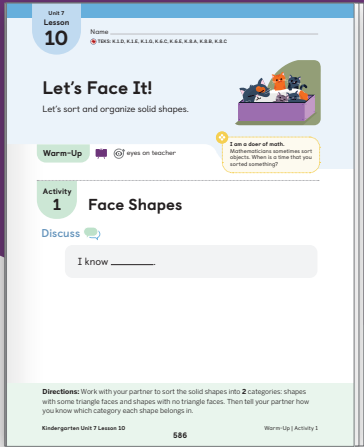Student Edition pages, Manipulatives, and Presentation Screens support learning in this lesson.

Let's Face It!

Introducing Real-Object Graphs

Let's sort and organize solid shapes.

Key Concepts

● **Today's Goals**

1. **Goal:** Sort regular and irregular three-dimensional shapes into 2 categories.

2. **Goal:** Organize 2 categories of data to create a real-object graph.

3. **Language Goal:** Justify the placement of sorted shapes into categories. **(Listening and Speaking)** ✷ ELPS 1.B, 2.B, 2.E

4. **Language Goal:** Tell a true statement about a real-object graph. **(Listening and Speaking)** ✷ ELPS 1.B, 2.B, 2.E

Connections and Coherence

Students build on their work with classifying and sorting two-dimensional shapes to sort three-dimensional shapes based on common attributes. They sort three-dimensional shapes into 2 given categories by attending to the faces of the shapes, and justify their sort by describing the attributes of the faces. Students organize each category of shapes into straight lines to create a **real-object graph**. After creating their graphs, students share what they notice about the shapes. **(TEKS K.1.D, K.1.E, K.1.G)**

◀ **Prior Learning**
In Unit 3, students explored, compared, and identified two-dimensional shapes and their attributes. In Sub-Unit 1, students explored, compared, and identified three-dimensional shapes and their attributes.

▶ **Future Learning**
In Lesson 11, students will collect data using real objects and sort the collected data to create real-object graphs.

Integrating Rigor in Student Thinking

- Students develop their **conceptual understanding** of sorting, organizing, and representing data.
- Students **apply** their understanding of attributes of two- and three-dimensional shapes to create real-object graphs.

Vocabulary

New Vocabulary

real-object graph

Review Vocabulary

category	rectangle
cube	solid
face	square
flat	triangle

✷ TEKS

Addressing

K.8.A

Collect, **sort, and organize data into two** or three **categories.**

Also Addressing: **K.6.C, K.6.E, K.8.B, K.8.C**

Math Process Standards: K.1.D, K.1.E, K.1.G

ELPS: 1.A, 1.B, 1.C, 1.E, 2.B, 2.E, 3.A, 3.D, 3.E, 3.F

Building On	Building Toward
K.6.A	**1.8.A**
K.6.C	**1.8.B**
	1.8.C

Building Math Identity

✪ **I am a doer of math.**
Mathematicians sometimes sort objects. When is a time that you sorted something?

Invite students to reflect on this question as they complete this lesson.

Lesson at a Glance 🕐 60 min

Warm-Up
Whole Class | 10 min

Students use the **Notice and Wonder** routine to share what they notice and wonder about 2 different arrangements of the same set of objects.

Activity 1
Pairs | 15 min

Students sort a set of three-dimensional shapes by determining whether a solid shape has some triangle faces or no triangle faces. As they sort, they justify the placement of each shape and share what they notice about the data.

Manipulative Kit: geoblocks
Materials: chart paper, markers, *Face Shapes Sorting Mat* PDF (as needed)
**Additional Prep** Prepare: *Words to Describe Sorting and Organizing* chart

Activity 2
Pairs | 10 min

Students use the shapes they sorted in Activity 1 to create a **real-object graph** by organizing the shapes in each category into a straight line. In the Connect, they share what they notice about the data when it is arranged in this way.
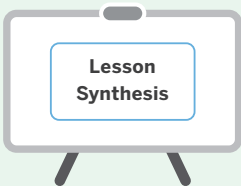
Manipulative Kit: geoblocks
Materials: *Face Shapes Sorting Mat* PDF
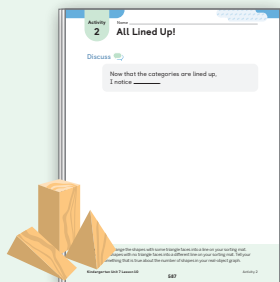
Synthesis
Whole Class | 10 min

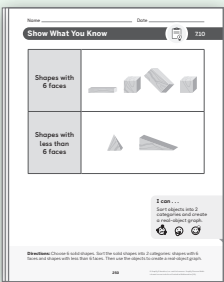Students review and reflect on how to sort and organize objects to create a real-object graph.

Show What You Know (optional)
Independent | 5 min

Students demonstrate their understanding by sorting and organizing solid shapes into a real-object graph with 2 categories.

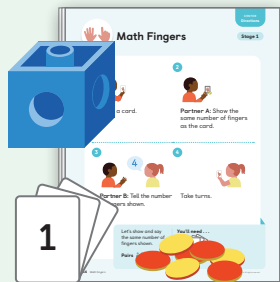**Materials:** *Show What You Know* PDF

Center   Fluency
Pairs | 15 min

Students have an opportunity to revisit these Centers to build their understanding of quantity, representations, and subtraction.

- Math Fingers
- Bingo
- 5 Frames

Math Language Development

EB Emergent Bilinguals

Consider using the *Math Language Development Resources* with the **Activity 1, Monitor** to support math language acquisition.

✓ Cognates
✓ Visuals
✓ Sentence frames and word bank

ELPS 1.B, 1.E, 2.C, 2.D, 2.E, 2.F

| Pre-Production	Beginning	Intermediate	High Intermediate	Advanced
Students **listen** to spoken English and **respond** using their primary languages and gestures.	Students **listen** to spoken English and **speak** using their primary languages, gestures, and single words or short phrases.	Students **listen** to spoken English and **speak** using short phrases or simple sentences.	Students **listen** to spoken English and **speak** using a variety of sentence types.	Students **listen** to spoken English and **speak** using longer sentences. Exemplar responses are provided.

Warm-Up Notice and Wonder

Purpose: Students examine 2 images of plastic bottlecaps to activate their prior knowledge about sorting objects into categories.

What do you notice? What do you wonder?
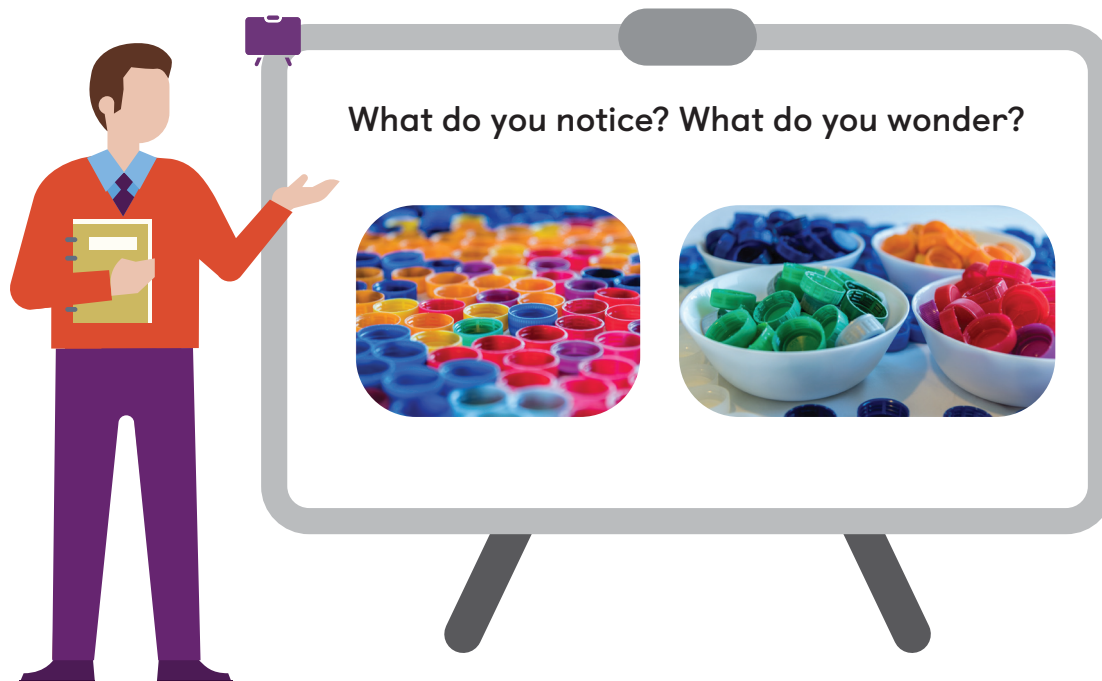
1 Launch

Display the image.

Use the Notice and Wonder routine.

Use the Think-Pair-Share routine. Ask, "What do you notice? What do you wonder?"

2 Connect

Record students' responses as they share.

Ask, "Why might someone want to sort objects, like these bottlecaps, into categories?"

Students might say . . . 🌟 ELPS 2.B

I notice there are many different colors of bottlecaps.

I notice the colors are all mixed in the picture on the left, but the same colors are grouped together on the right.

I wonder if each color has the same number of bottlecaps.

I wonder which color has the most bottlecaps.

Activity 1 Face Shapes

Purpose: Students deepen their understanding of attributes of three-dimensional shapes as they sort shapes into 2 given categories and justify the sort.

Materials

Manipulative Kit:
- Distribute 8–10 small or medium-sized geoblocks to each pair of students.

Lesson Resources:
- Provide students with access to the *Face Shapes Sorting Mat* PDF during the Launch (as needed).

Classroom materials:
- Use chart paper and markers to prepare the *Words to Describe Sorting and Organizing* chart before the activity.

Short on time? Consider providing pairs with 4 shapes.

1 Launch

Say, "River decided to organize some of his toys. Let's help River organize his blocks."

Display a cube and a pyramid.

Use the Think-Pair-Share routine. Say, "Look at these 2 solid shapes. What do you notice about the faces of these shapes?"

EB **Emergent Bilinguals:** As students share, use pointing and gestures, such as tracing each face with your finger, to make explicit connections between the language students use and the shapes' attributes. ⭐ ELPS 3.D, 3.F

Say (if not yet mentioned during discussion), "This shape, called a *pyramid*, has 1 square face and some triangle faces. This cube has only square faces and has no triangle faces."

Say, "Work with your partner to sort your solid shapes into 2 categories: shapes with some triangle faces and shapes with no triangle faces. Then tell your partner how you know which category each shape belongs in."

Provide access to the *Face Shapes Sorting Mat.*

A **Accessibility: Executive functioning** Demonstrate how to determine which category a shape belongs in on the sorting mat.

2 Monitor

While students complete the activity, refer to the **D** Differentiation | Teacher Moves table on the following page.

If students need help getting started . . .
- Ask, "Which shape do you want to sort first?"
- Ask, "How could you figure out if this shape has a triangle face?"

3 Connect

Display a triangular prism and the *Face Shapes Sorting Mat.*

Use the Think-Pair-Share routine. Ask, "How would you sort this shape?"

MLR **MLR8: Discussion Supports – Pressing for Details** ⭐ ELPS 2.E
As students share how they would sort the shape, press for details in their reasoning. For example:
- If a student says it belongs with the shapes that do have triangle faces . . .
- Press for details by asking students how they know the shape has triangle faces.

Add the language students use to the *Words to Describe Sorting and Organizing* chart.

Ask, "Why might someone want to sort objects, like solid shapes, into categories?"

Note: Students will continue to work with their sorted shapes in Activity 2.

🔑 **Key Takeaway:** Say, "Objects can be sorted into groups in different ways. The categories you use describe how the objects are sorted."

Unit 7
Lesson
10

Name _____

⊕ TEKS: K.1.D, K.1.E, K.1.G, K.6.C, K.6.E, K.8.A, K.8.B, K.8.C

Let's Face It!

Let's sort and organize solid shapes.

I am a doer of math. Mathematicians sometimes sort objects. When is a time that you sorted something?

Warm-Up 📺 ◉ eyes on teacher

Activity 1 **Face Shapes**

Discuss 💬 Oral activity: No writing expected. Sample response shown.

I know _____.

I know this shape belongs in this category because it does not have any triangle faces.

Directions: Work with your partner to sort the solid shapes into **2** categories: shapes with some triangle faces and shapes with no triangle faces. Then tell your partner how you know which category each shape belongs in.

📁 **Presentation Screens**

D **Differentiation | Teacher Moves**

Look for students who . . .	For example . . .	Provide support . . .
Almost there Sort shapes by attending to 1 of the faces.	This shape has a face that is a rectangle.	⚠ **Support** Ask, "You noticed that 1 of the faces is not a triangle. What do you notice about the other faces of this shape?"
Sort shapes by attending to all of the faces.	Some of the faces on this shape are rectangles, but some are triangles.	Ⓢ **Stretch** Ask, "What is another way you could sort these solid shapes based on their faces?"

Activity 2 All Lined Up!

Purpose: Students arrange the solid shapes they sorted in Activity 1 into straight lines to create a real-object graph and share what they notice about the data.

Materials

Manipulative Kit:

- Ensure students have access to the sorted geoblocks (from Activity 1).

Lesson Resources:

- Distribute the *Face Shapes Sorting Mat* PDF during the Launch.

Classroom materials:

- Display the *Words to Describe Solid Shapes* chart (from prior lessons).
- Display the *Words to Describe Sorting and Organizing* chart (from Activity 1).

1 Launch

Say, "Now that you have sorted River's blocks into 2 categories, let's help River organize the shapes in each category."

Ask, "Look at the shapes with triangle faces on your sorting mat. How could you organize these shapes?"

Say:

- "Let's help River by organizing the blocks in each category into a straight line."
- "Work with your partner to arrange the shapes with some triangle faces into a line on your sorting mat. Then arrange the shapes with no triangle faces into a different line on your sorting mat. It is okay if some of the shapes in each line extend off your sorting mat."

2 Monitor

While students complete the activity, refer to the **D Differentiation | Teacher Moves** table on the following page.

If students need help getting started . . .

- Ask, "Which category of shapes do you want to organize first?"

3 Connect

Use the Think-Pair-Share routine. Ask, "What is 1 thing you notice about sorted shapes now that they are in straight lines?"

EB Emergent Bilinguals: Encourage students to ask for help as needed using sentence stems such as, "I need help with ___." "I don't understand ___." ELPS 3.A, 3.E

Say, "First you sorted the solid shapes into 2 categories. Then you organized the shapes in each category into straight lines. Organizing objects into straight lines can help you notice new things. You have created a math representation called a **real-object graph**."

> 🔑 **Key Takeaway:** Say, "**Real-object graphs** show objects that are organized into categories."

Activity **2**

Name _____

All Lined Up!

Discuss 💬 Oral activity: No writing expected. Sample response shown.

> Now that the categories are lined up,
> I notice _____.

Now that the categories are lined up, I notice that there are more shapes with some triangle faces because that line is longer.

Directions: Arrange the shapes with some triangle faces into a line on your sorting mat. Arrange the shapes with no triangle faces into a different line on your sorting mat. Tell your partner something that is true about the number of shapes in your real-object graph.

Kindergarten Unit 7 Lesson 10

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Activity 2

Presentation Screens

D Differentiation | Teacher Moves

Look for students who . . .	For example . . .	Provide support . . .
Almost there Arrange all the shapes into a line.		⚠ **Support** Ask, "How many categories did you sort the shapes into? How could you organize the shapes into a line for each of the 2 categories?"
Arrange the shapes in each category into a straight line.	Some triangle faces / No triangle faces	**S Strengthen** Say, "Talk with your partner about how you could figure out which category has more and which category has less."
Arrange the shapes in each category into a straight line, so that the lines have one-to-one correspondence.	Some triangle faces / No triangle faces	
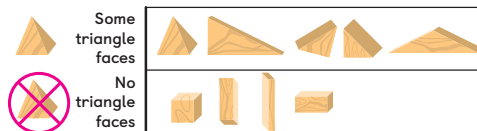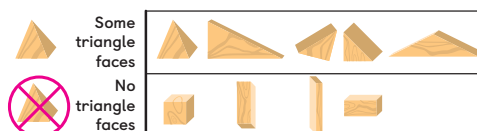
Synthesis

Lesson Takeaway: Objects, like three-dimensional shapes, can be sorted into categories and then organized in lines to create a **real-object graph**.

Lesson Synthesis
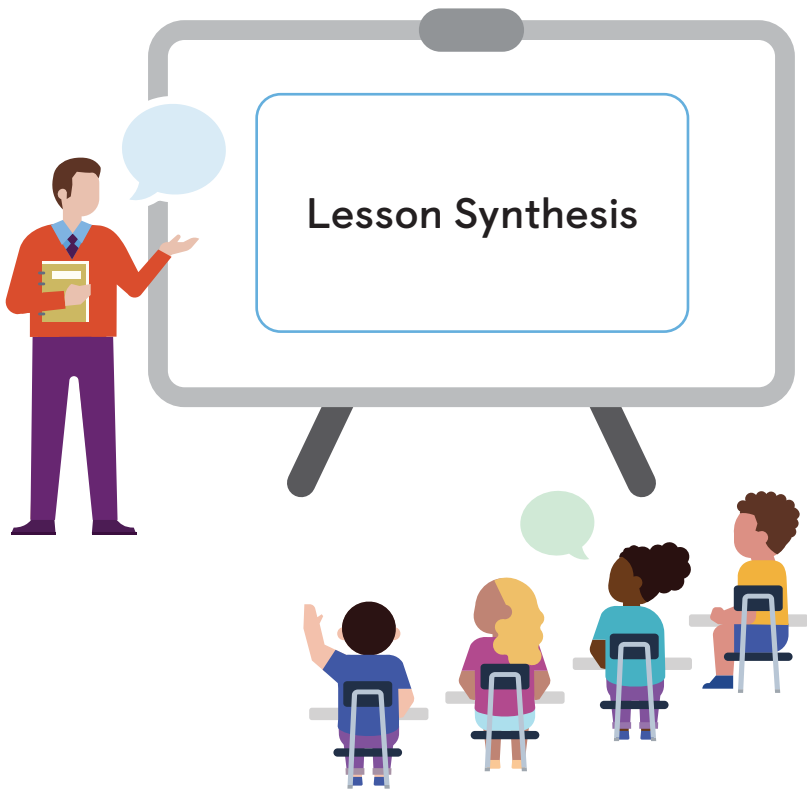
Say, "Any objects can be used to make a real-object graph, including people! Let's create a real-object graph about the shirts we are wearing: shirts with short sleeves, shirts with long sleeves, and shirts with no sleeves."

Ask:

- "What should we do first?" Designate a space for each category and have students sort themselves into groups.

- "Now that you have sorted yourselves into 3 categories, what should we do next to create a real-object graph?" Give students 1–2 minutes to arrange themselves into rows.

- "What is 1 thing you notice when looking at our real-object graph? Share your thinking with a partner."

Say, "You have created a real-object graph that shows the different kinds of shirts students are wearing. You will explore more about real-object graphs in the next lesson."

Formalize vocabulary: real-object graph

(optional) **Consider using the Total Physical Response routine** by inviting students to create a movement that represents objects organized into rows. 🌟 **ELPS 1.A, 1.B, 1.C, 1.E**

Refer to the *Math Language Development Resources* for a description of this routine and for more vocabulary support.

Invite students to refer to the **Summary** during Practice or anytime during the year.

Show What You Know
(Optional)
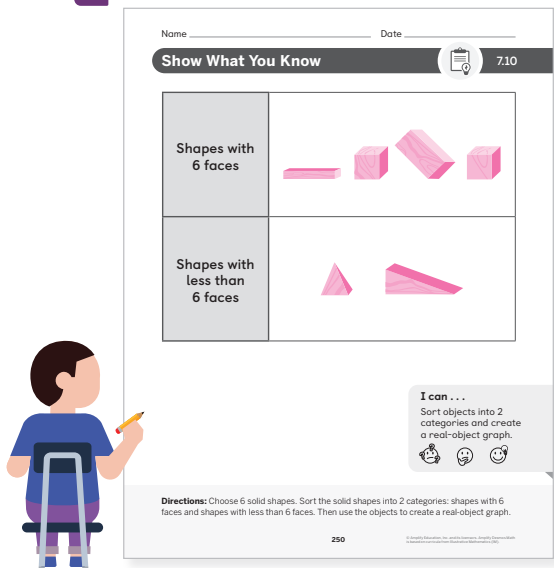
Independent | 5 min

PDF Show What You Know PDF

Name _____ Date _____

Show What You Know   7.10

| Shapes with 6 faces | |
| Shapes with less than 6 faces | |

I can . . .
Sort objects into 2 categories and create a real-object graph.

Directions: Choose 6 solid shapes. Sort the solid shapes into 2 categories: shapes with 6 faces and shapes with less than 6 faces. Then use the objects to create a real-object graph.

250

Today's Goals

1. **Goal:** Sort regular and irregular three-dimensional shapes into 2 categories.

2. **Goal:** Organize 2 categories of data to create a real-object graph.

   - In the *Show What You Know*, students sorted solid shapes into 2 categories based on the number of faces.

3. **Language Goal:** Justify the placement of sorted shapes into categories. **(Listening and Speaking)** 🌟 **ELPS 1.B, 2.B, 2.E**

4. **Language Goal:** Tell a true statement about a real-object graph. **(Listening and Speaking)** 🌟 **ELPS 1.B, 2.B, 2.E**

D **Differentiation** See the last page of the lesson for differentiation and Math Language Development support.

Practice 👤 Independent

Provide students with sufficient practice to build and reinforce their conceptual understanding, fluency, and application of mathematical topics including connections to assessment practice, and ongoing spiral review.

Students using print

Summary 7.10

You can sort and organize solid shapes that are alike in a **real-object graph**.

| No triangle faces | | |
| Some triangle faces | | |

Practice 7.10

Choose from these centers.

| Math Fingers | Bingo | 5 Frames |
| Make 10 | Numbers 11-19 | Subtract Using 5-Frames |

Kindergarten Unit 7 Lesson 10

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Summary | Practice

Practice 7.10

Name _____

1

ⓘ Show your thinking. Sample response shown.

| Solids with some circle faces | | | | |
| Solids with no circle faces | | | | |

2 Discuss 💬 Oral activity: No writing expected. Sample response shown.

- My real-object graph has _____.
- This shape belongs here because _____.

My real-object graph has 2 categories. This shape belongs here because it has no circle faces.

Directions:
1. Organize the shapes by sorting the solid shapes that have some faces shaped like a circle. Make a real-object graph with your sorted solid shapes.
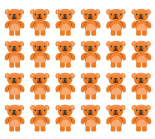2. Explain to your partner how you sorted your solid shapes into categories.

Kindergarten Unit 7 Lesson 10

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Practice

Practice 7.10

Name _____

Spiral Review
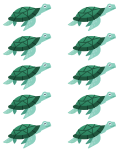
3

13   24

4

14   10

Directions:
3-4. Write the number that shows how many. Circle the number that shows *more*.

Kindergarten Unit 7 Lesson 10

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Practice

Practice Problem Item Analysis

	Problem(s)	DOK	🍁 TEKS
On-Lesson			
	1	2	K.8.A, K.8.B
	2	1	K.8.C
Spiral Review			
Fluency	3, 4	1	K.2.B, K.2.C, K.2.G

Need more Practice?

Additional practice can be found in the **Practice Resources, Intervention and Extension, Resources,** and online resources (item banks, Boost Personalized Learning, and Fluency Practice).

Center Choice Time
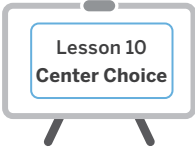
Purpose: Use this time to support students working in Centers, gather formative assessment data, or work with a small group of students on targeted skills.

Math Fingers

Make 10

👥 Pairs | 🕐 15 min | 🔺 K.3.A, K.3.C, K.2.I

Students find the number of fingers needed to make 10 and represent each composition with a number sentence.

Materials

- number cards (0–10) **(Manipulative Kit)**
- Directions, Recording Sheet **(Centers Resources)**

Corresponds with the checklist from Unit 5, Sub-Unit 3.

Bingo

Numbers 11–19

👥 Small groups | 🕐 15 min | 🔺 K.2.C

Students read written numerals 11–19 and determine which groups of images represent each numeral.

Materials

- counters, number cards (11–19) **(Manipulative Kit)**
- Directions, Gameboards (A–D) **(Centers Resources)**

Corresponds with the checklist from Unit 6, Sub-Unit 1.

Use Centers as games to offer fun and engaging ways for students to practice math skills.

GAMES

5 Frames

Subtract Using 5-Frames

👤 Independent   🕐 15 min | 🔺 K.3.A, K.2.B

Students fill in a 5-frame with 5 counters, subtract 1–5 counters, and then determine the difference.

Materials

- connecting cubes (one per student), counters (10 per student) **(Manipulative Kit)**
- Directions, Recording Sheet B, Number Mat (1–5) **(Centers Resources)**

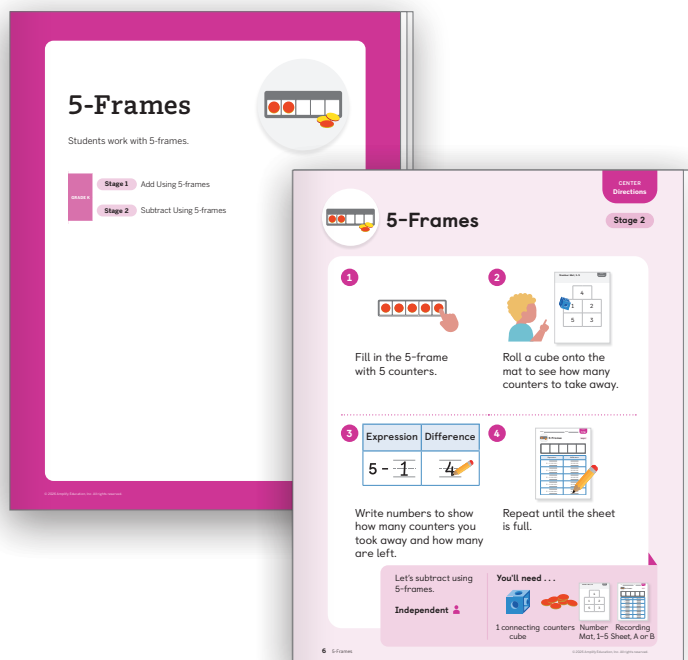**Corresponds with the checklist from Unit 4, Sub-Unit 1.**

D **Differentiation | Teacher Moves**

Work with students in their centers by:

- Reinforcing Center routines and positive interactions.
- Asking probing questions to propel student thinking forward.
- Recording observations using the checklist provided.

Consider pulling a small group of students for:

- Reviewing the lesson's learning goal by using the *Mini-Lesson* or the supports provided in the lesson.
- Reviewing essential skills from prior lessons or units.

5-Frames

Students work with 5-frames.

Stage 1 Add Using 5-frames

Stage 2 Subtract Using 5-frames

CENTER Directions

5-Frames

Stage 2

1. Fill in the 5-frame with 5 counters.

2. Roll a cube onto the mat to see how many counters to take away.

3. | Expression | Difference |
   |---|---|
   | 5 - 1 | 4 |

   Write numbers to show how many counters you took away and how many are left.

4. Repeat until the sheet is full.

Let's subtract using 5-frames.

Independent 👤

You'll need . . .

1 connecting cube   counters   Number Mat, 1–5   Recording Sheet, A or B

Lesson Goal: Organize 2 categories of data to create a real-object graph.

Ⓢ Support

Provide targeted intervention for students by using these resources.

If students sort the solid shapes using attributes other than the given categories:

Respond:

- Assign the *Sorting Shapes into Categories* Mini-Lesson. | 🕐 15 min

- Students will also have more opportunities to develop this concept in future lessons, so intervention is not necessary at this time.
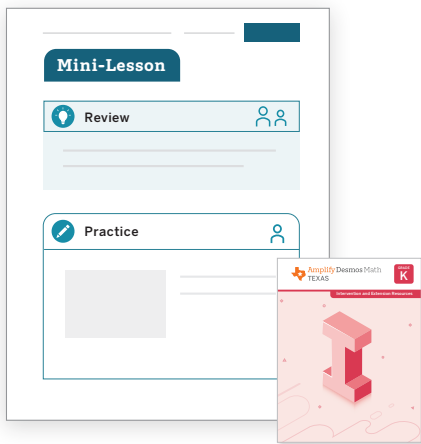

Ⓢ Strengthen

Reinforce students' understanding of the concepts assessed by using these resources.

If students sort the solid shapes to create a real-object graph, using the given categories:

Respond:

- Invite students to play these **Centers.** | 🕐 15 min
  Math Fingers: Make 10
  Bingo: Numbers 11–19
  5 Frames: Subtract Using 5-Frames

- Have students complete **Lesson 10 Practice.** | 🕐 15 min

- **Item Bank**
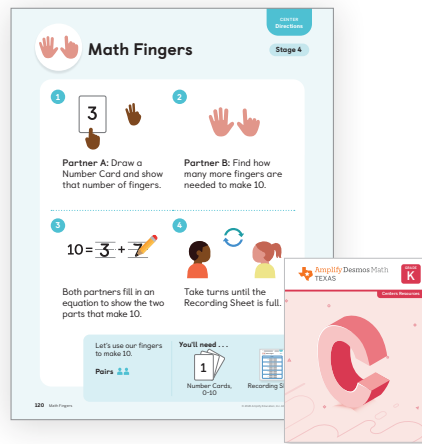
Ⓢ Stretch

Challenge students and extend their learning with these resources.

If students sort the solid shapes to create a real-object graph and explain how the shapes' attributes were used to sort them:

Respond:

- Invite students to explore the **Sub-Unit 3 Extension Activities.** | 🕐 15 min

- Revisit Activity 1 and invite students to respond to the **Stretch** question from the *Differentiation: Teacher Moves* table. | 🕐 5 min
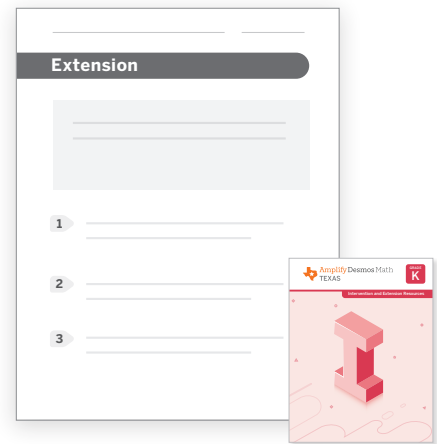

Support, Strengthen, and *Stretch* learning by assigning these digital resources that adjust to each student's current level of skill and understanding.
- **Boost Personalized Learning**   • **Fluency Practice**   • **Math Adventures**

Math Language Development

EB Use the **Math Language Development Resources** for further language support with all your students, including those building English proficiency.

- English/Spanish cognates, e.g., **category** / **categoría**
- Vocabulary routines
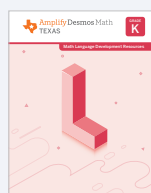
Professional Learning

What noticings did students make about sorting objects to create real-object graphs? How will this learning contribute to their future experiences with picture graphs?