon is smaller than the inner planets.
Answers may vary.	surface?	The moon is a ball of rock.
Answers may vary.	appearance?	The moon looks different on different days.
Answers may vary.	interesting fact?	Answers may vary.

16 Unit 5 Take-Home Pages

NAME: _____
DATE: _____

4.1 Take-Home

Suffixes *–ful* and *–less*

Write the correct suffix in the blank to complete the sentence. Explain why the suffix you added makes the correct word for the sentence.

1. She had a hope ful (–ful, –less) expression on her face as she checked the weather and saw that the rain would stop before the outdoor concert that night.

   Why did you choose your answer? Answers may vary but should defend students' choices.

2. With a fear less (–ful, –less) look in his eyes, Jack touched the snake that the zookeeper brought around to the group even though he was terrified of snakes.

   Why did you choose your answer? Answers may vary but should defend students' choices.

3. Her last visit to the doctor was pain less (–ful, –less) because she felt great and did not need any shots or medicine.

   Why did you choose your answer? Answers may vary but should include that she didn't need shots or medicine.

Unit 5 Take-Home Pages 17

4. He used a care ful (–ful, –less) and steady hand to paint the details on the outside of the wooden box so the design would look perfect.

Why did you choose your answer? Answers may vary but should include that he wanted the details to be perfect.

5. The power less (–ful, –less) camera needed to have a charged battery to start back up again.

Why did you choose your answer? Answers may vary but should include that the camera had no power.

6. The hope less (–ful, –less) search for Grandpa's missing glasses took all morning and finally stopped when he said he would just go to the eye doctor to get a new pair.

Why did you choose your answer? Answers may vary but should defend students' choices.

7. She had the fear less (–ful, –less) thought that during her next swim practice, she would try to swim the entire length of the pool without stopping.

Why did you choose your answer? Answers may vary but should include that she was going to attempt to swim the length of the pool.

NAME: _____

DATE: _____

4.3 Take-Home

The Outer Planets

1. The planets below are in the wrong order. Use the numbers 1–8 to put them in the right order from closest to the sun to farthest away from the sun.

A.	4 Mars	E.	7 Uranus
B.	8 Neptune	F.	6 Saturn
C.	2 Venus	G.	3 Earth
D.	1 Mercury	H.	5 Jupiter

2. Which planet is the only one that cannot be seen from Earth with the naked eye?

(A.) Neptune is the only one that cannot be seen with the naked eye.
B. Uranus is the only one that cannot be seen with the naked eye.
C. Jupiter is the only one that cannot be seen with the naked eye.
D. Saturn is the only one that cannot be seen with the naked eye.

3. What feature is the planet Saturn most known for?

Saturn is best known for its rings.

4. Out of all eight planets, which one is the largest?

A. Mercury is the largest of all eight planets.
(B.) Jupiter is the largest of all eight planets.
C. Saturn is the largest of all eight planets.
D. Neptune is the largest of all eight planets.

5. Jupiter is made up mostly of a gas that is the most common gas in the universe. What type of gas is it?

Jupiter is mostly made of hydrogen.

6. Choose an inner planet (Mercury, Venus, Earth, Mars) and compare and contrast it with an outer planet (Jupiter, Saturn, Uranus, Neptune).

Inner Planet		Outer Planet
Answers may vary.	size?	Answers may vary.
Answers may vary.	rings?	Answers may vary.
Answers may vary.	surface?	Answers may vary.
Answers may vary.	distance from Earth?	Answers may vary.
Answers may vary.	interesting fact?	Answers may vary.

NAME: _____

DATE: _____

7.1 Take-Home

Dictionary Skills

Use the following portion of a dictionary page to answer the questions below.

jester **jiffy**

jet 1. *noun* A stream of liquid forced out a small opening. 2. *noun* A plane powered by jet engines. 3. *verb* To travel by jet.

jewel 1. *noun* A gem used in jewelry. 2. *noun* A thing greatly valued.

1. What are the two guide words on the page? jester jiffy

2. What are the two entry words on the page? jet jewel

3. How many definitions are there for *jet*? 3

4. Would the word *jest* be on this page? no

5. Circle the words that would come before *jester* from the following list:
(*jeep*) *jigsaw*, *jettison*

6. Which definition of *jet* matches the use of the word in the sentence:

   When you shake up a soda and open it, a *jet* of soda will shoot out of the can opening. 1

   What part of speech is *jet* in this sentence? noun

7. Choose one of the two remaining definitions for *jet* and write a sentence using *jet* in that form. Answers may vary.

8. Which definition of *jewel* matches the use of the word in the sentence:

   The smallest puppy in the litter was the *jewel* of the bunch.

   2

   What part of speech is *jewel* in this sentence? noun

9. Write a sentence using definition 1 for *jewel*. Answers may vary.

NAME: _____

DATE: _____

11.1 Take-Home

Dictionary Skills

Use the following portion of a dictionary page to answer the questions below.

name **neck**

name 1. *noun* A word used to call a person, place, or thing. 2. *noun* A bad word or phrase used to hurt someone. 3. *noun* A person's reputation. 4. *verb* To state the name of something. 5. *verb* To select someone for a job.

neat 1. *adjective* Not messy. 2. *adjective* Great or excellent.

1. Would the word *narrate* be on this page? yes

2. Circle the words that would come before *name* from the following list:
   (*nails*) (*nag*,) *namely*

3. Which definition of *neat* matches the use of the word in the sentence:

   My desk at school is always *neat*. 1

   What part of speech is *neat* in this sentence? adjective

4. Write a sentence using definition 2 for *neat*.
   Answers may vary.

5. Write a sentence using definition 1 for *name*.
   Answers may vary.

6. Write a sentence using definition 2 for *name*.
   Answers may vary.

7. Write a sentence using definition 3 for *name*.
   Answers may vary.

8. Write a sentence using definition 4 for *name*.
   Answers may vary.

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Credits

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