Sample Pages from

Created *by* Teachers *for* Teachers and Students

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Let's Talk Math

This sample includes the following:

LEVEL 1

Let's Talk Math

TEACHER'S GUIDE

TCM Teacher Created Materials

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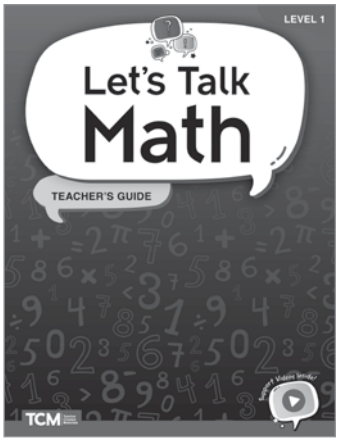
How to Use This Resource

Components

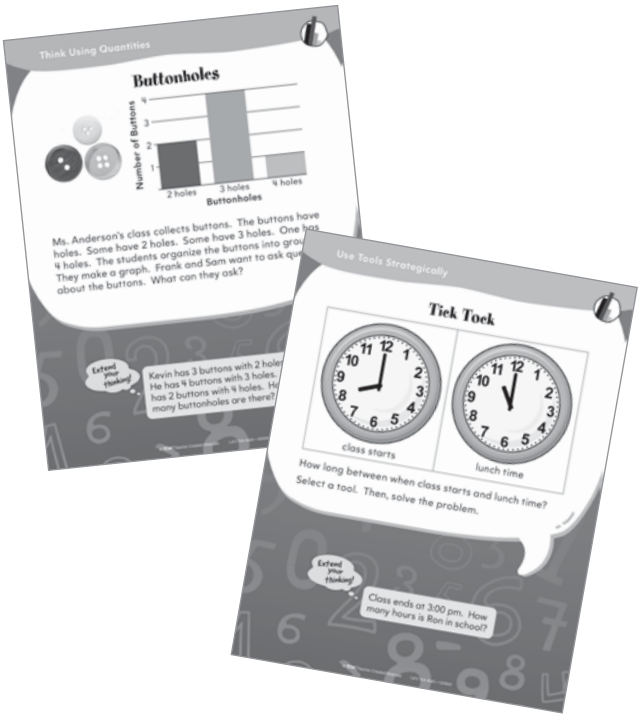
Teacher's Guide



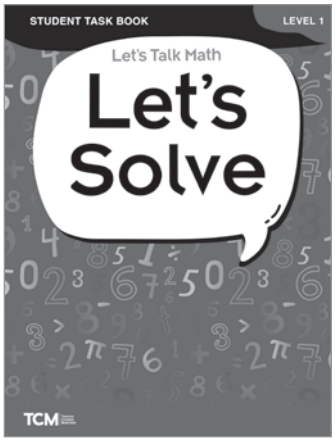
The *Let's Talk Math* Teacher's Guide is an informative, detailed guide that facilitates implementation of this supplemental resource. Every lesson includes a common student misconception for the particular task as well as differentiated support for both scaffolding and extension. Each lesson includes tiered vocabulary lists to provide language support and ensure access to the mathematics.

Task Cards

There are 60 full-color, double-sided cards for small-group lessons and workstations. Each card features one task on each side and one extension opportunity per task. The cards are color-coded based on the mathematical practices/processes and include icons to indicate the mathematical domains.



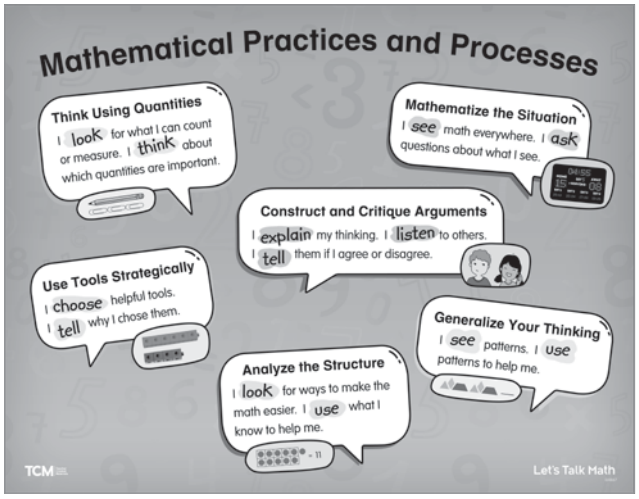
Let's Solve: Student Task Book

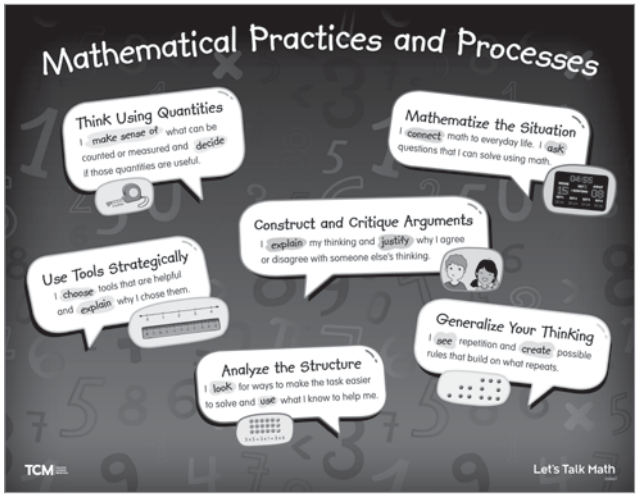


The 120 student tasks are provided in an easy-to-use book with perforated pages for easy distribution to students or for use as students' personal math journals. Each student page includes an opportunity for students to reflect and write.

Poster

A two-sided, full-color poster lists the Standards for Mathematical Practices/Processes in student-friendly language. One side is for grades K–1, and the other side is for grades 2–5.



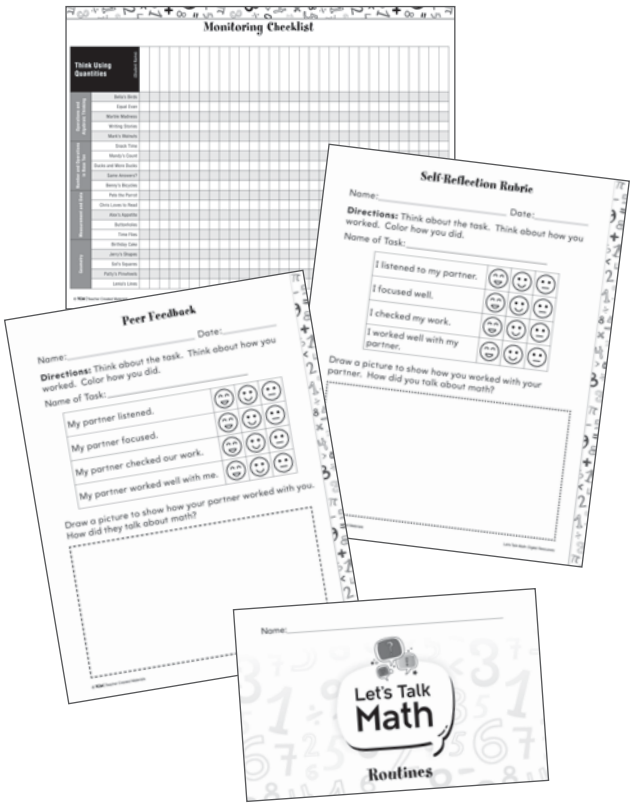


How to Use This Resource *(cont.)*

Digital Resources

Let's Talk Math features a wealth of digital resources. These digital resources offer greater flexibility and accessibility than the print resources alone.

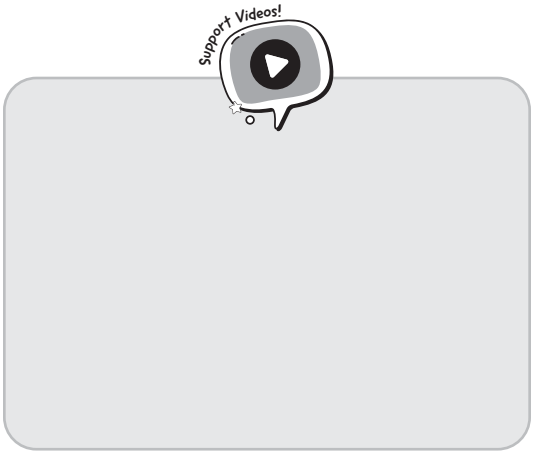
- Digital versions of **Task Cards, Student Task Book** pages, and the **poster** can be used on interactive whiteboards, for virtual sessions, in LMS platforms, and more!
- Assessment tools such as **Observation Protocols**, **Monitoring Checklists**, and **Student Reflection** and **Feedback** templates help teachers and students track progress.
- **Classroom exemplars** bring *Let's Talk Math* to life and inform instruction and assessment.
- **Anchor charts** can be displayed as reminders of the routines for the mathematical practices/processes.
- **Tier 3 vocabulary word cards** can be printed and used to prepare students for math tasks.

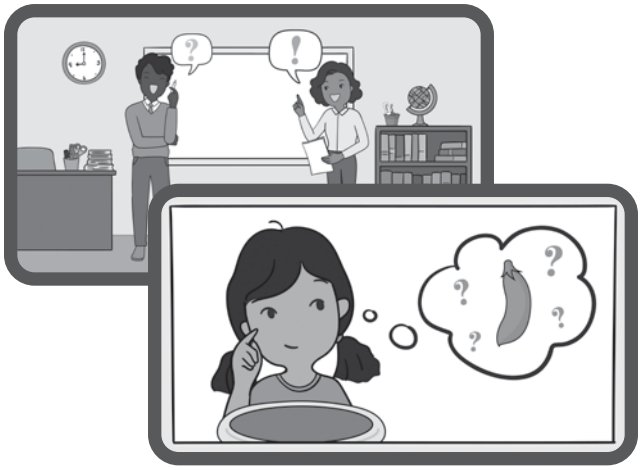


Support Videos

Don't miss the *Let's Talk Math* support videos for teachers and students.

- The **teacher videos** feature authors Kit Norris and Dr. Hilary Kreisberg discussing the routines, and include examples from classrooms and tips for implementation.
- Animated **student videos** explain the mathematical processes/practices and make concepts accessible with engaging examples.
  - Think Using Quantities
  - Construct and Critique Arguments
  - Mathematize the Situation
  - Use Tools Strategically
  - Analyze the Structure
  - Generalize Your Thinking





How to Use This Resource *(cont.)*

Tasks

This kit contains 120 tasks. There are 20 tasks for each of the six identified mathematical practices/processes (see Figure 5). The 20 tasks for each practice/process include five tasks per content domain (see Figure 6). The tasks are provided in three formats to give teachers flexibility in deciding how to use them with students.

- Full-color student reproducibles in the *Let's Solve: Student Task Book.* Each student activity page has the task on one side and the Reflect and Write routine and an extension on the other. These student-facing pages can be used in small groups for students to record their thinking and reflections. Students can alternatively complete the reproducibles during workstation work with partners and submit them for evaluation and review by the teacher. (The *Let's Solve: Student Task Book* can be purchased as student consumables. Contact Teacher Created Materials at 800-858-7339 for more information or to order.)
- Full-color cards (one set per kit) for use by the teacher in small-group lessons or by students in math workstations. The tasks are organized by color to help with both management and student connections (see Figure 5)
- Full-color PDFs in the Digital Resources (see page 168 for more information) for whole-class projection or to share with students for work in class or at home.

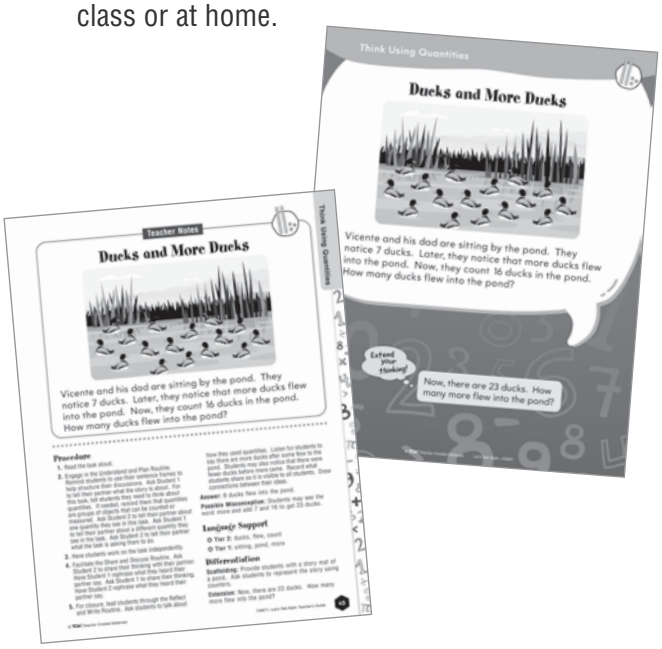


Figure 5—Task Card Colors

Practice/Process	Color
Think Using Quantities	blue
Construct and Critique Arguments	orange
Mathematize the Situation	red
Use Tools Strategically	green
Analyze the Structure	purple
Generalize Your Thinking	yellow

The student tasks (and Teacher Notes) also include visual icons to identify the mathematical domains of the tasks. These icons are included in all three versions of the cards as well as on the teacher notes pages for ease of teacher and student use and management. See Figure 6 for the icons used in the Level 1 cards.

Figure 6—Domain Icons

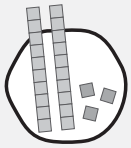
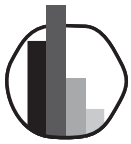
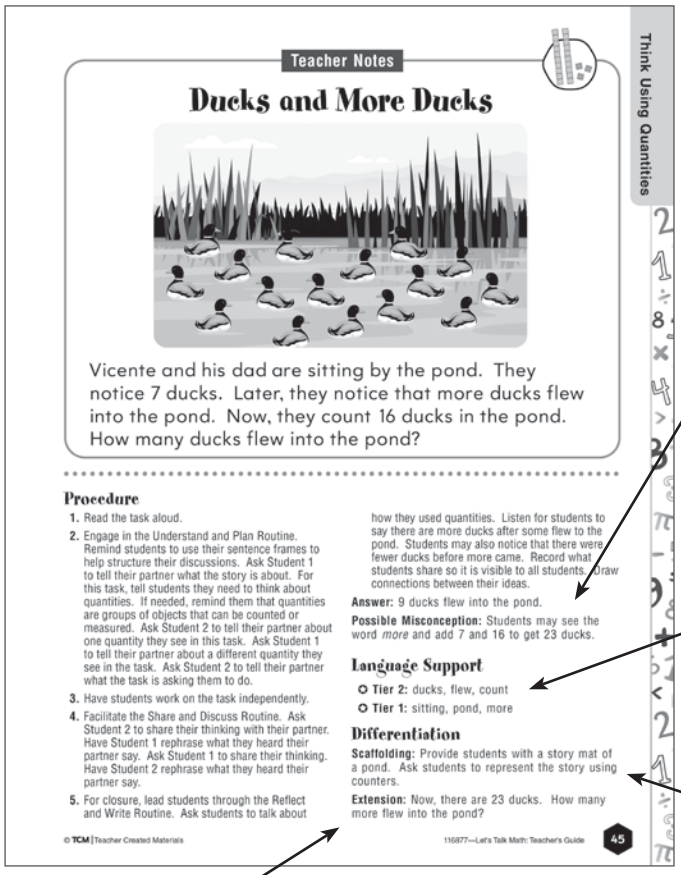
Mathematical Domain	Icon
Operations and Algebraic Thinking	
Number and Operations in Base Ten	
Measurement and Data	
Geometry	

Table of Contents



Teacher Notes

Ducks and More Ducks

Vicente and his dad are sitting by the pond. They notice 7 ducks. Later, they notice that more ducks flew into the pond. Now, they count 16 ducks in the pond. How many ducks flew into the pond?

Procedure

1. Read the task aloud.
2. Engage in the Understand and Plan Routine. Remind students to use their sentence frames to help structure their discussions. Ask Student 1 to tell their partner what the story is about. For this task, tell students they need to think about quantities. If needed, remind them that quantities are groups of objects that can be counted or measured. Ask Student 2 to tell their partner about one quantity they see in this task. Ask Student 1 to tell their partner about a different quantity they see in the task. Ask Student 2 to tell their partner what the task is asking them to do.
3. Have students work on the task independently.
4. Facilitate the Share and Discuss Routine. Ask Student 2 to share their thinking with their partner. Have Student 1 rephrase what they heard their partner say. Ask Student 1 to share their thinking. Have Student 2 rephrase what they heard their partner say.
5. For closure, lead students through the Reflect and Write Routine. Ask students to talk about how they used quantities. Listen for students to say there are more ducks after some flew to the pond. Students may also notice that there were fewer ducks before more came. Record what students share so it is visible to all students. Draw connections between their ideas.

Answer: 9 ducks flew into the pond.

Possible Misconception: Students may see the word *more* and add 7 and 16 to get 23 ducks.

Language Support

- **Tier 2:** ducks, flew, count
- **Tier 1:** sitting, pond, more

Differentiation

Scaffolding: Provide students with a story mat of a pond. Ask students to represent the story using counters.

Extension: Now, there are 23 ducks. How many more flew into the pond?

Think Using Quantities

Each lesson includes a **possible misconception** students might have when working on the task. Knowing about these ahead of time will help you prepare to support students.

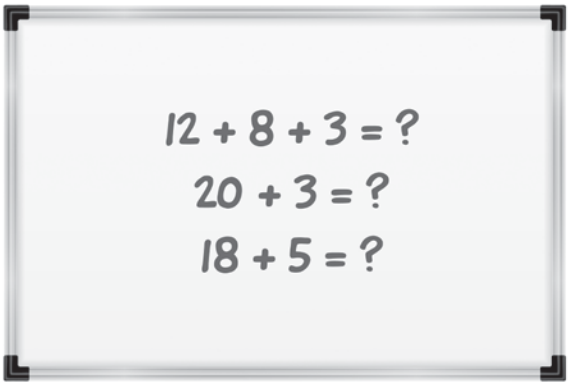
Tiered vocabulary from the task is highlighted along with other key **language supports**.

Scaffolding suggestions are provided to use with students who have demonstrated a need for additional support as they work on the task.

To further challenge students, an **extension** is provided for each task. These provide opportunities for students to apply their critical thinking to related scenarios. When computable answers are possible, they are provided in parentheses.

Teacher Notes

Same Answers?



Ms. Mason shows her class three number sentences. She says, "All of these have the same answer!" Write another number sentence. Make sure it has the same answer.

Procedure

1. Ask students to use the Think Using Quantities sentence frames for this task. Read the task aloud.
2. Engage in the Understand and Plan Routine. Ask Student 1 to tell their partner what the story is about. For this task, tell students they need to think about quantities. Remind them that quantities are groups of objects that can be counted or measured. Ask Student 2 to tell their partner about one quantity they see in this task. Ask Student 1 to tell their partner about a different quantity they see in the task. Ask Student 2 to tell their partner what the task is asking them to do.
3. Have students work on the task independently.
4. Facilitate the Share and Discuss Routine. Ask Student 2 to share their thinking with their partner. Have Student 1 rephrase what they heard their partner say. Ask Student 1 to share their thinking. Have Student 2 rephrase what they heard their partner say.
5. For closure, lead students through the Reflect and Write Routine. Ask students to talk about how they used quantities. Listen for students to say that Row 1 has 12 + 8, which makes 20, and in Row 3, 2 can be taken from the 5 and added to 18 to make 20. Therefore, all equations can be rewritten as 20 + 3. Record what students share so it is visible to all students. Draw connections between their ideas. Finally, work with students to finish the sentence, "We used quantities to _____."

Answer: Answers will vary. Some possible examples: 25 – 2 = 23; 19 + 4 = 23.

Possible Misconception: Some students may look at the different values in each row and assume that the sums must be different.

Language Support

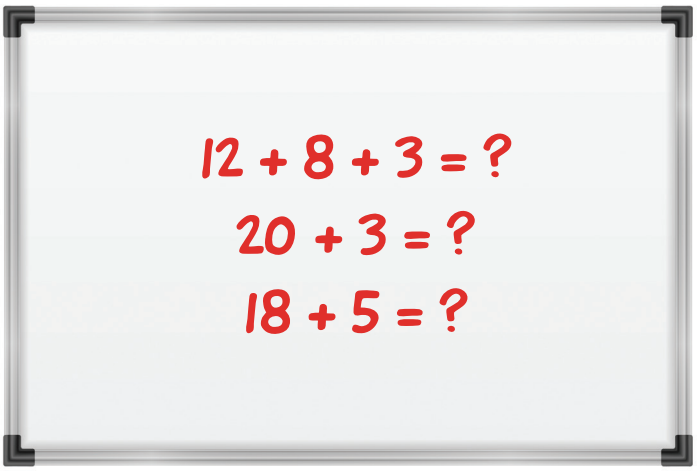
- **Tier 3:** number sentences
- **Tier 2:** answer

Differentiation

Scaffolding: Provide students with concrete objects so they can model and represent the number sentences. Consider using ten-frames for additional structure.

Extension: Write two new number sentences. The answers should be the same as the number sentences above. Check your answers.

Same Answers?



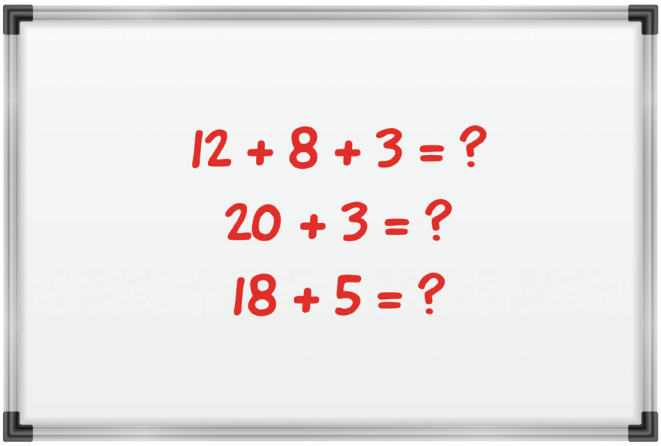
Ms. Mason shows her class three number sentences. She says, "All of these have the same answer!" Write another number sentence. Make sure it has the same answer.

Extend your thinking!

Write two new number sentences. The answers should be the same as the number sentences above. Check your answers.

Name: _____ Partner: _____

Same Answers?



Ms. Mason shows her class three number sentences. She says, "All of these have the same answer!" Write another number sentence. Make sure it has the same answer.

Name: _____ Date: _____

Think Using Quantities

Reflect and Write

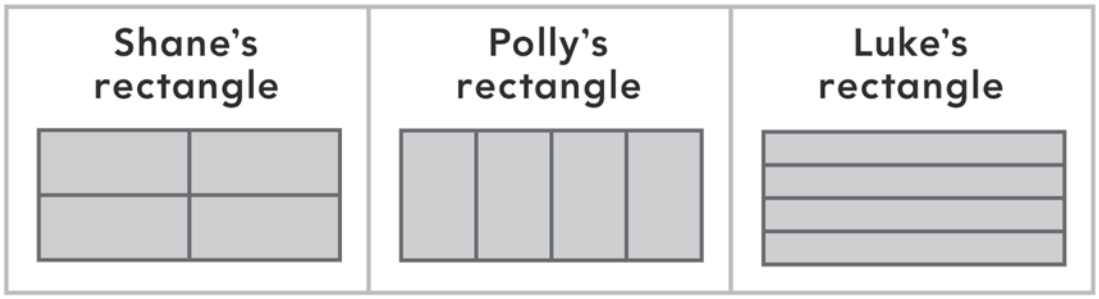
Write or Draw: We used quantities to _____

Extend your thinking!

Write two new number sentences. The answers should be the same as the number sentences above. Check your answers.

Teacher Notes

Partitioning Rectangles



Shane, Polly, and Luke have rectangles. They are the same size. Polly looks at the shapes. She asks, "Did we all make fourths? They look different." Did they each cut their shape into fourths? Explain your thinking.

Procedure

1. Ask students to use the Construct and Critique Arguments sentence frames for this task. Read the task aloud.
2. Engage in the Understand and Plan Routine. Ask Student 1 to tell their partner what the story is about. For this task, tell students they need to construct and critique arguments. Remind them that this means they need to explain their thinking or tell about someone else's thinking. Ask Student 2 to tell their partner what might be important in the task. Ask Student 1 to share something else that might be important. Ask Student 2 to tell their partner what the task is asking them to do.
3. Have students work on the task independently.
4. Facilitate the Share and Discuss Routine. Ask Student 2 to share their thinking with their partner. Have Student 1 rephrase what they heard their partner say. Ask Student 1 to share their thinking. Have Student 2 rephrase what they heard their partner say.
5. For closure, lead students through the Reflect and Write Routine. Ask students to talk about how they constructed or critiqued arguments. Listen for students to say that fourths are four equal-sized parts. Record what students share so it is visible to all students. Draw connections between their ideas. Finally, work with students to finish the sentence "We constructed and critiqued arguments by _____."

Answer: Each child made fourths because there are four equal-sized parts.

Possible Misconception: Students may think that the fourths in the three rectangles must all look the same.

Language Support

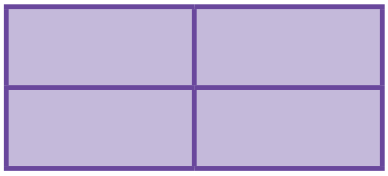
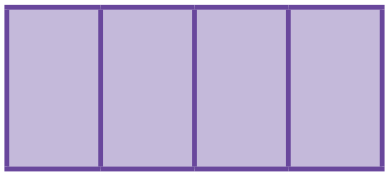
- **Tier 3:** rectangle, fourths
- **Tier 2:** shapes
- **Tier 1:** same, different

Differentiation

Scaffolding: Provide students with 4 square tiles. Ask them to put them together to make a square (2 by 2). Ask, "Do you agree that these 4 square tiles represent 4 equal parts of this square?" Then, ask them to move two of the squares and place them adjacent to the other two so now there is a 1 by 4 rectangle. Ask, "Do we still have four equal parts?"

Extension: Find one more way to partition a rectangle into fourths.

Partitioning Rectangles

Shane's rectangle	Polly's rectangle	Luke's rectangle
		

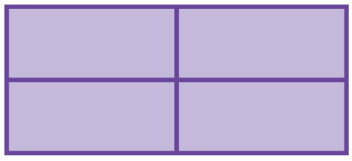
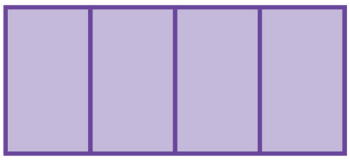
Shane, Polly, and Luke have rectangles. They are the same size. Polly looks at the shapes. She asks, "Did we all make fourths? They look different." Did they each cut their shape into fourths? Explain your thinking.

Extend your thinking!

Find one more way to partition a rectangle into fourths.

Name: _____ Partner: _____

Partitioning Rectangles

Shane's rectangle	Polly's rectangle	Luke's rectangle
		

Shane, Polly, and Luke have rectangles. They are the same size. Polly looks at the shapes. She asks, "Did we all make fourths? They look different." Did they each cut their shape into fourths? Explain your thinking.

Name: _____ Date: _____

Construct and Critique Arguments

Reflect and Write

Write or Draw: We constructed and critiqued

_____

arguments by _____

_____

_____

_____

_____

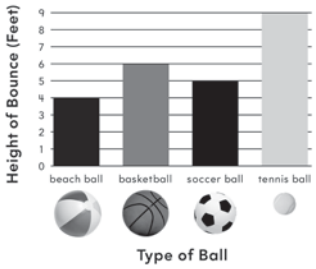
_____

Extend your thinking!

Find one more way to partition a rectangle into fourths.

Teacher Notes

Bouncing Balls



Look at the graph. What do you notice?

Procedure

1. Ask students to use the Mathematize the Situation sentence frames for this task. Read the task aloud, and ask students to look at the picture(s).
2. Engage in the Understand and Plan Routine. Ask Student 1 to tell their partner what they see. Ask Student 2 to share what they see. Tell students they need to mathematize the situation. Remind them this means they need to relate math to everyday life and ask questions about the picture(s). Then, they will use their math skills to find the answer. Ask Student 2 to tell their partner a math question they are wondering. Ask Student 1 to share a different math question.
3. Have students work on their selected questions.
4. Facilitate the Share and Discuss Routine. Ask Student 2 to share their thinking with their partner. Have Student 1 rephrase what they heard their partner say. Ask Student 1 to share their thinking. Have Student 2 rephrase what they heard their partner say.
5. For closure, lead students through the Reflect and Write Routine. Ask students to talk about how they mathematized the situation. Listen for students to say they noticed that the smallest ball bounced the highest or that none of the balls bounced the same height. Record what students share so it is visible to all students. Draw connections between their ideas. Finally, work with students to finish the sentence "We mathematized the situation by _____."

Answer: Answers will vary based on questions asked.

Possible Misconception: Students may want to explore questions that are not quantifiable, such as, "Where can we buy a beach ball?" Encourage students to think of questions that can be answered using mathematics. For example, "Which ball bounced the highest?"

Helpful Information

If students struggle to identify mathematical questions they'd like to answer, prompt student thinking with one of the following math details from the picture. This list is not exhaustive.

- The tennis ball bounces 9 feet high.
- There are 4 different types of balls.
- All the balls bounce at least 4 feet.

Language Support

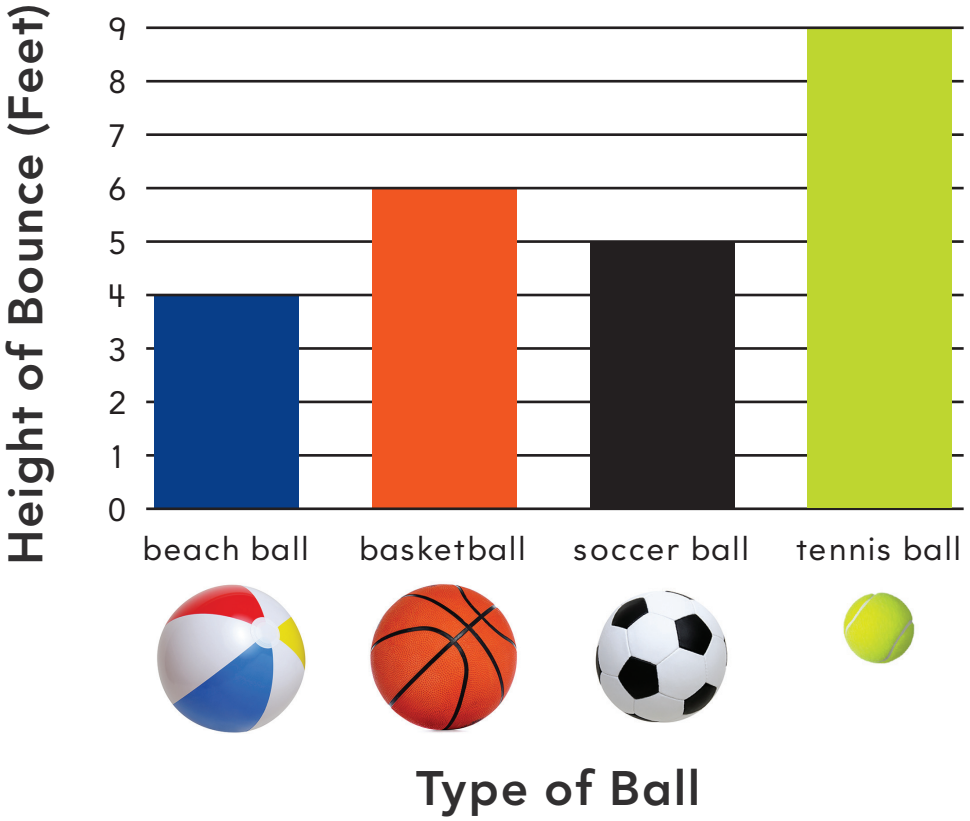
- **Tier 2:** bouncing
- **Tier 1:** ball, basketball, tennis ball, beach ball, soccer ball

Differentiation

Scaffolding: Consider making a list of questions that are not quantifiable and a list of questions that are quantifiable. Creating these lists can be done as a whole class discussion or can be written as partners share the question that they would like to explore.

Extension: Suggest that students extend their questions in some manner. For example, if they explored which ball bounced the highest, then ask them to determine which ball bounced the shortest height.

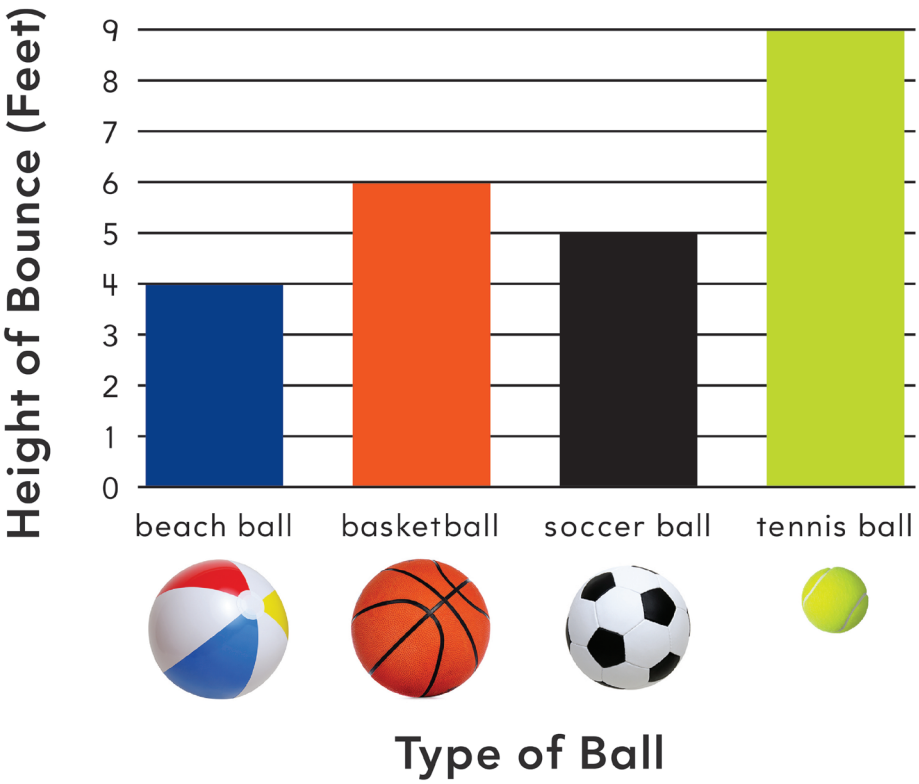
Bouncing Balls



Look at the graph. What do you notice?

Name: _____ Partner: _____

Bouncing Balls



Look at the graph. What do you notice?

Name: _____ Date: _____

Mathematize the Situation

Reflect and Write

Write or Draw: We mathematized the situation by

Teacher Notes

True or False?

$9 = 9$

$9 = 10 - 1$

$7 + 2 = 6 + 3$

Lily writes three number sentences. Ben says they are all true. Nick says one number sentence is false. Do you agree with Ben or Nick? Explain.

Select a tool. Use the tool to solve the problem.

Procedure

1. Ask students to use the Use Tools Strategically sentence frames for this task. Read the task aloud.
2. Engage in the Understand and Plan Routine. Ask Student 1 to tell their partner what the story is about. For this task, tell students they need to use tools strategically. Remind them that this means they need to select an appropriate tool and use it in a way that helps them solve the task. Ask Student 2 to tell their partner what the task is asking them to do. Ask Student 1 to tell their partner a tool that may be helpful to solve this task. Ask Student 2 to share another tool that may be helpful to use.
3. Have students work on the task independently.
4. Facilitate the Share and Discuss Routine. Ask Student 2 to share their thinking with their partner. Have Student 1 rephrase what they heard their partner say. Ask Student 1 to share their thinking. Have Student 2 rephrase what they heard their partner say.
5. For closure, lead students through the Reflect and Write Routine. Ask students to talk about how they used tools strategically. Listen for students to say they used a pan balance and cubes, colored counters, or any other tool to show equality. Record what students share so it is visible to all students. Draw connections between their ideas. Finally, work with students to finish the sentence "We used tools strategically by _____."

Answer: Ben is correct; all the number sentences are true. Tool selection will vary.

Possible Misconception: Students may think the equal sign must come after the operations and just before the answer.

Language Support

- **Tier 3:** number sentences
- **Tier 2:** true, false, select, tool, writes

Differentiation

Scaffolding: Ask students to choose a tool for counting. Suggest to students that they use counters, cubes, or other objects as tools. Ask them to arrange the objects into two groups. The total number of objects in these two groups should be 5. Ask students to write the equation representing the sum of the two groups. For example, $2 + 3 = 1 + 4$. Remind students that the equal sign means "is the same as."

Extension: Write two more number sentences that have a value of 9 on each side of the equal sign. Be creative!

True or False?

$$9 = 9$$

$$9 = 10 - 1$$

$$7 + 2 = 6 + 3$$

Lily writes three number sentences. Ben says they are all true. Nick says one number sentence is false. Do you agree with Ben or Nick? Explain.

Select a tool. Use the tool to solve the problem.

Extend your thinking!

Write two more number sentences that have a value of 9 on each side of the equal sign. Be creative!

Name: _____ Partner: _____

True or False?

$9 = 9$

$9 = 10 - 1$

$7 + 2 = 6 + 3$

Lily writes three number sentences. Ben says they are all true. Nick says one number sentence is false. Do you agree with Ben or Nick? Explain.

Select a tool. Use the tool to solve the problem.

Name: _____ Date: _____

Use Tools Strategically

Reflect and Write

Write or Draw: We used tools strategically by

_____

_____

_____

_____

_____

_____

_____

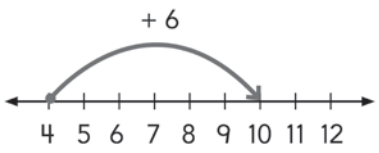
_____

Extend your thinking!

Write two more number sentences that have a value of 9 on each side of the equal sign. Be creative!

Teacher Notes

Mason's Thinking

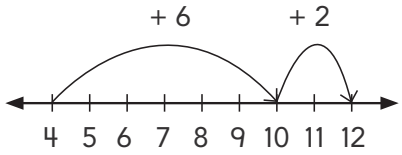
$4 + \square = 12$	Mason's Work: 

Mason writes $4 + \square = 12$. He needs to find what goes in the box. He draws a number line and starts adding. Help him finish. Use his number line. What number goes in the box?

Procedure

1. Ask students to use the Analyze the Structure sentence frames for this task. Read the task aloud.
2. Engage in the Understand and Plan Routine. Ask Student 1 to tell their partner what the story is about. For this task, tell students they need to analyze the structure. Remind them that this means they need to look for ways to make the math easier and think about how they might use what they know to help them solve. Ask Student 2 to tell their partner what the task is asking them to do. Ask Student 1 to share how they might use what they know to help them. Ask Student 2 to share how they might use what they know to help them.
3. Have students work on the task independently.
4. Facilitate the Share and Discuss Routine. Ask Student 2 to share their thinking with their partner. Have Student 1 rephrase what they heard their partner say. Ask Student 1 to share their thinking. Have Student 2 rephrase what they heard their partner say.
5. For closure, lead students through the Reflect and Write Routine. Ask students to talk about how they analyzed the structure. Listen for students to say that they counted up from 4 to get to 12, or added 6 to 4 to make a 10 and then added 2 to make 12, or that they counted back from 12 to 4. Record what students share so it is visible to all students. Draw connections between their ideas. Finally, work with students to finish the sentence "We analyzed the structure by _____."

Answer: 8



Possible Misconception: Students may not understand that the amount jumped on the number line represents the missing addend.

Language Support

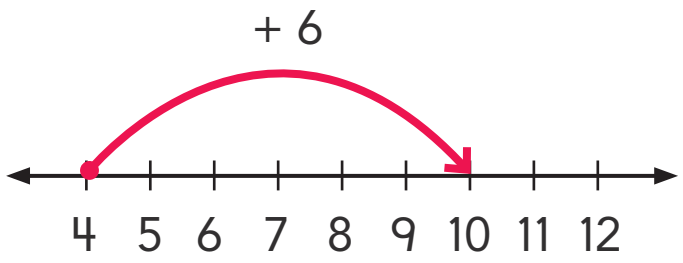
- **Tier 3:** number line
- **Tier 2:** writes, box, draws

Differentiation

Scaffolding: Provide students with pre-labeled number lines. Ask them to redo Mason's work so they can construct the process themselves.

Extension: Use Mason's method to solve $7 + \square = 13$. (6)

Mason's Thinking

$4 + \square = 12$	**Mason's Work:** 

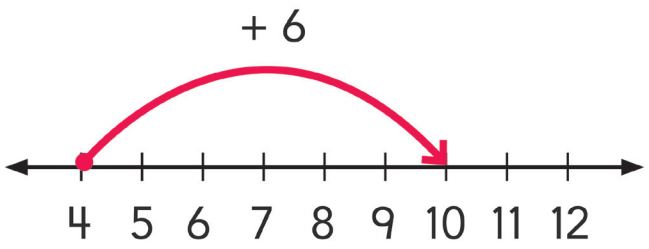
Mason writes $4 + \square = 12$. He needs to find what goes in the box. He draws a number line and starts adding. Help him finish. Use his number line. What number goes in the box?

Extend your thinking!

Use Mason's method to solve $7 + \square = 13$.

Name: _____ Partner: _____

Mason's Thinking

$4 + \square = 12$	**Mason's Work:** 

Mason writes $4 + \square = 12$. He needs to find what goes in the box. He draws a number line and starts adding. Help him finish. Use his number line. What number goes in the box?

Name: _____ Date: _____

Analyze the Structure

Reflect and Write

Write or Draw: We analyzed the structure by

_____

_____

_____

_____

_____

_____

_____

_____

Extend your thinking!

Use Mason's method to solve 7 + ☐ = 13.

Teacher Notes

Measure It Right

Sarah measures a pencil. It is 4 sticky notes long.

Sam measures the same pencil. It is 3 sticky notes long.

Why did they get different lengths? Explain.

Procedure

1. Ask students to use the Generalize Your Thinking sentence frames for this task. Read the task aloud.
2. Engage in the Understand and Plan Routine. Ask Student 1 to tell their partner what the story is about. For this task, tell students they need to generalize their thinking. Remind them that this means they need to look for what is staying the same and what is changing. Ask Student 2 to tell their partner what stays the same in the task. Ask Student 1 to share what changes in the task. Ask Student 2 to tell their partner what the task is asking them to do.
3. Have students work on the task independently.
4. Facilitate the Share and Discuss Routine. Ask Student 2 to share their thinking with their partner. Have Student 1 rephrase what they heard their partner say. Ask Student 1 to share their thinking. Have Student 2 rephrase what they heard their partner say.
5. For closure, lead students through the Reflect and Write Routine. Ask students to talk about how they generalized their thinking. Listen for students to say that they know that to measure accurately, they have to be precise and line up the objects so there are no overlaps and gaps. Record what students share so it is visible to all students. Draw connections between their ideas. Finally, work with students to finish the sentence "We generalized our thinking by _____."

Answer: The way Sam measured is incorrect. He can't leave gaps when measuring. Students' advice for measuring will vary but should include units touching end to end with no gaps or overlaps.

Possible Misconception: Students might think that measuring means putting the measuring tool at one end of the object being measured without thinking about the starting and ending points.

Language Support

- **Tier 3:** lengths
- **Tier 2:** measures, long
- **Tier 1:** pencil, sticky notes, different

Differentiation

Scaffolding: Provide sticky notes and pencils for students to use to see the difference in leaving gaps and overlapping versus measuring accurately.

Extension: Marcie measured a book. She used two tools. She said, "My book is 3 sticky notes long. My book is 5 paper clips long." Explain why her measurements are different. (She used different units.)

Measure It Right

Sarah's measurement	Sam's measurement
	

Sarah measures a pencil. It is 4 sticky notes long.

Sam measures the same pencil. It is 3 sticky notes long.

Why did they get different lengths? Explain.

Extend your thinking!

Marcie measured a book. She used two tools. She said, "My book is 3 sticky notes long. My book is 5 paper clips long." Explain why her measurements are different.

Name: _____ Partner: _____

Measure It Right

Sarah's measurement	Sam's measurement
	

Sarah measures a pencil. It is 4 sticky notes long.

Sam measures the same pencil. It is 3 sticky notes long.

Why did they get different lengths? Explain.

Name: _____ Date: _____

Generalize Your Thinking

Reflect and Write

Write or Draw: We generalized our thinking by

_____

_____

_____

_____

_____

_____

_____

_____

Extend your thinking!

Marcie measured a book. She used two tools. She said, "My book is 3 sticky notes long. My book is 5 paper clips long." Explain why her measurements are different.