Learning Guide - ELA and Math

Third Grade
Section 1: Student Resource

- Vocabulary
- Student Choice Board
- Student Answer Sheets

This section contains a list of skills that the students will be working on while reading and completing the tasks. Targeted vocabulary words have been identified. There are links to videos to provide students with the necessary background knowledge. There is a Student Choice Board in which students will select to complete 3 out of the 9 activities. Student answer sheets are provided for students to show their work.

Section 2: Student Text: Deep Down and Other Extreme Places

- Text to use for Student Choice Board activities (access in google folder)

This section provides a copy of the text to use for Shared Reading while in school and Student Choice Board activities while in school or at home (see Section 1).

Section 3: Answer Key

- Sample student replies

This section contains possible student replies for each activity from the Choice Board. This can be used to check the student’s work.
Table of Contents Continued

Click on links below to access resources

Math

Topic Overview: Topic: Using Strategies and Properties to Add and Subtract

pages 29-50

• Student Sheets
• Answer Keys

Topic Overview: Fluently Add and Subtract Within 1000

pages 51-85

• Student Sheets
• Answer Keys

Topic Overview: Multiply by Multiples of 10

pages 86-108

• Student Sheets
• Answer Keys

Topic Overview: Using Operations with Whole Numbers (0-1000) to Solve Problems

pages 109-128

• Student Sheets
• Answer Keys

Topic Overview: Order of Operations

pages 129-136

• Student Sheets
• Answer Keys

Topic Overview: True Equations

pages 137-145

• Student Sheets
• Answer Keys
ENGLISH LANGUAGE ARTS
(ELA)
Topic: Deep Down and Other Extreme Places to Live

Access the text HERE.

What Your Student is Learning:

Your student will read the informational text, Deep Down and Other Extreme Places to Live. While working with this text, your student will practice the following skills:

- Finding the main idea and supporting details in the text
- Building their vocabulary
- Writing a summary of their reading

Background and Context for Parents and Guardians:

- In this unit, students read about communities to consider how communities are similar and different.
- They will be asked to think about how an author compares and contrasts information within a text.
- They will also learn to use context clues to build their vocabulary around this topic.

Ways to support your student:

- Review the vocabulary words listed below with your child. Practice using these words when talking about the text.

<table>
<thead>
<tr>
<th>similar</th>
<th>roaming</th>
<th>medicinal</th>
</tr>
</thead>
<tbody>
<tr>
<td>extreme</td>
<td>farthest</td>
<td>extreme</td>
</tr>
<tr>
<td>characters</td>
<td>species</td>
<td>apartments</td>
</tr>
<tr>
<td>canyon</td>
<td>occasions</td>
<td>evaporated</td>
</tr>
<tr>
<td>emerald</td>
<td>probably</td>
<td>provide</td>
</tr>
<tr>
<td>survive</td>
<td>imagine</td>
<td>herd</td>
</tr>
<tr>
<td>mine</td>
<td>normal</td>
<td>community</td>
</tr>
</tbody>
</table>

- Read the text aloud with your child.
- After reading, ask questions about the text. These questions could include:
  - What did you think the text was mostly about?
  - What do you think the author wanted you to know about the topic?
  - What similarities did you notice among the communities you read about?
  - What differences did you notice among the communities you read about? That is an interesting point. What made you think that?
  - How are the communities in the book similar to our community?
  - How are the communities in the book different from our community?
Online Resources for Students:

**Video:** 25 Most Extreme Places on Earth: [https://www.youtube.com/watch?v=9ztCQg9MH3I](https://www.youtube.com/watch?v=9ztCQg9MH3I)

**Power Library:** is the online portal to all that Pennsylvania libraries offer. This is the place to find 24/7 access to newspapers, magazines, journals, historical documents and photos, online databases, and eBooks. Research a subject. Learn about your family history. Locate a title. Explore career options. It's all here at POWER Library.

Link: [https://sites.google.com/philasd.org/sdppowerlibrary/home](https://sites.google.com/philasd.org/sdppowerlibrary/home)

**Building Background Knowledge:** This article explains and provides support on why background knowledge is key to student’s being able to read with comprehension.

Link: [https://www.readingrockets.org/article/building-background-knowledge](https://www.readingrockets.org/article/building-background-knowledge)

**NOTE:** There is a parent/guardian-friendly answer key at the end of this packet that you can use to help your student. Please note, these are sample answers. Your child might select different information to include in their answers.
Tic-Tac-Toe Choice Board 1: *Deep Down and Other Extreme Places to Live*

**Directions:** Read the book *Deep Down and Other Extreme Places to Live*. Choose 4 activities from the choice board below. You should complete at least one task from each row.

<table>
<thead>
<tr>
<th>Row</th>
<th>Activity 1</th>
<th>Activity 2</th>
<th>Activity 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Look at the pages of <em>Deep Down and Other Extreme Places to Live.</em> Pay attention to the pictures and the section headings. Write down: ● 3 things that stood out to you ● 3 questions you have about the book. ● A prediction about the book.</td>
<td>Look at the image on page 9 of <em>Deep Down and Other Extreme Places to Live.</em> List: ● 3 things you notice as you look at the image. ● 3 questions you have about the image. Choose any picture you want and do the same thing.</td>
<td>Read the glossary on page 26. 1. Find the sentence where the author uses each word. 2. Choose two of the words. 3. Write a sentence with each word you chose.</td>
</tr>
<tr>
<td>2</td>
<td>Read pages 6-11 of <em>Deep Down and Other Extreme Places to Live.</em> Complete a main idea and key details graphic organizer for the section.</td>
<td>Read pages 12-17 of <em>Deep Down and Other Extreme Places to Live.</em> Complete a main idea and key details graphic organizer for the section.</td>
<td>Read pages 18-23 of <em>Deep Down and Other Extreme Places to Live.</em> Complete a main idea and key details graphic organizer for the section.</td>
</tr>
<tr>
<td>3</td>
<td>Reread pages 6-11. Choose one picture that interests you. Write 2-3 sentences explaining why the author chose to include that image.</td>
<td>Use your main idea graphic organizer(s) to write a summary of the text.</td>
<td>On page 24, the author asks “What do you think might be extreme about your neighborhood?” Write a paragraph explaining what is extreme or interesting about your neighborhood.</td>
</tr>
</tbody>
</table>
Activity 1: Preview the Text
Look at the pages of *Deep Down and Other Extreme Places to Live*.

Pay attention to the pictures and the section headings.

<table>
<thead>
<tr>
<th>3 things that stood out to you as you looked through the book:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
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</tbody>
</table>

<table>
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<tr>
<th>3 questions you have about the book:</th>
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</thead>
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</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Your prediction about the book:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Activity 2: Preview the Text

Look at the image on page 9 of *Deep Down and Other Extreme Places to Live*.

<table>
<thead>
<tr>
<th>Write 3 things that you noticed while looking at the picture on page 9:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
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<tr>
<th>Write 3 things that you noticed while looking at the picture you chose:</th>
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<td>3.</td>
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</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>
**Activity 3: Preview the Text**
Read the glossary on page 26. Choose two words. Write a sentence with each word you chose.

<table>
<thead>
<tr>
<th>Word 1:</th>
<th>Sentence:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Word 2:</th>
<th>Sentence:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Activity 4: Engage with the Text

Read pages 6-11 of *Deep Down and Other Extreme Places to Live*.

Complete a main idea and key details graphic organizer for the section.
Activity 5: Engage with the Text

Read pages 12-17 of *Deep Down and Other Extreme Places to Live*.

Complete a main idea and key details graphic organizer for the section.
Activity 6: Engage with the Text

Read pages 18-23 of Deep Down and Other Extreme Places to Live.

Complete a main idea and key details graphic organizer for the section.
Activity 7: Illustration Analysis

Reread pages 6-11.

Choose one picture that interests you. Write down the page number of your image.

Write a paragraph (2-3 sentences) explaining why the author chose to include that image.
Activity 8: Summary Writing

Use your main idea graphic organizer(s) to write a summary of the text.

Remember, the summary should include the most important information from each part of the text.
Activity 9: Extended Writing

On page 24, the author asks “What do you think might be extreme about your neighborhood?”

Write a paragraph explaining what is extreme or interesting about your neighborhood.
Optional: Extend the Learning

Explore: We are learning that families and communities differ from place to place around the world. Choose a place of interest that you read about and think about how your community is alike and different. Use a Venn Diagram graphic organizer to compare and contrast communities. Write how they are different and alike. Share what you learned with someone at home.
.Task 1: Preview the Text

Look at the pages of *Deep Down and Other Extreme Places to Live*.

Pay attention to the pictures and the section headings.

<table>
<thead>
<tr>
<th>3 things that stood out to you as you looked through the book:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. There are lots of extreme places to live.</td>
</tr>
<tr>
<td>2. Many pictures show camels.</td>
</tr>
<tr>
<td>3. Food comes up a lot in the book.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3 questions you have about the book:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How do people live in these places?</td>
</tr>
<tr>
<td>2. Why are animals so important?</td>
</tr>
<tr>
<td>3. What is an Ari?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Your prediction about the book:</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think the book will tell me about living in certain places.</td>
</tr>
</tbody>
</table>
Task 2: Preview the Text
Look at the image on page 9 of *Deep Down and Other Extreme Places to Live.*

Write 3 things that you noticed while looking at the picture on page 9:

1. The land is flat.
2. It looks like they are growing things.
3. It seems like there are animals.

Write 3 questions you have about the picture on page 9:

1. Do people live here?
2. What are they growing?
3. Where is this?

Write 3 things that you noticed while looking at the picture you chose: (page 11)

1. There is a waterfall.
2. There are small waterfalls near the big waterfall.
3. There are trees and plants growing near the water.

Write 3 questions you have about the picture you chose:

1. Where is this?
2. Can you swim in this water?
3. Is the water cold or hot?
Task 3: Preview the Text
Read the glossary on page 26. Choose two words. Write a sentence with each word you chose.

<table>
<thead>
<tr>
<th>Word 1:</th>
<th>lava flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentence:</td>
<td>There was a big lava flow when the volcano erupted.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Word 2:</th>
<th>nomadic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentence:</td>
<td>I was nomadic when I moved to a new house.</td>
</tr>
</tbody>
</table>
Task 4: Engage with the Text

Read pages 6-11 of Deep Down and Other Extreme Places to Live.

Complete a main idea and key details graphic organizer for the section.

Main Idea

The Havasupai live at the bottom of the Grand Canyon.

Key Details

- It is hard to live here because it is not easy to get to the bottom of the Grand Canyon.
- The Havasupai used to farm crops and hunt deer.
- Now, the Havasupai live off of tourism.
Task 5: Engage with the Text

Read pages 12-17 of Deep Down and Other Extreme Places to Live.

Complete a main idea and key details graphic organizer for the section.

Main Idea

The Afar live in the Danakil Depression, the hottest place on earth.

Key Details

- The Afar are nomadic. They take their homes with them when they travel.
- The Afar people make money by collecting and selling salt.
- Everyone in the community helps to collect the salt.
Task 6: Engage with the Text

Read pages 18-23 of *Deep Down and Other Extreme Places to Live*.

Complete a main idea and key details graphic organizer for the section.

**Main Idea**

The Sami people live in the Arctic.

**Key Details**

- The Sami live the farthest north of all human beings.
- Reindeer are really important to the Sami. The reindeer provide meat, hides, and antlers.
- Gakti are traditional clothing worn by the Sami.
Task 7: Illustration Analysis

Reread pages 6-11.

Choose one picture that interests you.

Write a paragraph (2-3 sentences) explaining why the author chose to include that image.

Page 20

I picked the picture of the reindeer on page 20. The author chose this picture because it helps readers to understand how the boazovózzi work with the reindeer.
The book, Deep Down and Other Extreme Places to Live, is all about different places people can live. First, the Havasupai live at the bottom of the Grand Canyon. Next, the Afar people live in the Danakil Depression, the hottest place on earth. Last, the Sami people live in the Arctic, which is farthest north. All of these places are unusual places to live.
Task 9: Extended Writing

On page 24, the author asks "What do you think might be extreme about your neighborhood?"

Write a paragraph explaining what is extreme or interesting about your neighborhood.

My neighborhood is extreme because it has really tall buildings called skyscrapers. Most people don't live near buildings that are so tall. Also, my neighborhood is really old. There is a lot of history in my neighborhood. We have the Liberty Bell and other important buildings. These things make my neighborhood unique.
Optional: Extend the Learning

Explore: We are learning that families and communities differ from place to place around the world. Choose a place of interest that you read about and think about how your community is alike and different. Use a Venn Diagram graphic organizer to compare and contrast communities. Write how they are different and alike. Share what you learned with someone at home.
Math
Grade: 3  Subject: Math (from *enVision Mathematics, Common Core*, 2020, Grade 3)
Goes with Pages: 1-23

<table>
<thead>
<tr>
<th>Topic: Using Strategies and Properties to Add and Subtract</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What Your Student is Learning:</strong></td>
</tr>
<tr>
<td>1. Two numbers can be added in any order and the sum is the same. The sum of any number and 0 is that number.</td>
</tr>
<tr>
<td>2. We can make statements on how addition works from investigating patterns and reasoning about mathematical relationships.</td>
</tr>
<tr>
<td>3. There is more than one way to learn mental math (math in their head without). Techniques include changing the numbers or the expressions so that calculations are easy to do mentally.</td>
</tr>
<tr>
<td>4. Place Value can help you order whole numbers.</td>
</tr>
<tr>
<td>5. Rounding is a process for finding multiples of 10 and 100 that are closest to a given number.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Background and Context for Parents:</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Students aren't adding the way we learned with carrying, instead they are discovering and learning different strategies to add numbers based on place value, which keeps the actual value of the number in tact. The re-teaching pages in this section do a great job of showing the strategies you can encourage your student to use.</td>
</tr>
<tr>
<td>● When comparing numbers we are looking at place value, so which number has more thousands, hundreds, etc.</td>
</tr>
<tr>
<td>● Students are continuing to build their conceptual understanding of rounding and estimation. They are using place-value concepts to decide which ten/hundred is closer to the given number.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ways to support your student:</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Read the problem outloud to them.</td>
</tr>
<tr>
<td>● Remember, the topic is about strategies, so encourage them to use their strategies or the ones in the reteach pages instead of the way we learned how to do it (no lining up the numbers and carrying). This way students will have a better understanding of place value and create their own understanding allowing for them to be more flexible with the math.</td>
</tr>
<tr>
<td>● Before giving your student the answer to their question or specific help, ask them “What have you tried so far?, What do you know?, What might be a next step?</td>
</tr>
<tr>
<td>● After your student has solved it, and before you tell them it’s correct or not, have them explain to you how they got their solution and if they think their answer makes sense.</td>
</tr>
</tbody>
</table>

| Online Resources for Students:                              |
| Number Chart Patterns:                                      |
| ● [https://www.mathplayground.com/hundreds_chart_patterns.html](https://www.mathplayground.com/hundreds_chart_patterns.html)  |

Ordering and comparing games (make sure the student picks the right values)
- [https://www.sheppardsoftware.com/mathgames/placevalue/BPOrder1000.htm](https://www.sheppardsoftware.com/mathgames/placevalue/BPOrder1000.htm) (0-1,000)
- [https://www.topmarks.co.uk/ordering-and-sequencing/chinese-dragon-ordering](https://www.topmarks.co.uk/ordering-and-sequencing/chinese-dragon-ordering) (0-999)
- [abcya.com/games/comparing_number_values](https://www.abcya.com/games/comparing_number_values) (whole numbers)

Rounding Games:
- [https://www.education.com/game/football-rounding/](https://www.education.com/game/football-rounding/)
- [https://www.abcya.com/games/rounding_numbers](https://www.abcya.com/games/rounding_numbers)
Review What You Know

Vocabulary
Choose the best term from the box.
Write it on the blank.

1. The amount that is left after you subtract is the _____________.
2. A line that shows numbers in order from left to right is a(n) _____________.
3. The total when you add is the _____________.
4. Both sides of a(n) _____________. are equal.

Addition and Subtraction Strategies
Find the sum or difference. Show your work.

5. $32 + 58$
6. $27 + 46$
7. $73 - 52$

8. $63 + 16$
9. $88 - 28$
10. $76 - 49$

Numerical Expressions
11. Atif puts 45 rocks in a display box. He has 54 rocks in all.
Which expression can be used to find how many rocks are not in the display box?

A. $45 + 54$
B. $45 + 45$
C. $54 - 45$
D. $54 - 54$

Counting Money
12. Tony has the coins shown at the right. Does he have enough money to buy a toy car that costs 86¢? Explain.
Vocabulary

1. The **Commutative (Order) Property of Addition** states that you can add numbers in any order and the sum will be the same.

   \[ \begin{align*}
   \text{stars} + \text{stars} &= \text{stars} \\
   3 + 4 &= 7 \\
   \text{stars} + \text{stars} &= \text{stars}
   \end{align*} \]

2. The **Associative (Grouping) Property of Addition** states that you can group numbers in any way and the sum will be the same.

   \[ (4 + 2) + 1 = 4 + (\quad + \quad) \]

3. The **Identity (Zero) Property of Addition** states that the sum of any number and zero equals that same number.

   \[ \begin{align*}
   5 + \_ &= \_
   \end{align*} \]

4. Draw pictures to complete the model of the Commutative Property of Addition. Complete the equation.

   \[ \begin{align*}
   \text{stars} + \text{stars} &= \text{stars} \\
   5 + 3 &= 8 \\
   \_ + \_ &= \_
   \end{align*} \]
Read the problem. Answer the questions to help understand the problem.

**Make Sense and Persevere**  Gino packs his blue and green pencils into boxes. He puts 8 pencils in each box. How many boxes does Gino use?

<table>
<thead>
<tr>
<th>Color</th>
<th>Number of Pencils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>14</td>
</tr>
<tr>
<td>Blue</td>
<td>23</td>
</tr>
<tr>
<td>Green</td>
<td>17</td>
</tr>
</tbody>
</table>

**Preview:** Read the problem through once.
1. What is the problem about?

2. What question will be answered by solving the problem?

**Reread:** Read the problem again. Look at the table.
3. Which information do you need from the table?

4. What information is extra?

5. How many pencils does each box hold?

6. a. What operations do you need to find how many boxes can be filled?

   b. How will you use those operations to find how many boxes can be filled?
**Vocabulary**

1. The **Commutative (Order) Property of Addition** states that you can add numbers in any order and the sum will be the same.

   Write equations for the circled sum.
   
   \[ + 4 = 19 \]
   
   \[ + 15 = 19 \]

2. The **Identity (Zero) Property of Addition** states that the sum of any number and zero equals that same number.

   Write equations for the boxed sums.
   
   \[ \_ \_ \_ \_ + 10 = 10 \]
   
   \[ \_ \_ \_ \_ + 11 = 11 \]

3. The shaded sums show a pattern. Find the sums of the diagonal corner numbers.

   \[ 12 + 16 = \]
   
   \[ 14 + 14 = \]

4. Complete the number sentences to show how the **Associative Property of Addition** can be used to show why the pattern is true.

   \[ 12 + 16 = 12 + (\_ \_ \_ \_ + 14) \]

   \[ = (12 + \_ \_ \_ \_ ) + 14 \]

   \[ = + 14 \]

---

**On the Back!**

5. Describe a pattern in the table above. Explain why the pattern is true.
Read the problem. Answer the questions to help understand the problem.

**Look for Relationships** Greg drew a rectangle on the addition table at the right. He colored the corners. Find the sum of the dark gray corners. Find the sum of the light gray corners. What pattern do you notice?

1. What are you being asked to do?

2. What are the numbers in the light gray corners?

3. What are the numbers in the dark gray corners?

4. What is a sum?

5. Find the sum of each pair of opposite corners. What pattern do you see?
Name __________________________

**Vocabulary**
You can use place value to compare and order numbers. The **thousands** digit tells how many thousands.

1. How many thousands are in 4,678?
2. How many thousands are in 5,342?
   
   5,342 > 4,678 because 5 thousands is greater than 4 thousands.

3. Order the numbers from least to greatest. Use < or >.
   
   First, compare the thousands in all three numbers.
   
   1 thousand is _______ 2 thousands, so 1,464 is the least number.

   Then, compare the hundreds in 2,547 and 2,246.

   5 hundreds is _______ 2 hundreds, so 2,547 is the greatest number.

4. Order the numbers from least to greatest: 7,428  6,341  7,122

   Compare the thousands in all three numbers.

   6 thousands is _______ 7 thousands, so 6,341 is the least number.

   Compare the hundreds in 7,428 and 7,122.

   4 hundreds is _______ 1 hundred, so 7,428 is the greatest number.

**On the Back!**

5. Order the numbers from least to greatest: 23,456; 23,575; 22,156.
Name ______________________________

Answer the questions to help understand the problem.

In a race for mayor, Candidate A received 4,784 votes, Candidate B received 4,861 votes, and Candidate C received 2,978 votes. Write the number name for the greatest number of votes.

1. What do you know?

_______________________________________________________________________________

2. What are you asked to do?

_______________________________________________________________________________

3. Can the problem be solved in one step?

_______________________________________________________________________________

4. What do you need to do first?

_______________________________________________________________________________

5. What does it mean to write the number name?

_______________________________________________________________________________

6. Will you write the number name for one number or for all three numbers? How do you know?

_______________________________________________________________________________

_______________________________________________________________________________
Complete the Order

Use the numbers in the box to fill in the missing numbers. Use each number only once.

6,423  5,342  1,735  1,693  4,524  6,152

Order the numbers from least to greatest.

1. 5,872  5,948  __________  6,267  6,344
2. 3,945  __________  4,985  5,092  __________  5,399
3. 1,674  __________  1,724  __________  1,739  2,351

Order the numbers from greatest to least.

4. 3,872  __________  3,148  2,967  2,950  __________
5. 9,945  __________  8,985  8,792  __________  8,563
6. 4,674  4,524  __________  __________  3,735  3,651

First, figure out if the numbers are ordered from least to greatest or greatest to least. Then use the numbers in the box to fill in the missing numbers. Use each number only once.

7. 4,862  __________  __________  4,260  __________  3,359
8. 5,388  __________  __________  7,291  7,394
Name

Vocabulary

1. **Place value** is the value of the place a digit has in a number. Use the number 753. Write the digit in each place value.

   7 is in the hundreds place. It has a value of 700.
   
   is in the tens place. It has a value of 50.
   
   is in the ones place. It has a value of ________.

2. When you **round** a number, you find another number that is close to your number. Look at the digit to the right of the place you are rounding. If it is 5 or greater, add 1 to the rounding digit. If it is less than 5, leave the digit alone. Change digits to the right of the rounding place to 0.

   Round 549 to the nearest ten and hundred.
   
   is in the ones place. So, the tens digit rounds up to ________.
   
   549 rounded to the nearest ten is ________.
   
   is in the tens place. So, the hundreds digit stays the same.
   
   549 rounded to the nearest hundred is ________.

You can use a number line and what you know about place value to help round numbers.

3. Round 487 to the nearest ten.

   ![Number line](image)

   Between which two multiples of ten is 487 located? 480 and ________.
   
   Is 487 closer to 480 or to 490? ________ 487 rounds to ________.

4. Round 487 to the nearest hundred.

   ![Number line](image)

   Between which two multiples of one hundred is 487 located? ________ and ________.
   
   487 is closer to ________. 487 rounds to ________.

On the Back!

5. Draw number lines to round 445 to the nearest ten and to the nearest hundred.
Name _____________________________________________

Read the problem. Answer the questions to help understand the problem.

Name the least number of coins you can use to show $0.47. What are the coins?

1. Tell what you know about the term least.

2. What coins could possibly be used to make $0.47?

3. What are the values of each coin?

4. To start, should you use the coin with the greatest value or the least value? Explain.

5. a. After choosing the first coin, what operation should you use to see how much more money you need?

     b. How much money do you still need?

6. a. What is the least number of coins that you need to make $0.22?

     b. What are the coins?
Answer Keys
Review What You Know

Vocabulary
Choose the best term from the box. Write it on the blank.

1. The amount that is left after you subtract is the\textbf{ difference}.
2. A line that shows numbers in order from left to right is a(n)\textbf{ number line}.
3. The total when you add is the\textbf{ sum}.
4. Both sides of a(n)\textbf{ equation} are equal.

Addition and Subtraction Strategies
Find the sum or difference. Show your work.

5. $32 + 58 = \boxed{90}$
6. $27 + 46 = \boxed{73}$
7. $73 - 52 = \boxed{21}$

8. $63 + 16 = \boxed{79}$
9. $88 - 28 = \boxed{60}$
10. $76 - 49 = \boxed{27}$

Numerical Expressions
11. Atif puts 45 rocks in a display box. He has 54 rocks in all. Which expression can be used to find how many rocks are not in the display box?
   \begin{itemize}
   \item[A] $45 + 54$
   \item[B] $45 + 45$
   \item[C] $54 - 45$
   \item[D] $54 - 54$
   \end{itemize}

Counting Money
12. Tony has the coins shown at the right. Does he have enough money to buy a toy car that costs 86¢? Explain.
   Yes; Tony has 91¢, so he will have 5¢ left over.
Vocabulary

1. The **Commutative (Order) Property of Addition** states that you can add numbers in any order and the sum will be the same.
   \[
   \begin{align*}
   3 + 4 &= 7 \\
   4 + 3 &= 7
   \end{align*}
   \]

2. The **Associative (Grouping) Property of Addition** states that you can group numbers in any way and the sum will be the same.
   \[
   (4 + 2) + 1 = 4 + (2 + 1)
   \]

3. The **Identity (Zero) Property of Addition** states that the sum of any number and zero equals that same number.
   \[
   5 + 0 = 5
   \]

4. Draw pictures to complete the model of the Commutative Property of Addition. Complete the equation.
   \[
   \begin{align*}
   5 + 3 &= 8 \\
   3 + 5 &= 8
   \end{align*}
   \]
Read the problem. Answer the questions to help understand the problem.

Make Sense and Persevere  Gino packs his blue and green pencils into boxes. He puts 8 pencils in each box. How many boxes does Gino use?

<table>
<thead>
<tr>
<th>Color</th>
<th>Number of Pencils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>14</td>
</tr>
<tr>
<td>Blue</td>
<td>23</td>
</tr>
<tr>
<td>Green</td>
<td>17</td>
</tr>
</tbody>
</table>

Preview: Read the problem through once.
1. What is the problem about?
   **Boxes that are filled with pencils**

2. What question will be answered by solving the problem?
   **How many boxes can be filled with blue and green pencils, if each box holds 8 pencils?**

Reread: Read the problem again. Look at the table.
3. Which information do you need from the table?
   **There are 23 blue pencils and 17 green pencils.**

4. What information is extra?
   **There are 14 red pencils.**

5. How many pencils does each box hold?
   **8**

6. a. What operations do you need to find how many boxes can be filled?
   **Addition and division**

b. How will you use those operations to find how many boxes can be filled?
   **Add 23 + 17 and then find 40 ÷ 8.**
Vocabulary

1. The Commutative (Order) Property of Addition states that you can add numbers in any order and the sum will be the same.

Write equations for the circled sum.

\[
15 + 4 = 19 \\
4 + 15 = 19
\]

2. The Identity (Zero) Property of Addition states that the sum of any number and zero equals that same number.

Write equations for the boxed sums.

\[
0 + 10 = 10 \\
0 + 11 = 11
\]

3. The shaded sums show a pattern. Find the sums of the diagonal corner numbers.

\[
12 + 16 = 28 \\
14 + 14 = 28
\]

4. Complete the number sentences to show how the Associative Property of Addition can be used to show why the pattern is true.

\[
12 + 16 = 12 + (\_2\_ + 14) \\
= (12 + \_2\_) + 14 \\
= 14 + 14
\]

On the Back!

5. Describe a pattern in the table above. Explain why the pattern is true.

*Answers will vary. Check students’ work.*
Read the problem. Answer the questions to help understand the problem.

**Look for Relationships** Greg drew a rectangle on the addition table at the right. He colored the corners. Find the sum of the dark gray corners. Find the sum of the light gray corners. What pattern do you notice?

1. What are you being asked to do?
   **Find the sums of each pair of opposite corners.**

2. What are the numbers in the light gray corners?
   **61 and 67**

3. What are the numbers in the dark gray corners?
   **63 and 65**

4. What is a sum?
   **The result of addition**

5. Find the sum of each pair of opposite corners. What pattern do you see?
   **128; 128; Both sums are the same.**
**Vocabulary**

You can use place value to compare and order numbers.

The **thousands** digit tells how many thousands.

1. How many thousands are in 4,678?  \[\boxed{4}\]
2. How many thousands are in 5,342? \[\boxed{5}\]

5,342 > 4,678 because 5 thousands is greater than 4 thousands.

3. Order the numbers from least to greatest. Use < or >.

First, compare the thousands in all three numbers.

1 thousand is \(<\) 2 thousands, so 1,464 is the least number.

Then, compare the hundreds in 2,547 and 2,246.

5 hundreds is \(>\) 2 hundreds, so 2,547 is the greatest number.

4. Order the numbers from least to greatest: \(7,428\quad 6,341\quad 7,122\)

Compare the thousands in all three numbers.

6 thousands is \(<\) 7 thousands, so 6,341 is the least number.

Compare the hundreds in 7,428 and 7,122.

4 hundreds is \(>\) 1 hundred, so 7,428 is the greatest number.

**On the Back!**

5. Order the numbers from least to greatest: \(23,456;\ 23,575;\ 22,156\).

\[\boxed{22,156;\ 23,456;\ 23,575}\]
Answer the questions to help understand the problem.

In a race for mayor, Candidate A received 4,784 votes, Candidate B received 4,861 votes, and Candidate C received 2,978 votes. Write the number name for the greatest number of votes.

1. What do you know?
   **Sample answer: The number of votes for Candidates A, B, and C**

2. What are you asked to do?
   **Write the number name for the greatest number of votes**

3. Can the problem be solved in one step?
   **No**

4. What do you need to do first?
   **Find the candidate who got the greatest number of votes**

5. What does it mean to write the number name?
   **Write the number in words**

6. Will you write the number name for one number or for all three numbers? How do you know?
   **One number; Sample answer: Only one number represents the greatest number of votes.**
Complete the Order

Use the numbers in the box to fill in the missing numbers. Use each number only once.

| 6,423 | 5,342 | 1,735 | 1,693 | 4,524 | 6,152 |

Order the numbers from least to greatest.

1. 5,872  5,948  6,152  6,267  6,344  6,423
2. 3,945  4,524  4,985  5,092  5,342  5,399
3. 1,674  1,693  1,724  1,735  1,739  2,351

| 4,206 | 3,486 | 3,987 | 2,942 | 8,645 | 9,243 |

Order the numbers from greatest to least.

4. 3,872  3,148  2,967  2,950  2,942
5. 9,945  8,985  8,792  8,645  8,563
6. 4,674  4,524  4,206  3,987  3,735  3,651

| 3,467 | 6,095 | 4,756 | 9,583 | 4,757 | 6,134 |

First, figure out if the numbers are ordered from least to greatest or greatest to least. Then use the numbers in the box to fill in the missing numbers. Use each number only once.

7. 4,862  4,757  4,756  4,260  3,467  3,359
8. 5,388  6,095  6,134  7,291  7,394  9,583
Vocabulary

1. **Place value** is the value of the place a digit has in a number.
   Use the number 753. Write the digit in each place value:
   
   7 is in the hundreds place. It has a value of 700.
   5 is in the tens place. It has a value of 50.
   3 is in the ones place. It has a value of 3.

2. When you **round** a number, you find another number that is close to your number. Look at the digit to the right of the place you are rounding. If it is 5 or greater, add 1 to the rounding digit. If it is less than 5, leave the digit alone. Change digits to the right of the rounding place to 0.

   Round 549 to the nearest ten and hundred.
   9 is in the ones place. So, the tens digit rounds up to 5.
   549 rounded to the nearest ten is 550.
   4 is in the tens place. So, the hundreds digit stays the same.
   549 rounded to the nearest hundred is 500.

You can use a number line and what you know about place value to help round numbers.

3. Round 487 to the nearest ten.
   
   Between which two multiples of ten is 487 located? 480 and 490?
   Is 487 closer to 480 or to 490? 490
   487 rounds to 490.

4. Round 487 to the nearest hundred.
   
   Between which two multiples of one hundred is 487 located? 400 and 500.
   487 is closer to 500.
   487 rounds to 500.

On the Back!

5. Draw number lines to round 445 to the nearest ten and to the nearest hundred. 450; 400; Check students’ number lines.
Read the problem. Answer the questions to help understand the problem.

Name the least number of coins you can use to show $0.47. What are the coins?

1. Tell what you know about the term least.
   
   It means the smallest number.

2. What coins could possibly be used to make $0.47?
   
   Quarters, dimes, nickels, and pennies

3. What are the values of each coin?
   
   Quarter = $0.25, dime = $0.10, nickel = $0.05, penny = $0.01

4. To start, should you use the coin with the greatest value or the least value? Explain.
   
   Greatest value; Sample answer: I may be able to eliminate coins from use from that point on.

5. a. After choosing the first coin, what operation should you use to see how much more money you need?
   
   Subtraction

   b. How much money do you still need?

   $0.22

6. a. What is the least number of coins that you need to make $0.22?
   
   4

   b. What are the coins?

   2 dimes and 2 pennies
What Your Student is Learning:
1. The expanded algorithm (set of steps where place value is important) for adding (and subtracting) 3-digit numbers breaks the addition (or subtraction) into a series of easier problems based on place value. Answers to the simpler problems are then used to find the final sum (or difference).
2. The process for regrouping (we used to call it carrying) and adding 3-digit numbers is an extension of the process for regrouping and adding 2-digit numbers. The process for regrouping and subtracting 3-digit numbers is an extension of the process for regrouping and subtracting 2-digit numbers.
3. There are a variety of strategies that can be used to add or subtract 3-digit numbers.
4. Good math thinkers use math to explain why they are right and talk about the math that others do.

Background and Context for Parents:
- Fluently means that the students have efficient and accurate methods for solving. It doesn’t mean fast, so if your student has a way that makes sense, doesn’t involve unnecessary steps, and it get them the correct answer, that’s to be celebrated.
- Students aren’t adding/subtracting how we learned, instead they are discovering and learning different strategies to add numbers based on place value. See below:

Ways to support your student:
- Read the problem out loud to them.
- Remember, the topic is about strategies, so encourage them to use their strategies. This way students will have a better understanding of place value and create their own understanding allowing for them to be more flexible with the math.
- Before giving your student the answer to their question or specific help, ask them “What have you tried so far?”, What do you know?, What might be a next step?
- After your student has solved it, and before you tell them it’s correct or not, have them explain to you how they got their solution and if they think their answer makes sense.

Online Student Resources:
- [https://www.splashmath.com/addition-games-for-3rd-graders?topics=subtraction](https://www.splashmath.com/addition-games-for-3rd-graders?topics=subtraction) (below 1000)
- Subtraction: [https://www.mathplayground.com/brain_workouts/brain_workout_01_subtraction.html](https://www.mathplayground.com/brain_workouts/brain_workout_01_subtraction.html)
Review What You Know

Vocabulary
Choose the best term from the box. Write it on the blank.

1. ____________ are easy to add or subtract mentally.
   - Associative Property of Addition
   - Commutative Property of Addition
   - Compatible numbers
   - Inverse operations

2. According to the ____________, the grouping of addends can be changed, and the sum will remain the same.

3. Addition and subtraction are ____________.

Rounding
Round each number to the nearest ten.
4. 57
5. 241
6. 495

Round each number to the nearest hundred.
7. 732
8. 81
9. 553

Estimating Sums
Use compatible numbers to estimate each sum.
10. 27 + 12
11. 133 + 102
12. 504 + 345
13. 52 + 870
14. 293 + 278
15. 119 + 426

Estimating Differences
16. Tony and Kim play a video game. Tony scores 512 points. Kim scores 768 points. About how many more points does Kim score than Tony? Which estimation method did you use?

17. Which number sentence shows the most reasonable estimate for 467 - 231?
   - A 425 - 250 = 175
   - B 500 - 200 = 300
   - C 400 - 300 = 100
   - D 470 - 230 = 240
1. **Place value** is the value given to the place a digit has in a number.

Write 372 in the place-value chart.

The 3 is in the hundreds place. Its value is 300.
The 7 is in the _______ place. Its value is _______.
The 2 is in the _______ place. Its value is _______.

2. To find 353 \(+\) 234, you can use place value to break the problem into smaller problems. Find the sum of each place value.

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>353</td>
<td>234</td>
<td></td>
</tr>
<tr>
<td>= 500</td>
<td>+ 50</td>
<td>+ 7</td>
</tr>
<tr>
<td>500 (+) 80 (+) 7 =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>So, 353 (+) 234 =</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Find 271 \(+\) 425. Break the problem into smaller problems.

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>271</td>
<td>425</td>
<td></td>
</tr>
<tr>
<td>= 400</td>
<td>+ 20</td>
<td>+ 5</td>
</tr>
</tbody>
</table>

Add the sums.

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>(\rightarrow) 600</td>
<td>(\rightarrow) 90</td>
<td>(\rightarrow) + 6</td>
</tr>
</tbody>
</table>

So, 271 \(+\) 425 = ________

**On the Back!**

4. Find 156 \(+\) 461. Break the problem into smaller problems. Then, add the sums of each place value. Show your work.
Higher Order Thinking A school cafeteria sold 255 lunches on Monday, 140 lunches on Tuesday, and 226 lunches on Wednesday. Did the cafeteria sell more lunches on Monday and Tuesday or on Tuesday and Wednesday? Use place-value blocks or drawings to solve.

Preview: Read the problem through once.

1. What is the problem about?

2. What question will be answered by solving the problem?

Reread: Read the problem again.

3. Can the problem be solved in one step?

4. Are you being asked to compute a number?

5. Do you need to compute to solve the problem?

6. Explain how you can solve the problem.
Vocabulary
1. When you **regroup**, you name a whole number in a different way.

\[
\begin{array}{c}
\text{4 ones} + \underline{\_ \_ \_ \_} \text{ ones} = \underline{\_ \_ \_ \_} \text{ ones} \\
12 \text{ ones can be regrouped as} \underline{\_ \_} \text{ ten and} \underline{\_ \_} \text{ ones.}
\end{array}
\]

Find \(216 + 188\).

2. Find the partial sums.

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

\[
\begin{array}{c}
\text{So,} \ 216 + 188 = \underline{\_ \_ \_ \_}
\end{array}
\]

3. Regroup the ones.

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>14</td>
</tr>
</tbody>
</table>

4. Regroup the tens.

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>14</td>
</tr>
</tbody>
</table>

On the Back!

5. Find \(362 + 475\) using place value. Add the ones, tens, and hundreds. Regroup when needed.
Read the problem. Answer the questions to help understand the problem.

How many soup can labels did Grades 1 and 2 collect? Estimate by rounding to the nearest hundred. Then solve. Write an equation that represents the problem.

1. What is the problem about?

2. What information do you need?

3. What information do you NOT need?

4. What are you being asked to do?

5. How do you round to the nearest hundred?

6. To the nearest hundred, how many labels each did Grade 1 and Grade 2 collect?

7. a. What operation do you need to estimate how many labels were collected?

   b. What operation do you need to find exactly how many labels were collected?
Name __________________________

**Vocabulary**

1. A **sum** is the answer to an addition problem. **Addends** are the numbers you add to find the sum.

```
|   |   |   |
```

The addends in this bar diagram are ____, ____, and ____

2. Find $84 + 176 + 159$. Use partial sums.

```
  8 4
+ 1 7 6
+ 1 5 9
```

Add the hundreds.
Add the tens.
Add the ones.
Find the sum.

So, $84 + 176 + 159 = ____$

3. Find $407 + 189 + 220$. Use column addition.

```
|   |   |   |
```

Regroup the ones.
Regroup the tens.

So, $407 + 189 + 220 = ____$

**On the Back!**

4. Find $216 + 134 + 168$. Show two different ways to find the sum.
Read the problem. Answer the questions to help understand the problem.

Use the picture at the right to find the height of President Washington’s head carved in Mt. Rushmore. Write an equation to solve the problem.

1. What is the problem about?

2. What are you being asked to do?

3. Where can you find the information that you will need?

4. Tell what you know about the term equation.

5. What symbol does an equation always include?

6. What operation do you need to use to find the height of the head?
Name __________________________

Chairs for the Teachers

Math teachers from many schools held a meeting at the Hotel Grand. In preparation, the planning committee placed chairs in the rooms according to the floor plan.

Floor Plan for Hotel Grand

Grand Room

Purple Ballroom

576

Meeting Rooms

Blue Room

Red Room

Green Room

Yellow Room

357

141

200

225

1. Which room could hold 400 teachers from Clinton School, 120 students from Rogers School of Education, and 56 principals?

2. Which room was used for 127 third-grade teachers from Boone School, 22 student teachers, and 51 second-grade teachers from St. Paul School?

3. When all of the sixth-grade teachers met, 2 doors had to be opened between rooms so that 3 rooms could be connected. Which meeting room arrangement held the most teachers?

4. When all the meeting rooms were filled, only 3 rooms of people would fit into the chairs already in the Grand Room. Which 3 rooms of people fit?
1. The answer to a subtraction problem is called the **difference**.

   \[ \begin{array}{c}
   25 \\
   - 14 \\
   \hline
   \end{array} \]

   The bar diagram shows \( 25 - 14 = ? \)

   The difference is ________.

2. Find \( 548 - 154 \). Break apart the subtraction problem.

   Use place value to write 154 as \( 100 + \) ________

   **Step 1:** Start with 548.
   - Subtract the hundreds. \( 548 - 100 = \) ________
   - So far, 100 has been subtracted.

   **Step 2:** Next, start with 448.
   - Subtract the tens.
     - You need to subtract 5 tens, but there are not enough tens.
     - First, subtract 4 tens.
       - \( 408 - 40 = \) ________
       - Then, subtract the remaining 1 ten. \( 408 - 10 = \) ________
     - So far, \( 100 + 40 + 10 = \) ________ has been subtracted.

   **Step 3:** 4 ones are left to subtract.
   - Subtract the ones. \( 398 - 4 = \) ________
   - \( 100 + 40 + 10 + 4 = \) ________ has been subtracted.
   - So, \( 548 - 154 = \) ________

**On the Back!**

3. Find \( 678 - 387 \). Break apart the subtraction problem by place value.
   Write the steps you used.
Name

Read the problem. Answer the questions to help understand the problem.

**Higher Order Thinking** Which weighs more, two Basset Hounds or one Great Dane? Show the difference in pounds between two Basset Hounds and a Great Dane. Draw bar diagrams to represent and help solve the problem.

**Preview:** Read the problem through once.

1. What is the problem about?

2. What questions are you being asked to answer?

**Reread:** Read the problem again.

3. What operation can you use to find the weight of two Basset Hounds?

4. How can you show this operation by using a bar diagram?

5. What is the weight of two Basset Hounds?

6. Which has the greater weight, two Basset Hounds or one Great Dane?

7. How can you show the difference by using a bar diagram?
Name _____________________________

**Vocabulary**

1. Before solving a subtraction problem, you can **estimate** the difference by rounding numbers to the nearest ten or nearest hundred.

   To estimate 552 − 265, round each number to the nearest ten.

   552 rounds to ________,       265 rounds to ________.

   Subtract the rounded numbers. 550 − 270 = ________

2. Find 552 − 265.

   Subtract 5 ones.
   First subtract 2 ones.
   Regroup 1 ten as 10 ones.
   Subtract 3 ones.

   552 − 5 = ________

   Subtract 6 tens.
   First subtract 4 tens.
   Regroup 1 hundred as 10 tens.
   Subtract 2 tens.

   547 − 60 = ________

   Subtract 2 hundreds.

   487 − 200 = ________

3. Look at the estimate in Exercise 1. How does the difference compare to the estimate? Is the answer to Exercise 2 reasonable?

   ____________________________

**On the Back!**

4. Find 615 − 368. Estimate by rounding to the nearest ten.
   Then compare the difference to the estimate.

   ____________________________
Read the problem. Answer the questions to help understand the problem.

The world’s largest basket is 186 feet tall from the base to the top of the handles. What is the height of the handles?

1. What is the problem about?

2. What are you being asked to do?

3. What is the height of the basket?

4. Will the height of the handles be greater than or less than 186 feet?

5. How can you find the height of the handles?
Vocabulary
1. To **regroup** is to name a whole number in a different way.

Sometimes the number from which you are subtracting will have 1 zero.
Regroup 1 hundred as 10 tens to write 403 in a different way.

![Image](image-url)

4 hundreds and 3 ones can be regrouped as

- hundreds,
- tens, and
- ones.

2. Sometimes the number you are subtracting from will have 2 zeros.
Regroup 1 hundred as 9 tens and 10 ones to write 400 in a different way.

![Image](image-url)

4 hundreds can be regrouped as

- hundreds,
- tens, and
- ones.


Use addition.

\[ 215 + ? = 502 \]

Use subtraction.

\[ 502 - 215 = ? \]

- Subtract 200.
- Subtract 2.
- Subtract 10.
- Subtract 3.

On the Back!

4. Find 300 - 178. Then use estimation to see if your answer is reasonable.
Name __________________________

Read the problem. Answer the questions to help understand the problem.

**Higher Order Thinking** Dylan had $405 in his savings account and spent $253. Brian had $380 in his savings account and spent $48 less than Dylan. Now who has more money in his savings account? How much more?

**Survey**
1. What is the problem about?

**Question**
2. What questions are you being asked to answer?

**Reread**
3. Underline the sentences that have the numerical information you need to solve the problem.

**Question**
4. Can one step be used to find how much money Dylan has now? Explain.

5. Can one step be used to find how much money Brian has now? Explain.

**Compute**
6. How much money does Brian have left?

**Question**
7. Who has more money left?
Vocabulary

1. A conjecture is a statement that you think is true. It needs to be proved or disproved. You can use numbers, objects, drawings, or actions to construct an argument to justify a conjecture.

A market has oranges and bananas on sale. There are 316 pieces of fruit on sale. There are 135 oranges on sale.

Conjecture: There are more bananas on sale than oranges.
You can use a bar diagram and numbers to support a conjecture.

Round each number to the nearest hundred.

316 rounds to ________.
135 rounds to ________.

300 − 100 = ________.
200 > 100, so there are more ________ than ________.

2. There are 286 members at a health club. There are 157 male members. Are there more, fewer, or the same number of female members?

Conjecture: There are more male members than female members.

Complete the bar diagram and write an equation to support the conjecture.

Total members − male members = female members

286 members − 157 male members = ________ female members

 ________ male members > ________ female members, so the conjecture is ________.

On the Back!

3. Parker Library sold 350 books at a book sale. Adults bought 175 books. Children bought the rest. Did the children buy more, fewer, or the same number of books as the adults?

Conjecture: The children bought the same number of books as the adults.

Tell how you can justify the conjecture. Construct an argument to justify the conjecture.
Name

Read the problem. Answer the questions to help understand the problem.

Some musicians set goals for the number of minutes they want to practice before a concert, which is 5 days away. They want to know who has to practice the least number of minutes to reach his or her goal.

**Reasoning** Who has the least number of minutes left to practice to reach his or her goal?

1. What is the problem about?

2. What are you being asked to find?

3. Where can you find all of the information you need to answer the problem?

4. Do you need a number to give the final answer? Explain.

5. What operation do you need to find how many minutes each musician has left?

6. How can you find how many minutes Aria has left to reach her goal?
Answer Keys
Review What You Know

Vocabulary
Choose the best term from the box. Write it on the blank.

1. **Compatible numbers**
   are easy to add or subtract mentally.

2. According to the **Associative Property of Addition**, the grouping of addends can be changed, and the sum will remain the same.

3. Addition and subtraction are **inverse operations**.

Rounding
Round each number to the nearest ten.

4. 57  **60**
5. 241 **240**
6. 495 **500**

Round each number to the nearest hundred.

7. 732 **700**
8. 81 **100**
9. 553 **600**

Estimating Sums
Use compatible numbers to estimate each sum. **Sample estimates given.**

10. 27 + 12 **40**
11. 133 + 102 **230**

12. 504 + 345 **850**
13. 52 + 870 **925**

14. 293 + 278 **600**
15. 119 + 426 **550**

Estimating Differences
16. Tony and Kim play a video game. Tony scores 512 points. Kim scores 768 points. About how many more points does Kim score than Tony? Which estimation method did you use? **Sample answer:** About 250 points; I used compatible numbers: 750 – 500 = 250.

17. Which number sentence shows the most reasonable estimate for 467 – 231?
   - A. 425 – 250 = 175
   - B. 500 – 200 = 300
   - C. 400 – 300 = 100
   - D. 470 – 230 = 240
1. **Place value** is the value given to the place a digit has in a number.

   Write 372 in the place-value chart.

   The 3 is in the hundreds place. Its value is 300.
   The 7 is in the **tens** place. Its value is 70.
   The 2 is in the **ones** place. Its value is 2.

2. To find 353 + 234, you can use place value to break the problem into smaller problems.

   Find the sum of each place value.

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>353</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>234</td>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>500</td>
<td>80</td>
<td>7</td>
</tr>
</tbody>
</table>

   Now add the sums of each place value.

   \[500 + 80 + 7 = 587\]
   So, \[353 + 234 = 587\].


   \[
   \begin{array}{ccc}
   \text{Hundreds} & \text{Tens} & \text{Ones} \\
   200 & 70 & 1 \\
   +400 & +20 & +5 \\
   \hline
   600 & 90 & 6 \\
   \end{array}
   \]

   Add the sums.

   \[
   \begin{array}{ccc}
   \text{Hundreds} & \text{Tens} & \text{Ones} \\
   600 & 90 & 6 \\
   \end{array}
   \]

   So, \[271 + 425 = 696\].

**On the Back! 617; Check students’ work.**

4. Find 156 + 461. Break the problem into smaller problems. Then, add the sums of each place value. Show your work.
Read the problem. Answer the questions to help understand the problem.

**Higher Order Thinking** A school cafeteria sold 255 lunches on Monday, 140 lunches on Tuesday, and 226 lunches on Wednesday. Did the cafeteria sell more lunches on Monday and Tuesday or on Tuesday and Wednesday? Use place-value blocks or drawings to solve.

**Preview:** Read the problem through once.
1. What is the problem about?
   **Lunches sold from Monday through Wednesday**

2. What question will be answered by solving the problem?
   **Were more lunches sold on Monday and Tuesday or on Tuesday and Wednesday?**

**Reread:** Read the problem again.
3. Can the problem be solved in one step?
   **Yes**

4. Are you being asked to compute a number?
   **No**

5. Do you need to compute to solve the problem?
   **No**

6. Explain how you can solve the problem.
   **Sample answer: Tuesday is in both two-day pairs, so I only need to compare Monday’s sales with Wednesday’s sales.**
1. When you **regroup**, you name a whole number in a different way.

4 ones + 8 ones = 12 ones
12 ones can be regrouped as 1 ten and 2 ones.

Find $216 + 188$.

2. Find the partial sums.

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>6</td>
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<tr>
<td>1</td>
<td>8</td>
<td>8</td>
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</table>

$$+$$

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</thead>
<tbody>
<tr>
<td>3</td>
<td>9</td>
<td>14</td>
</tr>
</tbody>
</table>

3. Regroup the ones.

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>6</td>
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<tbody>
<tr>
<td>3</td>
<td>10</td>
<td>4</td>
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</table>

4. Regroup the tens.

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
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</thead>
<tbody>
<tr>
<td>2</td>
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<td>6</td>
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$$+$$

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<tr>
<td>3</td>
<td>10</td>
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</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>4</td>
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</table>

So, $216 + 188 = 404$

On the Back!

5. Find $362 + 475$ using place value. Add the ones, tens, and hundreds. Regroup when needed.

837; Check students’ work.
Read the problem. Answer the questions to help understand the problem.

How many soup can labels did Grades 1 and 2 collect? Estimate by rounding to the nearest hundred. Then solve. Write an equation that represents the problem.

1. What is the problem about?
   The number of soup can labels collected

2. What information do you need?
   Grade 1 collected 385 labels; and
   Grade 2 collected 294.

3. What information do you NOT need?
   The number of labels Grades 3 and 4 collected

4. What are you being asked to do?
   Give an estimated sum by rounding to the nearest hundred; Give an exact answer by writing an equation.

5. How do you round to the nearest hundred?
   If the digit in the tens place is 5 or greater, add 1 to the hundreds place. If the digit is less than 5, leave the hundreds place as is. Replace the tens and ones places with zeros.

6. To the nearest hundred, how many labels each did Grade 1 and Grade 2 collect?
   Grade 1 collected about 400; Grade 2 collected about 300.

7. a. What operation do you need to estimate how many labels were collected?
   Addition

   b. What operation do you need to find exactly how many labels were collected?
   Addition
Vocabulary

1. A sum is the answer to an addition problem. Addends are the numbers you add to find the sum.

<table>
<thead>
<tr>
<th></th>
<th>84</th>
<th>176</th>
<th>159</th>
</tr>
</thead>
</table>

The addends in this bar diagram are 84, 176, and 159.

2. Find 84 + 176 + 159. Use partial sums.

```
  8 4
 +1 5 9
```

   2 0 0  Add the hundreds.
   2 0 0  Add the tens.
   + 1 9  Add the ones.
   4 1 9  Find the sum.

So, 84 + 176 + 159 = 419.

3. Find 407 + 189 + 220. Use column addition.

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>4</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

   7 10 16  Regroup the ones.
   7 11  6  Regroup the tens.
   8 1 6

So, 407 + 189 + 220 = 816

On the Back!

4. Find 216 + 134 + 168. Show two different ways to find the sum.

518: Check students’ work.
Name ________________________

Read the problem. Answer the questions to help understand the problem.

Use the picture at the right to find the height of President Washington’s head carved in Mt. Rushmore. Write an equation to solve the problem.

1. What is the problem about?
   **The height of President Washington’s head carved in Mt. Rushmore**

2. What are you being asked to do?
   **Find the height of the head by writing an equation.**

3. Where can you find the information that you will need?
   **All of the information is next to the picture.**

4. Tell what you know about the term *equation.*
   **An equation states that two quantities have the same value.**

5. What symbol does an equation always include?
   **=**

6. What operation do you need to use to find the height of the head?
   **Addition**
Chairs for the Teachers

Math teachers from many schools held a meeting at the Hotel Grand. In preparation, the planning committee placed chairs in the rooms according to the floor plan.

Floor Plan for Hotel Grand

Grand Room

Purple Ballroom

576

Meeting Rooms

357

141

200

225

Blue Room

Red Room

Green Room

Yellow Room

1. Which room could hold 400 teachers from Clinton School, 120 students from Rogers School of Education, and 56 principals?

**Grand Room**

2. Which room was used for 127 third-grade teachers from Boone School, 22 student teachers, and 51 second-grade teachers from St. Paul School?

**Green Room**

3. When all of the sixth-grade teachers met, 2 doors had to be opened between rooms so that 3 rooms could be connected. Which meeting room arrangement held the most teachers?

**Blue, Red, and Green Rooms**

4. When all the meeting rooms were filled, only 3 rooms of people would fit into the chairs already in the Grand Room. Which 3 rooms of people fit?

**Red, Green, and Yellow Rooms**
Name ________________________

Vocabulary
1. The answer to a subtraction problem is called the **difference**.

\[
\begin{array}{c|c|c}
\hline
25 & 14 & ? \\
\hline
\end{array}
\]

The bar diagram shows \(25 - 14 = ?\)
The difference is **11**

2. Find \(548 - 154\). Break apart the subtraction problem.

Use place value to write 154 as \(100 + \underline{50} + 4\).

**Step 1:** Start with 548.
- Subtract the hundreds.
  \(548 - 100 = 448\)
- So far, 100 has been subtracted.

**Step 2:** Next, start with 448.
- Subtract the tens.
  \(448 - 40 = 408\)
  - You need to subtract 5 tens, but there are not enough tens.
  - First, subtract 4 tens.
  \(408 - 10 = 398\)
  - Then, subtract the remaining 1 ten.
  - So far, 100 + 40 + 10 = **150** has been subtracted.

**Step 3:** 4 ones are left to subtract.
- Subtract the ones.
  \(398 - 4 = 394\)
- \(100 + 40 + 10 + 4 = 154\) has been subtracted.
- So, \(548 - 154 = 394\).

On the Back!

3. Find \(678 - 387\). Break apart the subtraction problem by place value.

Write the steps you used.

**291:** Check students' work.
Read the problem. Answer the questions to help understand the problem.

**Higher Order Thinking** Which weighs more, two Basset Hounds or one Great Dane? Show the difference in pounds between two Basset Hounds and a Great Dane. Draw bar diagrams to represent and help solve the problem.

**Great Dane:** 145 pounds

**Basset Hound:** 66 pounds

**Preview:** Read the problem through once.

1. What is the problem about?
   **The weights of dogs**

2. What questions are you being asked to answer?
   **Which weighs more and by how many more pounds?**

**Reread:** Read the problem again.

3. What operation can you use to find the weight of two Basset Hounds?
   **Addition**

4. How can you show this operation by using a bar diagram?
   **Draw two identical bars. The sum will be above the bars.**

5. What is the weight of two Basset Hounds?
   **132 pounds**

6. Which has the greater weight, two Basset Hounds or one Great Dane?
   **One Great Dane**

7. How can you show the difference by using a bar diagram?
   **Draw one bar for the weight of the two Basset Hounds and another bar for the unknown extra weight. The weight of the Great Dane is above the bars.**
Vocabulary

1. Before solving a subtraction problem, you can estimate the difference by rounding numbers to the nearest ten or nearest hundred.

   To estimate 552 – 265, round each number to the nearest ten.
   552 rounds to 550.
   265 rounds to 270.

   Subtract the rounded numbers.
   550 – 270 = 280

2. Find 552 – 265.

   Subtract 5 ones.
   First subtract 2 ones.
   Regroup 1 ten as 10 ones.
   Subtract 3 ones.

   552 – 5 = 547

   Subtract 6 tens.
   First subtract 4 tens.
   Regroup 1 hundred as 10 tens. Subtract 2 tens.

   547 – 60 = 487

   Subtract 2 hundreds.

   487 – 200 = 287

3. Look at the estimate in Exercise 1. How does the difference compare to the estimate? Is the answer to Exercise 2 reasonable?

   287 is close to the estimate of 280, so the answer is reasonable.

On the Back!

4. Find 615 – 368. Estimate by rounding to the nearest ten.
   Then compare the difference to the estimate.
   Estimate: 250; Actual: 247; Check students’ work.
Read the problem. Answer the questions to help understand the problem.

The world’s largest basket is 186 feet tall from the base to the top of the handles. What is the height of the handles?

1. What is the problem about?  
   The height of the handles on a basket

2. What are you being asked to do?  
   Find the height of the handles.

3. What is the height of the basket?  
   186 feet

4. Will the height of the handles be greater than or less than 186 feet?  
   Less than

5. How can you find the height of the handles?  
   Subtract the height of the basket to the bottom of the handles from the height of the basket to the top of the handles.
1. To **regroup** is to name a whole number in a different way.

Sometimes the number from which you are subtracting will have 1 zero. Regroup 1 hundred as 10 tens to write 403 in a different way.

4 hundreds and 3 ones can be regrouped as 3 hundreds, 10 tens, and 3 ones.

2. Sometimes the number you are subtracting from will have 2 zeros. Regroup 1 hundred as 9 tens and 10 ones to write 400 in a different way.

4 hundreds can be regrouped as 3 hundreds, 9 tens, and 10 ones.


Use addition.

$215 + ? = 502$

Use subtraction.

$502 - 215 = ?$

\[
\begin{array}{c}
0 \\
-2 \\
0 \\
-3 \\
0 \\
-2 \\
0 \\
-3 \\
0 \\
0 \\
\end{array}
\]

Subtract 200.

Subtract 2.

Subtract 10.

Subtract 3.

$502 - 215 = 287$

On the Back! 122; Check students' work.

4. Find $300 - 178$. Then use estimation to see if your answer is reasonable.
Read the problem. Answer the questions to help understand the problem.

**Higher Order Thinking** Dylan had $405 in his savings account and spent $253. Brian had $380 in his savings account and spent $48 less than Dylan. Now who has more money in his savings account? How much more?

**Survey**

1. What is the problem about?
   
   **The amount of money that two boys have**

**Question**

2. What questions are you being asked to answer?

   **Who has more money? How much more money?**

**Reread**

3. Underline the sentences that have the numerical information you need to solve the problem. **Check students’ work.**

**Question**

4. Can one step be used to find how much money Dylan has now? Explain.

   **Yes; I can subtract $405 - $253 = $152.**

5. Can one step be used to find how much money Brian has now? Explain.

   **No; I have to find how much Brian spent and then find how much he has left.**

**Compute**

6. How much money does Brian have left?

   **$175**

**Question**

7. Who has more money left?

   **Brian**
Vocabulary

1. A **conjecture** is a statement that you think is true. It needs to be proved or disproved. You can use numbers, objects, drawings, or actions to construct an argument to justify a conjecture.

A market has oranges and bananas on sale. There are 316 pieces of fruit on sale. There are 135 oranges on sale.

**Conjecture:** There are more bananas on sale than oranges.
You can use a bar diagram and numbers to support a conjecture.

Round each number to the nearest hundred.

<table>
<thead>
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<th>316 pieces of fruit</th>
</tr>
</thead>
<tbody>
<tr>
<td>316 rounds to 300</td>
</tr>
<tr>
<td>135 rounds to 100</td>
</tr>
<tr>
<td>300 - 100 = 200</td>
</tr>
</tbody>
</table>

200 > 100, so there are more **bananas** than **oranges**.

2. There are 286 members at a health club. There are 157 male members. Are there more, fewer, or the same number of female members?

**Conjecture:** There are more male members than female members.

Complete the bar diagram and write an equation to support the conjecture.

Total members — male members = female members

286 members — 157 male members = 129 female members

<table>
<thead>
<tr>
<th>286 members</th>
</tr>
</thead>
<tbody>
<tr>
<td>157</td>
</tr>
<tr>
<td>?</td>
</tr>
</tbody>
</table>

Number of male members | Number of female members

157 male members > 129 female members, so the conjecture is **true**.

On the Back!

3. Parker Library sold 350 books at a book sale. Adults bought 175 books. Children bought the rest. Did the children buy more, fewer, or the same number of books as the adults?

**Conjecture:** The children bought the same number of books as the adults.

Tell how you can justify the conjecture. Construct an argument to justify the conjecture. **Check students’ work.**
Read the problem. Answer the questions to help understand the problem.

Some musicians set goals for the number of minutes they want to practice before a concert, which is 5 days away. They want to know who has to practice the least number of minutes to reach his or her goal.

Reasoning  Who has the least number of minutes left to practice to reach his or her goal?

1. What is the problem about?
   **Finding who has the least number of minutes to reach a goal**

2. What are you being asked to find?
   **Who has the least number of minutes remaining to reach her or his goal?**

3. Where can you find all of the information you need to answer the problem?
   **In the table**

4. Do you need a number to give the final answer? Explain.
   **No; I only need to find who has the least number of minutes remaining.**

5. What operation do you need to find how many minutes each musician has left?
   **Sample answer: Subtraction**

6. How can you find how many minutes Aria has left to reach her goal?
   **Sample answer: Subtract 700 − 608.**
**Topic:** Multiply by Multiples of 10

**What Your Student is Learning:**
1. Patterns can be used to find products (answers to a multiplication problem) when one factor (one of the numbers being multiplied) is a multiple of 10.
2. Different strategies can be used to find products when one factor is a multiple of 10.
3. Basic multiplication facts and properties (breaking apart the numbers and changing the order they are being multiplied) can be used to find products when one factor is a multiple of 10.
4. Good math thinking look for relationships (how things are similar) in math to help solve problems.

**Background and Context for Parents:**
- When multiplying by 10 or multiplying by a multiple of ten, the place values of the numbers are shifting. We aren’t simply multiplying by the front number and then adding zeros to the number as that creates misunderstanding around place value and mathematically doesn’t make sense (when we add zero, we get the same number).
- It is helpful to think about $5 \times 30 = 5 \times 3 \text{ tens} = 15 \text{ tens} = 150$; $36 \times 10 = 36 \times 1 \text{ ten} = 36 \text{ tens} = 360$
- As multiplication can be computed in any order: $6 \times 3 \times 10 = 3 \times 6 \times 10$

**Ways to support your student:**
- Read the problem out loud to them.
- Skip count out loud with them by 10, 20, 30, 40, etc.
- Encourage your student to find patterns: $4 \times 2 = 8$, $4 \times 20 = 80$ (the 8 shifts to the tens place)
- Use straws/pencils/pens to represent stick of 10 and they can use that to help solve the problem.
- You may notice your student may need support with their multiplication and division as they are solving these. Encourage them to use a strategy (draw a picture, skip counting, facts they know that are close) to figure it out as they are more likely to remember their facts if they work through figuring out the answer many times. Here are great, free, printable resources if your student needs more support:
- Before giving your student the answer to their question or specific help, ask them “What have you tried so far?, What do you know?, What might be a next step?”
- After your student has solved it, and before you tell them it’s correct or not, have them explain to you how they got their solution and if they think their answer makes sense.

**Online Resources for Students:**
Review What You Know

Vocabulary
Choose the best term from the box. Write it on the blank.

1. A number sentence where the value on the left and right of the equal sign (=) is the same is called a(n) _________________.

2. The ____________________ states that any number multiplied by zero has a product of zero.

3. ________________ is an operation that gives the total number that results when you join equal groups.

Multiplication Table
Find the value that makes the equations true. Use the multiplication table to help.

4. \(21 \div 7 = \___\)  
   \(7 \times \___ = 21\)

5. \(45 \div 5 = \___\)  
   \(5 \times \___ = 45\)

6. \(48 \div 6 = \___\)  
   \(6 \times \___ = 48\)

7. \(56 \div 8 = \___\)  
   \(8 \times \___ = 56\)

Multiplication Properties
Find each product.

8. \(3 \times 3 \times 2 = \___\)

9. \(5 \times 1 \times 3 = \___\)

10. \(4 \times 2 \times 4 = \___\)

11. \(2 \times 2 \times 4 = \___\)

12. \(4 \times 0 \times 2 = \___\)

13. \(2 \times 5 \times 3 = \___\)

Multiplication on the Number Line
14. Which equation does the number line show?

- A. \(1 \times 10 = 10\)
- B. \(3 \times 10 \times 1 = 30\)
- C. \(4 \times 5 = 20\)
- D. \(5 \times 10 = 50\)
Vocabulary

1. You can use an open number line to multiply by multiples of 10.

   How many jumps are on the number line?
   
   jumps
   
   How long is each jump? _____
   
   Use the number line to find $4 \times 30$.
   
   $4 \times 30 =$

2. Complete the products in the table. Use an open number line to help.

   ![Number line diagram]

<table>
<thead>
<tr>
<th>Factor</th>
<th>Multiple of 10</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>20</td>
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<tr>
<td>5</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

3. Use an open number line to find $4 \times 50$.
   Show 4 jumps of 50 on the number line.

   ![Number line diagram]

   4 jumps of 50 are _____.
   
   $4 \times 50 =$

On the Back!

4. Draw and label an open number line to find the product of $6 \times 30$. 
Read the problem. Answer the questions to help understand the problem.

A package of crepe paper streamers has 2 rolls. Yen bought 3 packages. How many inches of crepe paper did Yen get?

Preview: Read the problem through once.
1. What is the problem about?

2. What question will be answered by solving the problem?

Reread: Read the problem again.
3. How many rolls of crepe paper streamers are in a package?

4. How many packages did Yen buy?

5. a. What operation can you use to find the total number of rolls of crepe paper streamers that Yen bought?

b. How many rolls of crepe paper streamers did Yen buy in all?

6. a. How many inches of crepe paper streamers are in 1 roll?

b. What operation can you use to find the number of inches of crepe paper streamers that Yen bought?
Name

Story Lines

For 1 and 2, write in the missing numbers, and then write and solve a multiplication equation for each story line.

1. Seanix caught 10 fish every hour for 4 hours on a fishing trip. How many fish did he catch in all?

![Number line with 10 fish for each hour for 4 hours]

Multiplication equation:

2. April baked 7 batches of cookies. There are 20 cookies in each batch. How many cookies did she bake in all?

![Number line with 20 cookies for each batch for 7 batches]

Multiplication equation:

For 3, complete the number line to show 6 jumps of 50. Write and solve a multiplication equation. Then write your own story to go with this number line.

3. Multiplication equation:

![Number line with 50 jumps for 6 jumps]
Vocabulary

1. A **multiple** is the product of a given whole number and any nonzero whole number.

   Complete the equations to find the multiples of 10.

   
   \[ 10 \times 1 = 10 \]
   
   \[ 10 \times 2 = \quad \]
   
   \[ 10 \times 3 = \quad \]
   
   \[ 10 \times 4 = \quad \]
   
   \[ 10 \times 5 = \quad \]

   Some multiples of 10 are 10, 20, _______.

2. Find \(6 \times 30\).

   \[ 6 \times 30 = 6 \times \quad \text{tens} \]
   
   \[ 6 \times 30 = \quad \text{tens} \]
   
   \[ 6 \times 30 = \quad \]

3. Find \(7 \times 50\).

   \[ 7 \times 50 = 7 \times \quad \text{tens} \]
   
   \[ 7 \times 50 = \quad \text{tens} \]
   
   \[ 7 \times 50 = \quad \]

4. Use mental math to find each product.

   \[ 9 \times 40 = \quad \]

   \[ 60 \times 5 = \quad \]

   \[ 2 \times 80 = \quad \]
   
   \[ 9 \times 4 = \quad \]

   \[ 6 \times 5 = \quad \]

   \[ 2 \times 8 = \quad \]
   
   \[ 9 \times 40 = \quad \]

   \[ 60 \times 5 = \quad \]

   \[ 2 \times 80 = \quad \]

On the Back!

5. Find \(7 \times 90\). Show all the steps in your work.
Read the problem. Answer the questions to help understand the problem.

Higher Order Thinking Ali and his family are going to the amusement park. If there are 2 adults and 5 children, how much will the tickets cost?

1. Can the problem be solved in one step?

2. What question will you answer in the final step?

3. Before you can solve the final step, what must you find?

4. What is the first piece of mathematical information given in the problem?

5. a. What operation could you use to find the total cost of the adult tickets?

   b. What is the total cost of the adult tickets?

6. What is the next piece of mathematical information given in the problem?

7. a. What operation could you use to find the total cost of the child tickets?

   b. What is the total cost of the child tickets?

8. To find the total cost of the tickets, do you add or multiply?
Vocabulary

1. You can use the **Associative Property of Multiplication** to group factors. The way factors are grouped does not change the product.

Find the product of $3 \times 2 \times 5$ in two different ways.

$$3 \times 2 \times 5 = (3 \times 2) \times 5 \quad 3 \times 2 \times 5 = 3 \times (2 \times 5)$$

$$= _____ \times 5 \quad = 3 \times _____$$

$$= _____ \quad = _____$$

2. You can use the **Distributive Property** to decompose a factor. A multiplication fact can be broken apart into the sum of two other multiplication facts.

Find $7 \times 5$.

$$7 \times 5 = (3 + 4) \times 5$$

$$= (3 \times 5) + (4 \times 5)$$

$$= _____ + _____$$

$$= _____$$

3. Find $7 \times 60$.
Use the Associative Property of Multiplication to group factors.

$$7 \times 60 = 7 \times (6 \times _____)$$

$$= (7 \times _____) \times 10$$

$$= _____ \times 10$$

$$= _____$$

4. Find $4 \times 80$.
Decompose a factor.
Write 4 as $2 + 2$.

$$4 \times 80 = (2 + _____) \times 80$$

$$= (2 \times _____) + (2 \times _____)$$

$$= _____ + _____$$

$$= _____$$

On the Back!

4. Find $5 \times 90$ using properties of multiplication.
Show your work.
How many pounds of newspaper did Grade 3 and Grade 4 collect together? Explain your plan for solving.

What do I KNOW?
1. Each rectangle stands for 30 pounds. True False
2. I know the number of pounds that each grade collected. True False

What information do I NOT need?
3. The information for Grade 2 is NOT needed. True False
4. The number of pounds that each rectangle stands for is NOT needed. True False

WHAT does this problem ask me to do?
5. The problem asks for an equation to represent each grade’s collection. True False
6. Find the total weight collected by Grades 3 and 4. True False
7. I have to explain how I solved the problem. True False

What STRATEGY can I use?
8. I can multiply to find the weight of newspapers that Grade 3 collected. True False
9. I can multiply to find the weight of newspapers that Grade 4 collected. True False
10. I can multiply the amount that Grade 3 collected by the amount that Grade 4 collected to find the total. True False
Vocabulary

1. **Factors** are numbers that are multiplied together to give a **product**.

   The multiplication table shows that $5 \times 30 = 150$.

<table>
<thead>
<tr>
<th>×</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>40</td>
<td>80</td>
<td>120</td>
<td>160</td>
<td>200</td>
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<tr>
<td>5</td>
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<td>100</td>
<td>150</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>6</td>
<td>60</td>
<td>120</td>
<td>180</td>
<td>240</td>
<td>300</td>
</tr>
</tbody>
</table>

   The factors are _____ and _____. The product is _____.

2. Complete the equations. One factor is always a multiple of ten.

   Then complete the table.

   $7 \times 30 = _____$  
   $8 \times 30 = _____$  
   $8 \times 20 = _____$  
   $9 \times 10 = _____$

<table>
<thead>
<tr>
<th>×</th>
<th>10</th>
<th>20</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>70</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>180</td>
<td>270</td>
<td></td>
</tr>
</tbody>
</table>

3. Complete the table. Think about patterns or properties you know for multiplying by multiples of 10.

<table>
<thead>
<tr>
<th>×</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
</tr>
</thead>
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<tr>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td>3</td>
<td>30</td>
<td></td>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   As you move down the columns, the numbers __________ by the value of the column.

On the Back!

4. Carla wants to make either 5 or 6 batches of cookies. She is choosing whether to use 40, 50, or 60 chocolate chips for each batch. Complete a table to show the total number of chocolate chips Carla will need for each choice.
Name

Read the problem. Answer the questions to help understand the problem.

Four students each took music lessons for different instruments this month. They want to know who spent the most money on music lessons.

**Use Structure** How can you find the total amount for each student? Think about properties or patterns you know.

<table>
<thead>
<tr>
<th>Student</th>
<th>June</th>
<th>Li</th>
<th>Mick</th>
<th>Rita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price Paid per Lesson (dollars)</td>
<td>60</td>
<td>20</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>Length of Lesson (minutes)</td>
<td>60</td>
<td>60</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>Number of Lessons</td>
<td>4</td>
<td>8</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Total Cost (dollars)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. What is the problem about?

2. Are you being asked to compute an answer? Explain.

Reread the problem. Look at the table.

3. What information in the table do you need for each student?

4. What information in the table do you NOT need?

5. What operation do you need to find the total that each student spent?
Answer Keys
**Vocabulary**

Choose the best term from the box. Write it on the blank.

1. A number sentence where the value on the left and right of the equal sign (=) is the same is called a(n) **equation**.

2. The **Zero Property of Multiplication** states that any number multiplied by zero has a product of zero.

3. **Multiplication** is an operation that gives the total number that results when you join equal groups.

**Multiplication Table**

Find the value that makes the equations true. Use the multiplication table to help.

4. \[21 ÷ 7 = 3\] \[7 × 3 = 21\]
5. \[45 ÷ 5 = 9\] \[5 × 9 = 45\]
6. \[48 ÷ 6 = 8\] \[6 × 8 = 48\]
7. \[56 ÷ 8 = 7\] \[8 × 7 = 56\]

**Multiplication Properties**

Find each product.

8. \[3 × 3 × 2 = 18\]
9. \[5 × 1 × 3 = 15\]
10. \[4 × 2 × 4 = 32\]
11. \[2 × 2 × 4 = 16\]
12. \[4 × 0 × 2 = 0\]
13. \[2 × 5 × 3 = 30\]

**Multiplication on the Number Line**

14. Which equation does the number line show?

\[A\ 1 × 10 = 10\] \[B\ 3 × 10 × 1 = 30\] \[C\ 4 × 5 = 20\] \[D\ 5 × 10 = 50\]
Vocabulary

1. You can use an **open number line** to multiply by multiples of 10.

   How many jumps are on the number line?
   
   4 jumps

   How long is each jump? 30

   Use the number line to find $4 \times 30$.
   
   $4 \times 30 = 120$

2. Complete the products in the table. Use an open number line to help.

<table>
<thead>
<tr>
<th>Factor</th>
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<th>Product</th>
</tr>
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<tbody>
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<tr>
<td>4</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

3. Use an open number line to find $4 \times 50$.
   Show 4 jumps of 50 on the number line.

   4 jumps of 50 are 200.

   $4 \times 50 = 200$

On the Back!

4. Draw and label an open number line to find the product of $6 \times 30$.

   180; Check students’ work.
A package of crepe paper streamers has 2 rolls. Yen bought 3 packages. How many inches of crepe paper did Yen get?

**Preview:** Read the problem through once.

1. What is the problem about?
   - The number of inches of crepe paper Yen bought

2. What question will be answered by solving the problem?
   - How many inches of crepe paper did Yen buy?

**Reread:** Read the problem again.

3. How many rolls of crepe paper streamers are in a package?
   - 2

4. How many packages did Yen buy?
   - 3

5. a. What operation can you use to find the total number of rolls of crepe paper streamers that Yen bought?
   - Sample answer: Multiplication

   b. How many rolls of crepe paper streamers did Yen buy in all?
   - 6

6. a. How many inches of crepe paper streamers are in 1 roll?
   - 70

   b. What operation can you use to find the number of inches of crepe paper streamers that Yen bought?
   - Sample answer: Multiplication
Story Lines

For 1 and 2, write in the missing numbers, and then write and solve a multiplication equation for each story line.

1. Seanix caught 10 fish every hour for 4 hours on a fishing trip. How many fish did he catch in all?
   
   
   Multiplication equation: \( 4 \times 10 = 40 \) fish

2. April baked 7 batches of cookies. There are 20 cookies in each batch. How many cookies did she bake in all?
   
   
   Multiplication equation: \( 7 \times 20 = 140 \) cookies

For 3, complete the number line to show 6 jumps of 50. Write and solve a multiplication equation. Then write your own story to go with this number line.

3. Multiplication equation: \( 6 \times 50 = 300 \)

   
   
   Answers will vary. Review students’ work.
Vocabulary

1. A multiple is the product of a given whole number and any nonzero whole number.
   Complete the equations to find the multiples of 10.
   
   \[10 \times 1 = 10\]
   \[10 \times 2 = \boxed{20}\]
   \[10 \times 3 = \boxed{30}\]
   \[10 \times 4 = \boxed{40}\]
   \[10 \times 5 = \boxed{50}\]
   Sample answers shown.
   Some multiples of 10 are 10, 20, 30, 40, 50.

2. Find 6 \times 30.
   
   \[6 \times 30 = 6 \times \underline{3} \text{ tens}\]
   \[6 \times 30 = 18 \text{ tens}\]
   \[6 \times 30 = 180\]

3. Find 7 \times 50.
   
   \[7 \times 50 = 7 \times \underline{5} \text{ tens}\]
   \[7 \times 50 = 35 \text{ tens}\]
   \[7 \times 50 = 350\]

4. Use mental math to find each product.
   
   \[9 \times 40 = ?\]
   \[60 \times 5 = ?\]
   \[2 \times 80 = ?\]
   \[9 \times 4 = \boxed{36}\]
   \[6 \times 5 = \boxed{30}\]
   \[2 \times 8 = \boxed{16}\]
   \[9 \times 40 = \boxed{360}\]
   \[60 \times 5 = \boxed{300}\]
   \[2 \times 80 = \boxed{160}\]

On the Back!

5. Find 7 \times 90. Show all the steps in your work.
   \[630; \text{Check students' work.}\]
Read the problem. Answer the questions to help understand the problem.

**Higher Order Thinking** Ali and his family are going to the amusement park. If there are 2 adults and 5 children, how much will the tickets cost?

1. Can the problem be solved in one step?
   **No**

2. What question will you answer in the final step?
   **How much did all of the tickets cost?**

3. Before you can solve the final step, what must you find?
   **The cost of the adult tickets and the cost of the child tickets**

4. What is the first piece of mathematical information given in the problem?
   **There are 2 adults.**

5. a. What operation could you use to find the total cost of the adult tickets?
   **Sample answer: Multiply**

   b. What is the total cost of the adult tickets?
   **$60**

6. What is the next piece of mathematical information given in the problem?
   **There are 5 children.**

7. a. What operation could you use to find the total cost of the child tickets?
   **Sample answer: Multiply**

   b. What is the total cost of the child tickets?
   **$100**

8. To find the total cost of the tickets, do you add or multiply? **Add**
**Vocabulary**

1. You can use the **Associative Property of Multiplication** to group factors. The way factors are grouped does not change the product.

   Find the product of $3 \times 2 \times 5$ in two different ways.
   
   $3 \times 2 \times 5 = (3 \times 2) \times 5$
   
   $= 3 \times 6 \times 5$
   
   $= 30$
   
   $3 \times 2 \times 5 = 3 \times (2 \times 5)$
   
   $= 3 \times 10$
   
   $= 30$

2. You can use the **Distributive Property** to decompose a factor. A multiplication fact can be broken apart into the sum of two other multiplication facts.

   Find $7 \times 5$.
   
   $7 \times 5 = (3 + 4) \times 5$
   
   $= (3 \times 5) + (4 \times 5)$
   
   $= 15 + 20$
   
   $= 35$

3. Find $7 \times 60$.
   Use the Associative Property of Multiplication to group factors.
   
   $7 \times 60 = 7 \times (6 \times 10)$
   
   $= (7 \times 6) \times 10$
   
   $= 42 \times 10$
   
   $= 420$

4. Find $4 \times 80$.
   Decompose a factor.
   Write 4 as $2 + 2$.
   
   $4 \times 80 = (2 + 2) \times 80$
   
   $= (2 \times 80) + (2 \times 80)$
   
   $= 160 + 160$
   
   $= 320$

**On the Back!**

4. Find $5 \times 90$ using properties of multiplication.
   Show your work.
   
   **450; Check students’ work.**
Read the problem. Answer the questions to help understand the problem.

How many pounds of newspaper did Grade 3 and Grade 4 collect together? Explain your plan for solving.

What do I KNOW?
1. Each rectangle stands for 30 pounds.  
   True  False
2. I know the number of pounds that each grade collected. 
   True  False

What information do I NOT need?
3. The information for Grade 2 is NOT needed. 
   True  False
4. The number of pounds that each rectangle stands for is NOT needed. 
   True  False

WHAT does this problem ask me to do?
5. The problem asks for an equation to represent each grade’s collection. 
   True  False
6. Find the total weight collected by Grades 3 and 4.  
   True  False
7. I have to explain how I solved the problem. 
   True  False

What STRATEGY can I use?
8. I can multiply to find the weight of newspapers that Grade 3 collected. 
   False
9. I can multiply to find the weight of newspapers that Grade 4 collected. 
   False
10. I can multiply the amount that Grade 3 collected by the amount that Grade 4 collected to find the total. 
    True  False
Vocabulary

1. **Factors** are numbers that are multiplied together to give a **product**.

   The multiplication table shows that $5 \times 30 = 150$.

<table>
<thead>
<tr>
<th>$\times$</th>
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<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>40</td>
<td>80</td>
<td>120</td>
<td>160</td>
<td>200</td>
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<tr>
<td>5</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>6</td>
<td>60</td>
<td>120</td>
<td>180</td>
<td>240</td>
<td>300</td>
</tr>
</tbody>
</table>

   The factors are 5 and 30. The product is 150.

2. Complete the equations. One factor is always a multiple of ten.
   Then complete the table.

   $7 \times 30 = 210$
   $8 \times 30 = 240$
   $8 \times 20 = 160$
   $9 \times 10 = 90$

<table>
<thead>
<tr>
<th>$\times$</th>
<th>10</th>
<th>20</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>70</td>
<td>140</td>
<td>210</td>
</tr>
<tr>
<td>8</td>
<td>80</td>
<td>160</td>
<td>240</td>
</tr>
<tr>
<td>9</td>
<td>90</td>
<td>180</td>
<td>270</td>
</tr>
</tbody>
</table>

3. Complete the table. Think about patterns or properties you know for multiplying by multiples of 10.

<table>
<thead>
<tr>
<th>$\times$</th>
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<td>20</td>
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<td>80</td>
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<td>60</td>
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<td>120</td>
<td>150</td>
<td>180</td>
<td>210</td>
<td>240</td>
<td>270</td>
</tr>
</tbody>
</table>

   As you move down the columns, the numbers **increase** by the value of the column.

On the Back!

4. Carla wants to make either 5 or 6 batches of cookies. She is choosing whether to use 40, 50, or 60 chocolate chips for each batch. Complete a table to show the total number of chocolate chips Carla will need for each choice.

   **Check students’ work.**
Read the problem. Answer the questions to help understand the problem.

Four students each took music lessons for different instruments this month. They want to know who spent the most money on music lessons.

**Use Structure** How can you find the total amount for each student? Think about properties or patterns you know.

<table>
<thead>
<tr>
<th>Student</th>
<th>June</th>
<th>Li</th>
<th>Mick</th>
<th>Rita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price Paid per Lesson (dollars)</td>
<td>60</td>
<td>20</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>Length of Lesson (minutes)</td>
<td>60</td>
<td>60</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>Number of Lessons</td>
<td>4</td>
<td>8</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Total Cost (dollars)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. What is the problem about?
   **Spending money on music lessons**

2. Are you being asked to compute an answer? Explain.
   **No; I am being asked to tell how I would find the answer.**

Reread the problem. Look at the table.

3. What information in the table do you need for each student?
   **The price per lesson and the number of lessons**

4. What information in the table do you NOT need?
   **The length of the lessons**

5. What operation do you need to find the total that each student spent?
   **Sample answer: Multiplication**

6. What do you notice about the cost for each lesson?
   **Sample answer: They are all multiples of 10.**
<table>
<thead>
<tr>
<th>Grade: 3</th>
<th>Subject: Math</th>
<th>Goes with Pages: 85-103</th>
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</thead>
<tbody>
<tr>
<td>Topic: Using Operations with Whole Numbers (0-1000) to Solve Problems</td>
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</table>
What Your Student is Learning:
1. Bar diagrams show relationships in a two-step word problem and help identify the operation or operations needed to solve the problem.
2. The type of relationship between the quantities in a two-step problem determines the operations used to solve the problem (not a specific word). Equations are an efficient way to show these relationships.
3. Good math thinkers use math to explain why. They can also talk about the math that others do.

Background and Context for Parents:
- Students are using bar diagrams to represent the scenarios in the word problems. The total goes above the bar and the quantities inside. See below:

- Understand the Meaning of Operations: As students interpret word problems, they need to draw on the various meanings of the operations to help them determine which operations they should use to solve the problem. It is important for students to understand the role of addition and subtraction in “adding to,” “taking from,” “putting together,” “taking apart,” and “comparing” situations. They also need to understand the role of multiplication and division in “equal groups” situations. Additionally, students also need to remember that they can use inverse operations to write an equation in more than one way.

- Understand Bar Diagrams: Students use bar diagrams to represent all four operations. Addition and subtraction bar diagrams are easier for students to understand as they look like a part-part-whole situation, which is familiar to students from earlier grade levels. Multiplication and division bar diagrams are more difficult conceptually, in particular when the number of groups is unknown.

Ways to support your student:
1. Encourage them to use the Three Reads strategy: [http://www.sfusdmath.org/3-read-protocol.html](http://www.sfusdmath.org/3-read-protocol.html)
2. Ask them what they notice and wonder about the word problem before they solve it. That allows them to understand the problem first before they even try to solve it. Here is a video about the importance of noticing and wondering: [https://www.youtube.com/watch?v=a-Fth6sQaRA](https://www.youtube.com/watch?v=a-Fth6sQaRA)
3. Before giving your student the answer to their question or specific help, ask them “What have you tried so far? What do you know? What might be a next step?”
4. After your student has solved it, and before you tell them it’s correct or not, have them explain to you how they got their solution and if they think their answer makes sense.

Online Resources for Students:
- [https://www.mathplayground.com/thinkingblocks.html](https://www.mathplayground.com/thinkingblocks.html) (pick junior, addition, or multiplication)
Review What You Know

Vocabulary
Choose the best term from the box. Write it on the blank.

1. The equal sign shows that the left side of a(n) _________ has the same value as the right side.

2. A question mark can be a symbol for a(n) _________ value.

3. The answer to a division problem is the _________.

Addition and Subtraction
4. 739 – 104
5. 512 + 216
6. 710 – 569
7. 104 + 67
8. 664 + 78
9. 825 – 477

Multiplication and Division
10. 60 ÷ 6
11. 40 × 4
12. 7 × 3
13. (3 × 10) × 6 =
   A. (3 × 10) + (6 × 10)
   B. (3 × 6) + (10 × 6)
   C. 3 × (10 × 6)
   D. (10 + 10 + 10) + 6
14. 4 × (20 × 2) =
   A. (4 × 20) × 2
   B. (4 × 20) + (4 × 2)
   C. 4 + (20 + 20)
   D. (4 + 20) + (4 + 2)

Model with Math
15. Caleb has 8 toy cars. Each car has 4 wheels. He wants to know how many wheels are on all of his cars. Represent this problem using a bar diagram and an equation. Then solve.
Vocabulary
1. You can draw a bar diagram to help solve 2-step problems. A letter can be used to stand for the unknown quantity.

   Complete the equation for the unknown quantity in each bar diagram.

   \[ \frac{185}{124} \quad \frac{\rho}{32} \quad \frac{25}{f} \]

   Write an equation using subtraction. Write an equation using addition.

   \[ t = \_ - \_ \quad \rho = \_ + \_ \]

2. Jared has $236. He spends $153 paying bills. Jared will earn $76 next week. How much money will Jared have next week?

   **Step 1:** Find and answer the hidden question.
   Hidden question: How much money does Jared have after paying bills?

   Complete the bar diagram. Then write and solve an equation.

   \[ \frac{a}{a} \quad \frac{\text{Money left after paying bills}}{\text{Money next week}} \]

   Jared has ______ after he pays bills.

   **Step 2:** Use the answer to the hidden question to answer the original question.
   Original question: How much money will Jared have next week?

   Complete the bar diagram. Then write and solve an equation.

   \[ s = \_ + \_ \]

   Jenna will have ______ next week.

On the Back!

3. Draw bar diagrams and write equations to solve. Aaron has 996 baseball cards. He sells 333 of them. Then, he buys 165 baseball cards. How many baseball cards does Aaron have now?
Manuel’s family drove from Louisville to Indianapolis to Detroit and then directly back to Louisville. How much farther did they drive going to Detroit than returning from Detroit?

1. Where is the numerical information you need to solve the problem?

2. Is the route the family took driving to Detroit shown by the dotted line or by the dashed line on the map?

3. Is the total number of miles the family drove going to Detroit shown on the map? If so, how many miles is it? If not, what do you need to compute?

4. Is the route the family took returning from Detroit shown by the dotted line or by the dashed line on the map?

5. Is the total number of miles the family drove returning from Detroit shown on the map? If so, how many miles is it?
Name _______________________

**Vocabulary**

1. A **product** is the answer to a multiplication problem.
   A **quotient** is the answer to a division problem.

   Write a multiplication equation for the bar diagram.
   \[ \times b = \quad \text{The product is } \quad \]
   \[ \quad b b b b b \]

   Write a division equation for the bar diagram.
   \[ \quad \div b = \quad \text{The quotient is } \quad \]

2. Complete the bar diagrams and write equations to solve. Use letters to represent unknown quantities.

   Jill is in charge of scheduling fields for the youth soccer leagues. There are 4 leagues with 6 teams in each league. An equal number of teams will play on each of 3 fields. How many teams will play on each field?

   **Step 1:** Find and answer the hidden question.

   Hidden question: How many ______ are there in all?

   There are _____ leagues. There are _____ teams in each league.

   \[ a = 4 \times 6 \quad a = \quad \]

   There are _____ teams in all.

   **Step 2:** Use the answer to the hidden question to answer the original question.

   Original question: How many teams will play on each field?

   There are _____ teams in all.

   There are _____ fields.

   \[ c = 24 \div 3 \quad c = \quad \]

   _____ teams will play on each field.

**On the Back!**

3. Draw bar diagrams and write equations to solve. Use letters to represent unknown quantities.

   A pack of 8 sports drinks costs $5. How much would it cost to buy 72 sports drinks?
Read the problem. Answer the questions to help understand the problem.

**Be Precise** One Grade 3 class collected 86 pounds of newspaper. The other Grade 3 class collected 65 pounds of newspaper. Which grade collected the greatest number of pounds of newspaper?

<table>
<thead>
<tr>
<th>Grade</th>
<th>Pounds of Newspaper</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>86</td>
</tr>
<tr>
<td>4</td>
<td>75</td>
</tr>
<tr>
<td>5</td>
<td>125</td>
</tr>
</tbody>
</table>

1. What is the problem about?

2. What question will be answered by solving the problem?

3. Does the table contain all the information you need to compare? If not, what information is missing?

4. Is the missing information given in the problem? If not, what would you need to compute to find the missing information?

5. Once you have found the missing information, do you have all the information you need to figure out which grade collected the greatest number of pounds of newspaper?

6. How can you determine which grade collected the greatest number of pounds of newspaper?
Come Sale Away!

From time to time, a store will have a sale. The price on certain items will be lowered. This may be because the store owner wants to bring in more customers.

You may want to buy a pair of sneakers, but it costs too much. However, if the store owner lowers the price, you might walk right in and buy the sneakers. And with the savings, you might even buy a pair of socks, too!

Your Project: Write a Skit About a Sale

The name of your skit is "Sidewalk Sale." Create a poster that shows 10 things that you are selling. Give each item a price in whole dollars. Come up with a sale—if customers spend a certain sum of money on 2 items, you give them back some money.

Now write your skit. Maybe some customers do not spend enough money to get money back. Maybe they receive even more money back with a greater purchase. Finally, act out the skit. Make sure to include the final amount customers spend after getting money back.
Lemonade Stand

Have you ever sold lemonade at a stand? Before you did, you probably had to plan how much it would cost to make the lemonade. There were the costs of the lemons and any other ingredients. Maybe you also needed to buy cups and supplies to make signs.

These costs are all part of a budget. A budget is an estimate of money needed to run your business. A budget also includes how much money you plan to make from customers buying your lemonade. You might charge one price for a small lemonade and a greater price for a large lemonade.

Your Project: Perform a Song About Lemonade

Write a song about how to estimate how much money you will make in a day at your lemonade stand. Your song will have two parts. For each part, you will sell two drink sizes: a small drink is $2 and a large drink is $3. Each part of your song should include estimating how many drinks will be sold of each size and the amount earned in dollars. The sum of the sales for the two sizes also should be included in each part.

Each part of your song also should critique reasoning—it should explain whether an estimate is good or not. Part 1 should tell about an incorrect estimate and what was wrong with its reasoning. Part 2 should tell the right way to estimate with the correct total.

You may want to include rhyming words in your song, such as drink and pink or lemonade and paid. You might use artistic license and rhyme dollar with smaller and larger!
Vocabulary

1. When you critique reasoning, you explain why someone’s thinking is correct or incorrect. **Estimation** can help you critique reasoning.

   Estimate $54 + 42$ by rounding.

   $54$ is about $50$, $42$ is about $40$, $50 + 40 =$ _____

   Is the estimate less than or greater than the actual sum?

   Estimate $27 + 35$ by rounding.

   $27$ is about $30$, $35$ is about $30$, $30 + 40 =$ _____

   Is the estimate less than or greater than the actual sum?

2. Jessica has $75$. She works $6$ hours at $8$ an hour at her job. Jessica wants to buy a bicycle for $129$. Can Jessica buy the bicycle?

   Abby solved the problem. Her work is shown below.

   $8 \times 6 = 48$, which is about $50$.

   Jessica has $75$, which is about $80$.

   $50 + 80 = 130$, so Jessica can buy the bicycle.

   Critique Abby’s reasoning.

   Abby rounds $48$ to $50$. This estimate is rounded _____.

   Abby rounds $75$ to $80$. This estimate is rounded _____.

   The estimate will be _____ the actual amount needed.

3. Find the actual answer.

   $8 \times 6 =$ _____

   $75 +$ _____ $=$ _____

   Abby’s conclusion is _____ because the actual amount Jessica will have is less than _____.

On the Back!

4. The park had 425 visitors on Friday. It had 289 visitors on Saturday and 126 visitors on Sunday.

   Eva says there were more visitors on Friday than on Saturday and Sunday combined because $289 + 126$ is about $300 + 100 = 400$, and $400 < 425$. Critique Eva’s reasoning. Tell if she is correct or incorrect. Explain your thinking.
Name ____________________________

Read the problem. Answer the questions to help understand the problem.

Gill gets 24 stickers on Monday. She gets the same number of stickers on Tuesday. Gill then shares all of her stickers equally among 8 friends.

Liam concluded that each friend gets fewer than 5 stickers. His work is shown at the right. Does Liam’s reasoning make sense? Explain.

Liam’s work

8 × 3 = 24
So, 24 ÷ 8 = 3.

Each friend gets 3 stickers.
3 is less than 5.

1. How many stickers is Gill sharing with her friends? What did you calculate to determine that number?

2. How many friends receive stickers?

3. What would you need to calculate to find the number of stickers each friend gets?

4. Look at Liam’s work. Does his work show what you wrote in Exercise 3? If not, describe the errors you see. How would you correct them?

5. Reread the problem. What does Liam conclude?

6. Is Liam’s conclusion correct? If not, what would be a better conclusion?
Answer Keys
Review What You Know

Vocabulary
Choose the best term from the box.
Write it on the blank.

1. The equal sign shows that the left side of a(n) __________ has the same value as the right side.
2. A question mark can be a symbol for a(n) __________ value.
3. The answer to a division problem is the __________.

Addition and Subtraction
4. 739 - 104 = __________
5. 512 + 216 = __________
6. 710 - 569 = __________
7. 104 + 67 = __________
8. 664 + 78 = __________
9. 825 - 477 = __________

Multiplication and Division
10. 60 ÷ 6 = __________
11. 40 ÷ 4 = __________
12. 7 × 3 = __________
13. (3 × 10) × 5 =
   A. (3 × 10) + (6 × 10)
   B. (3 × 6) + (10 × 6)
   C. 3 × (10 × 6)
   D. (10 + 10 + 10) + 6
14. 4 × (20 × 2) =
   A. (4 × 20) ÷ 2
   B. (4 × 20) + (4 × 2)
   C. 4 ÷ (20 + 20)
   D. (4 + 20) + (4 + 2)

Model with Math
15. Caleb has 8 toy cars. Each car has 4 wheels. He wants to know how many wheels are on all of his cars. Represent this problem using a bar diagram and an equation. Then solve.

   $8 \times 4 = ?$

32 wheels
1. You can draw a **bar diagram** to help solve 2-step problems. A letter can be used to stand for the unknown quantity.

Complete the equation for the unknown quantity in each bar diagram.

\[
\begin{align*}
185 & \quad 124 \quad t \\
32 & \quad 25 \\
\end{align*}
\]

Write an equation using subtraction. \( t = 185 - 124 \)

Write an equation using addition. \( p = 32 + 25 \)

2. Jared has $236. He spends $153 paying bills. Jared will earn $76 next week. How much money will Jared have next week?

**Step 1:** Find and answer the hidden question.
Hidden question: How much money does Jared have after paying bills?

Complete the bar diagram. Then write and solve an equation.

\[
a = \$236 - \$153
\]

\[
a = \$83
\]

Jared has $83 after he pays bills.

**Step 2:** Use the answer to the hidden question to answer the original question.
Original question: How much money will Jared have next week?

Complete the bar diagram. Then write and solve an equation.

\[
s = \$83 + \$76
\]

\[
s = \$159
\]

Jared will have $159 next week.

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**On the Back!**

3. Draw bar diagrams and write equations to solve. Aaron has 996 baseball cards. He sells 333 of them. Then, he buys 165 baseball cards. How many baseball cards does Aaron have now?

828 cards; 996 - 333 = 663 and 663 + 165 = 828;

Check students’ diagrams and work.
Name ____________________________

Answer the questions to help understand the problem.

Manuel’s family drove from Louisville to Indianapolis to Detroit and then directly back to Louisville. How much farther did they drive going to Detroit than returning from Detroit?

1. Where is the numerical information you need to solve the problem?
   **On the map**

2. Is the route the family took driving to Detroit shown by the dotted line or by the dashed line on the map?
   **Dotted line**

3. Is the total number of miles the family drove going to Detroit shown on the map? If so, how many miles is it? If not, what do you need to compute?
   **No; Add 114 miles + 283 miles.**

4. Is the route the family took returning from Detroit shown by the dotted line or by the dashed line on the map?
   **Dashed line**

5. Is the total number of miles the family drove returning from Detroit shown on the map? If so, how many miles is it?
   **Yes; 361 miles**
Vocabulary

1. A **product** is the answer to a multiplication problem. A **quotient** is the answer to a division problem.

   Write a multiplication equation for the bar diagram.
   \[ \frac{5 \times b = 40}{b \ b \ b \ b \ b} \quad \text{The product is} \quad 40 \]

   Write a division equation for the bar diagram.
   \[ \frac{40 \div b = 5}{5} \quad \text{The quotient is} \quad 5 \]

2. Complete the bar diagrams and write equations to solve. Use letters to represent unknown quantities.

   Jill is in charge of scheduling fields for the youth soccer leagues. There are 4 leagues with 6 teams in each league. An equal number of teams will play on each of 3 fields. How many teams will play on each field?

   **Step 1:** Find and answer the hidden question.

   Hidden question: How many **teams** are there in all?

   There are \( 4 \) leagues. There are \( 6 \) teams in each league.

   \[ a = 4 \times 6 \quad a = 24 \]

   There are \( 24 \) teams in all.

   **Step 2:** Use the answer to the hidden question to answer the original question.

   Original question: How many teams will play on each field?

   There are \( 24 \) teams in all.

   There are \( 3 \) fields.

   \[ c = 24 \div 3 \quad c = 8 \]

   \( 8 \) teams will play on each field.

On the Back!

3. Draw bar diagrams and write equations to solve. Use letters to represent unknown quantities.

   A pack of 8 sports drinks costs $5. How much would it cost to buy 72 sports drinks?
   \[ $45; \quad 72 \div 8 = p; \quad 9 = p; \quad 9 \times 5 = 45; \quad \text{Check students’ diagrams and work.} \]
Read the problem. Answer the questions to help understand the problem.

**Be Precise** One Grade 3 class collected 86 pounds of newspaper. The other Grade 3 class collected 65 pounds of newspaper. Which grade collected the greatest number of pounds of newspaper?

1. What is the problem about?
   - **Collecting newspapers**

2. What question will be answered by solving the problem?
   - **Which grade collected the greatest number of pounds of newspaper?**

3. Does the table contain all the information you need to compare? If not, what information is missing?
   - **No; The number of pounds collected by Grade 3**

4. Is the missing information given in the problem? If not, what would you need to compute to find the missing information?
   - **No; Add 86 + 65.**

5. Once you have found the missing information, do you have all the information you need to figure out which grade collected the greatest number of pounds of newspaper?
   - **Yes**

6. How can you determine which grade collected the greatest number of pounds of newspaper?
   - **Add 86 + 65 to find the number of pounds Grade 3 collected. Then compare 151 to 75 and 125.**
Name

Vocabulary

1. When you critique reasoning, you explain why someone’s thinking is correct or incorrect. Estimation can help you critique reasoning.

Estimate $54 + 42$ by rounding.

$54$ is about $50$, $42$ is about $40$. $50 + 40 = 90$ less than

Is the estimate less than or greater than the actual sum? less than

Estimate $27 + 35$ by rounding.

$27$ is about $30$, $35$ is about $40$. $30 + 40 = 70$ greater than

Is the estimate less than or greater than the actual sum? greater than

2. Jessica has $75$. She works $6$ hours at $8$ an hour at her job. Jessica wants to buy a bicycle for $129$. Can Jessica buy the bicycle?

Abby solved the problem. Her work is shown below.

$8 \times 6 = 48$, which is about $50$.

Jessica has $75$, which is about $80$.

$50 + 80 = 130$, so Jessica can buy the bicycle.

Critique Abby’s reasoning.

Abby rounds $48$ to $50$. This estimate is rounded up.

Abby rounds $75$ to $80$. This estimate is rounded up.

The estimate will be greater than the actual amount needed.

3. Find the actual answer.

$8 \times 6 = \boxed{48}$ $75 + \boxed{48} = \boxed{123}$

Abby’s conclusion is not correct because the actual amount Jessica will have is less than $129$.

On the Back!

4. The park had $425$ visitors on Friday. It had $289$ visitors on Saturday and $126$ visitors on Sunday.

Eva says there were more visitors on Friday than on Saturday and Sunday combined because $289 + 126$ is about $300 + 100 = 400$, and $400 < 425$. Critique Eva’s reasoning. Tell if she is correct or incorrect. Explain your thinking. Correct; Check students’ work.
Gill gets 24 stickers on Monday. She gets the same number of stickers on Tuesday. Gill then shares all of her stickers equally among 8 friends. Liam concluded that each friend gets fewer than 5 stickers. His work is shown at the right. Does Liam’s reasoning make sense? Explain.

Liam’s work:

\[
8 \times 3 = 24 \\
\text{So, } 24 \div 8 = 3. \\
\text{Each friend gets 3 stickers.} \\
3 \text{ is less than 5.}
\]

1. How many stickers is Gill sharing with her friends? What did you calculate to determine that number?

**48; 24 + 24**

2. How many friends receive stickers?

**8**

3. What would you need to calculate to find the number of stickers each friend gets?

**48 \div 8**

4. Look at Liam’s work. Does his work show what you wrote in Exercise 3? If not, describe the errors you see. How would you correct them?

No; Liam calculated 24 \div 8 = 3. He should have calculated 48 \div 8 = 6 and stated that each friend gets 6 stickers, not 3 stickers.

5. Reread the problem. What does Liam conclude?

**Each friend gets fewer than 5 stickers.**

6. Is Liam’s conclusion correct? If not, what would be a better conclusion?

No; Sample answer: Each friend gets more than 5 stickers.
**Topic:** Order of Operations

**What Your Student is Learning:**
1. You can represent two-step problems with a single equation and then solve the equation using the order of operations

**Background and Context for Parents:** In this topic students need the order of operations is used to decide which operation to do first.

- Importance of this topic: Having everyone follow the same ensures the same answers from everyone. See the image to an example of a problem where solving it differently, gets answers.
- [https://www.khanacademy.org/math/pre-algebra/pre-algebra-prop/pre-algebra-order-of-operations/v/introduction-to-order-of-operations](https://www.khanacademy.org/math/pre-algebra/pre-algebra-prop/pre-algebra-order-of-operations/v/introduction-to-order-of-operations) (stop at minute 4 as it’s beyond 3rd grade, also shows the importance of having an order of operations).
- For 3rd graders, the order of operations they need to be able to use is “Multiply and divide from left to right. Add and subtract from left to right.” This means you first scan the problem for multiplication and division and complete whichever operation appears first (to the left) in the problem (for 5 x 3 ÷ 3 do 5 x 3 then do 15 ÷ 3). After completing the multiplication and/or division, solve any addition and subtraction in the order it appears from left to right.

**Ways to support your student:**

- You may notice your student may need support with their multiplication and division as they are solving these. Encourage them to use a strategy (draw a picture, skip counting, facts they know that are close) to figure it out as they are more likely to remember their facts if they work through figuring out the answer many times. Here are great, free, printable resources if your student needs more support: [https://www.gregtangmath.com/includes/materials/downloads/worksheets/GreatTimesVol1.pdf](https://www.gregtangmath.com/includes/materials/downloads/worksheets/GreatTimesVol1.pdf) and [https://www.gregtangmath.com/includes/materials/downloads/worksheets/Division.Additive.pdf](https://www.gregtangmath.com/includes/materials/downloads/worksheets/Division.Additive.pdf)
- Encourage students to draw bar diagrams for word problems as a first step in understanding the relationship between the quantities. This helps them decide which operations to use.
- The order of operations is in order of power. For example, multiplication and division change the quantity of a number more than addition and subtraction. You can ask your student which operation is more powerful when they are stuck trying to figure out what to solve first. It’s almost like the operations are superheroes!
- Before giving your student the answer to their question or specific help, ask them “What have you tried so far?, What do you know?, What might be a next step?”
- After your student has solved it, and before you tell them it’s correct or not, have them explain to you how they got their solution and if they think their answer makes sense.
1. To solve $19 - 12 \div 2 = k$, which operation do you do first? ___________

2. To solve $19 - 12 \div 2 = k$, which operation do you do second? ___________

Hannah has 3 packets of pencils. Each packet contains 4 colored pencils. She got 5 colored pencils from her friend Garrett. Answer the following questions to find out how many pencils Hannah has in all.

3. How many pencils does Hannah have? ___________

4. Write an equation for the total number of pencils Hannah has in all.
   $p = \text{pencils Hannah has}$
   $p = \times +$

5. To solve the equation, which operation do you do first? ___________

6. Solve the equation.
   $p = \times +$
   $p = +$
   $p =$

7. Hannah has_____ pencils.

On the Back!

8. Lily bought enough balloons so each of the 6 guests at her party could have 3 balloons. Four of the balloons popped. Write and solve an equation to find how many balloons did not pop.
   $b = \text{number of balloons that did not pop}$
Nick bought 5 packages of juice for the picnic. Each package had 6 pouches. His friends drank 19 pouches. Write and solve an equation to find how many juice pouches Nick had left.

\[ p = \text{pouches Nick had left} \]

1. What is the problem about?

2. a. How many packages of juice did Nick buy?

   
   

b. How many pouches were in each package?

   
   

c. How many pouches did Nick’s friends drink?

   
   

3. What will you find when you solve the problem?

   
   

4. How many equations will you write to solve this problem?

   
   

5. What hidden question must your equation help you to find?
Order! Order!

The underlined number in each equation is incorrect! Explain the error and then solve the equation correctly.

1. $32 ÷ 4 + 4 = 4$

   Solution:

2. $23 - 2 × 3 = 63$

   Solution:

3. $5 + 3 × 7 = 56$

   Solution:

4. $24 ÷ 8 - 2 = 4$

   Solution:
Answer Keys
Vocabulary
To solve an equation, use the order of operations.
- First, multiply or divide from left to right.
- Then add or subtract from left to right.

1. To solve $19 - 12 \div 2 = k$, which operation do you do first? \underline{Divide}

2. To solve $19 - 12 \div 2 = k$, which operation do you do second? \underline{Subtract}

Hannah has 3 packets of pencils. Each packet contains 4 colored pencils. She got 5 colored pencils from her friend Garrett. Answer the following questions to find out how many pencils Hannah has in all.

3. How many pencils does Hannah have? $3 \times 4$.

4. Write an equation for the total number of pencils Hannah has in all.
   \[ p = \text{pencils Hannah has} \]
   \[ p = 3 \times 4 + 5 \]

5. To solve the equation, which operation do you do first? \underline{Multiply}

6. Solve the equation.
   \[ p = 3 \times 4 + 5 \]
   \[ p = 12 + 5 \]
   \[ p = 17 \]

7. Hannah has 17 pencils.

On the Back!

8. Lily bought enough balloons so each of the 6 guests at her party could have 3 balloons. Four of the balloons popped. Write and solve an equation to find how many balloons did not pop.
   \[ 6 \times 3 - 4 = b \]
   \[ 18 - 4 = b \]
   \[ b = 14 \]
Nick bought 5 packages of juice for the picnic. Each package had 6 pouches. His friends drank 19 pouches. Write and solve an equation to find how many juice pouches Nick had left.

\[ p = \text{pouches Nick had left} \]

1. What is the problem about?

**The amount of juice at a picnic**

2. a. How many packages of juice did Nick buy?

5

b. How many pouches were in each package?

6

c. How many pouches did Nick’s friends drink?

19

3. What will you find when you solve the problem?

**How many pouches Nick had left**

4. How many equations will you write to solve this problem?

1

5. What hidden question must your equation help you to find?

**How many pouches did Nick buy?**
Name ____________________________

Order! Order!

The underlined number in each equation is incorrect! Explain the error and then solve the equation correctly.

1. $32 \div 4 + 4 = 4$
   
   Sample answer: $4 + 4$ was added first instead of dividing $32 \div 4$ first.
   
   Solution: $32 \div 4 + 4 = 12$

2. $23 - 2 \times 3 = 63$
   
   Sample answer: $23 - 2$ was subtracted first instead of multiplying $2 \times 3$ first.
   
   Solution: $23 - 2 \times 3 = 17$

3. $5 + 3 \times 7 = 56$
   
   Sample answer: $5 + 3$ was added first instead of multiplying $3 \times 7$ first.
   
   Solution: $5 + 3 \times 7 = 26$

4. $24 \div 8 - 2 = 4$
   
   Sample answer: $8 - 2$ was subtracted first instead of dividing $24 \div 8$ first.
   
   Solution: $24 \div 8 - 2 = 1$
**Topic:** True Equations

**What Your Student is Learning:**
- An equation is true when the values on both sides of the equal sign are the same

**Background and Context for Parents:**
- Students are continuing to use the order of operations (previous activity) as they find the missing symbol that makes a two-step (two operations involving in solving) equation true.
- Students are using the knowledge of the order of operations to test different symbols in the equation and see which one makes a true equation.
- This topic builds off of the idea that an equation is about balance. Understanding the quantity (not the number) on one side needs to be the same as the quantity on the other side is important for students to understand as many students have the misconception that the equal sign simply means that the answer is coming.

**Ways to support your student:**
- Guessing and checking is a good strategy to start so if your student is stuck, tell them to just put in the different operations and see if it makes the equation true.
- Once your student becomes confident with guessing and checking, ask them if there is any thinking they can do before they guess a symbol to see if any of the symbols wouldn’t make sense when we apply the order of operations.
- It is tempting for students to just do the math straight across, so writing “Remember the Order of Operations” on a note next to them, could be a good reminder.
- You can make it routine of writing equations with whole numbers and asking your student if they are true or false. For example: $5 + 5 = 12 - 4; 15 - 2 \times 6 = 3; 6 \div 3 + 16 = 9 \times 2; \text{etc}$
- You may notice your student may need support with their multiplication and division as they are solving these. Encourage them to use a strategy (draw a picture, skip counting, facts they know that are close) to figure it out as they are more likely to remember their facts if they work through figuring out the answer many times. Here are great, free, printable resources if your student needs more support: [https://www.gregtangmath.com/includes/materials/downloads/worksheets/GreatTimesVol1.pdf](https://www.gregtangmath.com/includes/materials/downloads/worksheets/GreatTimesVol1.pdf) and [https://www.gregtangmath.com/includes/materials/downloads/worksheets/Division.Additive.pdf](https://www.gregtangmath.com/includes/materials/downloads/worksheets/Division.Additive.pdf)
- Before giving your student the answer to their question or specific help, ask them “What have you tried so far?, What do you know?, What might be a next step?
- After your student has solved it, and before you tell them it’s correct or not, have them explain to you how they got their solution and if they think their answer makes sense.
**Vocabulary**

1. Many problems require more than one **operation** to solve.

   The four operations are addition, ____________,
   ____________, and ____________.

Which missing symbol makes the equation below true: +, −, ×, or ÷?

24 ÷ 3 __ 4 = 32

Compare each solution to the equation above.

2. Try +.

   24 ÷ 3 + 4 = ___ + 4
   = ___

   Does this solution make both sides of the equation equal? ___

3. Try −.

   24 ÷ 3 − 4 = ___ − 4
   = ___

   Does this solution make both sides of the equation equal? ___

4. Try ÷.

   24 ÷ 3 ÷ 4 = ___ ÷ 4
   = ___

   Does this solution make both sides of the equation equal? ___

5. Try ×.

   24 ÷ 3 × 4 = ___ × 4
   = ___

   Does this solution make both sides of the equation equal? ___

6. Which operation makes the equation true?

**On the Back!**

7. Which missing symbol makes the equation true: +, −, ×, or ÷? Explain.

   9 × 4 __ 20 = 16
Name

Answer the questions to help understand the problem.

Charlie says there are two different symbols that make the equation $20 \div 5 \bigcirc 2 = 2$ true. Is Charlie correct? Explain.

**Preview:** Read the problem through once.

1. What does Charlie say?

2. How do you know when an equation is true?

3. What does the problem ask you to do?

**Reread:** Read through the problem again.

4. How will you know if Charlie is correct?

5. What symbols will you try in the equation to make it true?

6. What must be the value of the left side of the equation?
Is It True?

Use the numbers in each box to make a true equation.

Use each number only once.

1. \[ \begin{array}{cccc}
4 & 12 & 26 & 18 \\
\end{array} \]

\[ \begin{array}{ccc}
+ & - & = \\
\end{array} \]

2. \[ \begin{array}{cccc}
19 & 2 & 22 & 8 \\
\end{array} \]

\[ \begin{array}{ccc}
\div & + & = \\
\end{array} \]

3. \[ \begin{array}{cccc}
5 & 27 & 12 & 3 \\
\end{array} \]

\[ \begin{array}{ccc}
+ & \times & = \\
\end{array} \]

4. \[ \begin{array}{cccc}
10 & 5 & 50 & 25 \\
\end{array} \]

\[ \begin{array}{ccc}
\div & \times & = \\
\end{array} \]

5. \[ \begin{array}{cccc}
3 & 5 & 9 & 32 \\
\end{array} \]

\[ \begin{array}{ccc}
= & - & \times \\
\end{array} \]
Answer Keys
Vocabulary

1. Many problems require more than one operation to solve.

The four operations are addition, subtraction, multiplication, and division.

Which missing symbol makes the equation below true: +, −, ×, or ÷?

24 ÷ 3 \(\bigcirc\) ? = 32

Compare each solution to the equation above.

2. Try +.

\[ 24 ÷ 3 + 4 = \boxed{8} + 4 \]

\[ = \boxed{12} \]

Does this solution make both sides of the equation equal? \(\textbf{No}\)

3. Try −.

\[ 24 ÷ 3 - 4 = \boxed{8} - 4 \]

\[ = \boxed{4} \]

Does this solution make both sides of the equation equal? \(\textbf{No}\)

4. Try ÷.

\[ 24 ÷ 3 ÷ 4 = \boxed{8} ÷ 4 \]

\[ = \boxed{2} \]

Does this solution make both sides of the equation equal? \(\textbf{No}\)

5. Try ×.

\[ 24 ÷ 3 × 4 = \boxed{8} × 4 \]

\[ = \boxed{32} \]

Does this solution make both sides of the equation equal? \(\textbf{Yes}\)

6. Which operation makes the equation true? \(\textbf{Multiplication}\)

On the Back!

7. Which missing symbol makes the equation true: +, −, ×, or ÷? Explain.

\[ 9 × 4 \bigcirc 20 = 16 \]

\(−; \text{Sample answer: } 9 × 4 = 36 - 20 = 16\)
Name ____________________________________________

Answer the questions to help understand the problem.

Charlie says there are two different symbols that make the equation $20 \div 5 \bigcirc 2 = 2$ true. Is Charlie correct? Explain.

**Preview:** Read the problem through once.

1. What does Charlie say?
   
   **There are two different symbols that make the equation in the problem true.**

2. How do you know when an equation is true?
   
   **An equation is true when both sides of the equal sign have the same value.**

3. What does the problem ask you to do?
   
   **Explain if Charlie is correct**

**Reread:** Read through the problem again.

4. How will you know if Charlie is correct?
   
   **Sample answer: If I can find two symbols that make the equation true, I know that Charlie is correct.**

5. What symbols will you try in the equation to make it true?
   
   **Sample answer: $+, -, \times, \div$**

6. What must be the value of the left side of the equation?
   
   **2**
Name

Is It True?

Use the numbers in each box to make a true equation.
Use each number only once. **Sample answers given.**

1. \[
\begin{align*}
18 &+ 12 - 4 = 26
\end{align*}
\]

2. \[
\begin{align*}
22 &\div 2 + 8 = 19
\end{align*}
\]

3. \[
\begin{align*}
12 &+ 5 \times 3 = 27
\end{align*}
\]

4. \[
\begin{align*}
50 &\div 10 \times 5 = 25
\end{align*}
\]

5. \[
\begin{align*}
5 &= 32 - 3 \times 9
\end{align*}
\]