



On Core Lessons for Common Core Math



**Using the Whiteboard**

Use the table of contents to go to specific sections of the lesson, or, tap **Next** to go to the first section of the lesson.

Teaching the Math

Preview the *Essential Question*: How can you use remainders in division problems?

Common Core Standards for Mathematical Content

CC.4.OA.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Common Core Standards for Mathematical Practice

CC.K–12.MP.2 Reason abstractly and quantitatively.

CC.K–12.MP.3 Construct viable arguments and critique the reasoning of others.

Navigating the *SMART Notebook* file

	Home	Return to the Main Menu.		Example	View a sample problem.
	Teacher Notes	Open the Teacher Notes PDF.		Answer	Show the correct answer to a problem.
	Previous	Go to the previous page.		Try Another	Generate another problem for extra practice.
	Next	Go to the next page.		SMART Response Question	Indicates the question is compatible with a <i>SMART Response</i> interactive Response system.
	Action Arrow	Reveal hidden content.			
	Try This	Reveal additional problems. Tap again to return to the previous page.		Workspace	Reveal additional content for the activity. Tap again to return to the previous page.

Tips**Clear or reset the screen**

To reset the screen, tap **Edit > Reset Page** or tap the **Reset Page** button if it is on the toolbar.

Add tools and functions to your *SMART Notebook* toolbar or floating palette

Tap the **Customize** button in the toolbar or floating palette, and then drag the tool to the toolbar or floating palette.

**Using the Whiteboard**

- Pull out the Problem tab and read the problem to students.
- Read the introduction to students.
- Pull out the Remember tab and read the information.
- Tap the first **Action Arrow** and discuss potential answers with students.
- Invite volunteers to tap **Answer** to reveal the answers.
- Tap the second **Action Arrow** and discuss potential answers with students.
- Invite volunteers to tap **Answer** to reveal the answers.

Teaching the Math

Read and discuss the problem with students. Explain that when solving real-world problems, there are different ways to interpret a quotient and a remainder depending on what the problem asks.

Ask: What information do you know? *Magda has leftover wallpaper 73 inches long. She wants to cut it into 8 equal pieces.*

Ask: What do you need to find? *the length of each piece*

Work through the problem with the class.

Ask: Why do you divide the number of inches by 8? *Possible answer: I want to find the length in inches of each of 8 equal pieces.*

Ask: What does the 9 represent in the quotient? *9 inches*

Ask: If you divide 1 inch into 8 equal pieces, how long is each piece? *$\frac{1}{8}$ inch*

Ask: Do you need to include the remainder in the answer? Explain. *Yes; possible explanation: Magda wants to have exactly 8 pieces, so to cut it evenly without any left over, I need to include the remainder.*

Answer Key

The divisor is *8* pieces.

The *dividend* is 73 inches.

$$\frac{\text{remainder}}{\text{divisor}} = \frac{1}{8}$$

Write the quotient with the remainder written as a fraction. *$9\frac{1}{8}$*

So, each piece will be *$9\frac{1}{8}$* inches long.

**Using the Whiteboard**

- Read the problem to the students.
- Tap the first **Action Arrow** and discuss with students.
- As you discuss each sentence that requires an answer with students, have a volunteer tap **Answer** to reveal the answer.
- Tap the second **Action Arrow** and discuss with students.
- Discuss the problem with the class. Ask a volunteer to tap **Answer** to reveal the answer.

Teaching the Math

Review other ways students can interpret the quotient and the remainder in a real-world situation.

Ask: What information do you know? Ben can lead tours of no more than 7 people. There are 80 people who want a tour.

Ask: What do you need to find? the number of tour groups of 7 people Ben can show around

Ask: Why do you divide 80 by 7? Possible answer: I want to divide 80 people so that there are 7 people in each group.

Ask: Do you use the remainder in the answer to this problem? Explain.

No; possible explanation: the question asks for the number of groups of exactly 7 people.

Answer Key

$$\begin{array}{r} 11 \text{ r } 3 \\ 7 \overline{)80} \end{array}$$

**Using the Whiteboard**

- Read the direction line and discuss the problem with students.
- Ask a volunteer to tap **Answer** to reveal the answer.
- Tap the **Action Arrow**. Read the direction line and discuss the problem with students.
- Invite a volunteer to tap **Answer** to reveal the answer.
- Tap the **Try This** button. Discuss the problem with students.
- Ask a volunteer to write the answers using the **Pen** with class input.
- Tap **Math Talk** to reveal a discussion question.

Teaching the Math

Review other ways students can interpret the quotient and the remainder in a real-world situation.

Ask: What information do you know? **Ben can lead tours of no more than 7 people. There are 80 people who want a tour.**

Ask: What do you need to find? **the number of tours Ben will give**

Ask: How is this question different from the one on the last page? **Possible answer: in this question, I'm finding how many groups there will be if all 80 people get a tour, not just the number of groups of exactly 7 people.**

Ask: Do you use the remainder in the answer to this problem? Explain. **Yes, I include the remainder as another group, so the answer is 12 groups.**

Discuss the **Try This** problem and how to interpret the quotient and the remainder.

Ask: What are you asked to find? **the number of vans that are needed for 31 students if each van can hold 9 passengers**

Check to be sure students have placed 31 counters in the top box and that they drag the same number of counters into each of the 9 boxes.

Ask: What does the quotient represent? **the number of vans that will hold exactly 9 passengers**

Ask: Can only 3 vans be used to drive the 31 students? Explain. **No; possible explanation: 1 more van is needed to carry the 4 leftover students.**

Use **Math Talk** to focus on students' understanding of why writing the remainder as a fraction does not make sense in this situation.

Answer Key

12

3

Try This

$$31 \div 9 = 3 \text{ r}4$$

Since there are **4** students left over, **4** vans are needed to carry 31 students.

Math Talk

Possible explanation: you cannot use the remainder as a fraction because you cannot use a fraction of a van.

**Using the Whiteboard**

- Read the problem.
- Tap the first **Action Arrow** and discuss with students.
- Change the **Pen** color to red.
- Ask a volunteer to use the **Pen** to write the quotient and remainder in the boxes. Students may use the workspace if necessary.
- Tap the second **Action Arrow** and discuss with students.
- Have a volunteer use the **Pen** to write the answer on the line.

Teaching the Math

The problem connects to the learning model.

Common Errors

Error Students may interpret the question incorrectly and not include the remainder in the answer.

Example In this problem, students may give an answer of 8 loaves.

Springboard to Learning Remind students that when dividing measurements, remainders represent fractions of units that can be divided among equal groups.

Answer Key

$$\begin{array}{r} \boxed{8} \text{ r } \boxed{5} \\ 6 \overline{)53} \end{array}$$

$8\frac{5}{6}$ loaves

**Using the Whiteboard**

- Read the directions and discuss the problem with students.
- Ask a volunteer to use the **Pen** to solve the problem in the workspace and write the answer on the line.
- Tap **Try Another!** to replace the problem with another problem.
- Invite a volunteer to use the **Pen** to solve the problem in the workspace and write the answer on the line.

Answer Key

$2\frac{1}{8}$ feet long

1 student; possible explanation: 25 divided by 3 is 8r1. There are 8 teams of 3 students, so the remaining 1 student cannot be on a team.

**Using the Whiteboard**

- Discuss the problem with students.
- Have a volunteer use the **Pen** to solve the problem in the workspace and write the answer on the line.
- Tap the **Action Arrow**.
- Ask a volunteer to use the **Pen** to work out the problem in the workspace and write the answer on the lines.

Teaching the Math

The H.O.T. Problem requires students to use higher order thinking skills to rewrite the question to a problem to use the remainder as an answer.

Answer Key

10 puppets

Possible question: How many buttons will Cho have that will not be used on her puppets? The remainder of 53 divided by 5 is 3. There will be 3 buttons left over. That is not enough to make another puppet.

**Using the Whiteboard**

- Read the question to the students.
- Ask students to solve the problem.
- If available, have students use their *SMART Response* remotes to answer.
- If installed, click the *SMART Response* tab, and then start the question to begin voting.
- Students may also use the **Pen** to circle the answer.
- Tap **Answer** to reveal the correct answer.

Teaching the Math**Test Prep Coach**

In the Test Prep exercise, if students selected:

- A)** They used the remainder as the answer.
- B)** They used the quotient as the answer.
- C)** They wrote the remainder as a fraction.

Answer Key **D) 10**

Using the Whiteboard

- Read aloud the *Essential Question*: How can you use remainders in division problems?
- Instruct a volunteer to use the **Pen** to write his or her answer.
- Pull out the Answer tab to reveal the answer.

Answer Key

Essential Question: Possible answer: I use remainders in different ways depending on the situation. I can write the remainder as a fraction, such as a fraction of a measurement unit. I can use a remainder as the answer when the question is how many are left over. I can add 1 to the quotient in situations when only whole-number quotients make sense and the leftover amount must be accounted for. Or, I don't have to include the remainder at all when the situation only asks for the whole-number quotient.

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