



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

Discuss the *Essential Question* with students: How can you use models to compare customary units of weight?

Common Core Standards for Mathematical Content

CC.4.MD.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

Common Core Standards for Mathematical Practice

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

CC.K–12.MP.6 Attend to precision.

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 discuss the problem with students.
- Tap the first **Action Arrow** to reveal Step 1.
- Change the **Pen** color to red and have a volunteer use the **Pen** to shade the number line.
- Tap the second **Action Arrow** to reveal Step 2.
- Change the **Pen** color to green and have a volunteer use the **Pen** to shade the number line.
- Tap the third **Action Arrow** to reveal Step 3.
- Ask a student to use the **Pen** to complete the sentences.
- Tap **Math Talk** to reveal a discussion question.

Teaching the Math

Introduce the customary unit of weight. Explain that in the customary system of measurement, two units that can be used to measure weight are ounces and pounds. Work through the activity with the class.

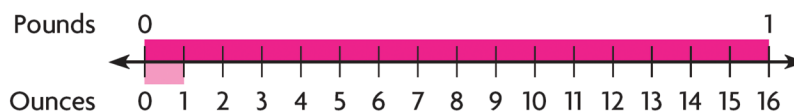
Ask: In Step 1, what do you shade to represent 1 pound on the number line? **from 0 to 1 on the top portion of the number line.**

Ask: In Step 2, what do you shade to represent 1 ounce on the number line? **from 0 to 1 on the bottom portion of the number line**

Ask: In Step 3, how many ounces make 1 pound? Explain how you know. **16 ounces; Possible explanation: the number line shows 16 ounces is the same as 1 pound.**

Ask: If you know 1 pound is 16 times as heavy as 1 ounce, how can you compare the size of 2 pounds to the size of 1 ounce? **Possible answer: since a pound is 16 times as heavy as an ounce, 2 pounds would be 2×16 times, or 32 times, as heavy as an ounce.**

Use **Math Talk** to help students recognize how to compare customary units of weight.

Answer Key

You need **16** ounces to make **1** pound.

So, 1 pound is **16** times as heavy as 1 ounce.

Math Talk

9 pounds; possible explanation: since there are 16 ounces in a pound, 9 ounces weigh less than 9 pounds.

**Using the Whiteboard**

- Discuss the problem with students.
- Tap the **Action Arrow** to reveal Step 1.
- Tap **Think** to reveal helpful text.
- Ask a student to use the **Pen** to complete the equations.
- Ask another student to tap **Answer** to reveal the completed table.

Teaching the Math

Read and discuss the problem with the class.

Ask: What information do you know? **Nancy needs 5 pounds of flour to bake pies. She has 90 ounces of flour.**

Ask: What are you trying to find? **if Nancy has enough flour to bake the pies**

Ask: How can you solve the problem? **Possible answer: I can compare 5 pounds and 90 ounces by writing 5 pounds as ounces.**

Ask: Why do you change the larger unit, pounds, to a smaller unit, ounces? **Possible answer: I need to compare the measurements using the same measurement unit. I know 1 pound is 16 times as heavy as 1 ounce, so I can write pounds as ounces by multiplying the number of pounds by 16. Then I can compare ounces to ounces.**

Answer Key

Pounds	Ounces
1	16
2	32
3	48
4	64
5	80

Think:

$$1 \text{ pound} \times 16 = 16 \text{ ounces}$$

$$2 \text{ pounds} \times 16 = \mathbf{32 \text{ ounces}}$$

$$3 \text{ pounds} \times \mathbf{16} = \mathbf{48 \text{ ounces}}$$

$$4 \text{ pounds} \times \mathbf{16} = \mathbf{64 \text{ ounces}}$$

$$5 \text{ pounds} \times \mathbf{16} = \mathbf{80 \text{ ounces}}$$

**Using the Whiteboard**

- Discuss the problem with students.
- Tap **Think** to reveal helpful text.
- Ask a student to tap **Answer** to reveal the answers.
- Tap the **Action Arrow** to reveal concluding sentences.
- Ask another student to tap **Answer** to reveal the completed sentences.
- Tap the **Try This** button to reveal another problem.
- Ask a student to use the **Pen** to complete the table and sentence.

Teaching the Math

Ask: How can you solve the problem? **Possible answer:** I can compare 5 pounds and 90 ounces by writing 5 pounds as ounces.

Ask: Why do you change the larger unit, pounds, to a smaller unit, ounces? **Possible answer:** I need to compare the measurements using the same measurement unit. I know 1 pound is 16 times as heavy as 1 ounce, so I can write pounds as ounces by multiplying the number of pounds by 16. Then I can compare ounces to ounces.

Ask: Suppose Nancy needed 6 pounds of flour to bake the pies. Would she have enough flour? Explain. **No; possible explanation:** $6 \text{ pounds} \times 16 = 96 \text{ ounces}$; $90 \text{ ounces} < 96 \text{ ounces}$, so she would not have enough flour.

Try This

Introduce the customary unit of weight, a ton. Explain that a ton is used to measure the weight of very heavy objects.

Ask: What are some objects that might weigh 1 ton or more? **Answers will vary.**
Possible answers: an elephant, a school bus, a ship

Ask: How can you use the table to relate tons and pounds? **Possible answer:** since 2,000 pounds make 1 ton, multiply the number of tons by 2,000 to find the number of pounds.

Answer Key

90 ounces > 80 ounces

90 ounces is **greater** than 5 pounds.

So, Nancy **has** enough flour to make the pies.

Tons	Pounds
1	2,000
2	4,000
3	6,000

Try This

1 ton is **2,000** times as heavy as 1 pound.

**Using the Whiteboard**

- Discuss the problem with students.
- Tap **Think** to reveal helpful text. Ask a volunteer to use the **Pen** to complete the equation.
- 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.
- A student may also use the **Pen** to write the answer on the blank line.

Answer Key

4 tons \times 2,000 = 8,000 pounds

4 tons = 8,000 pounds 

**Using the Whiteboard**

- Discuss the problems with students.
- Ask volunteers to use the **Pen** to work out the problems and write their respective answers in the space provided.
- Tap **Try Another!** to reveal two additional problems.
- Discuss the problems with students.
- Ask volunteers to use the **Pen** to work out the problems and write their respective answers in the space provided.

Answer Key

7 pounds = 112 ounces 6 tons = 12,000 pounds
1 pound > 15 ounces 2 tons > 2 pounds



Using the Whiteboard

- Discuss the problem with students.
- Ask a volunteer to use the **Pen** to work out his or her answer in the space provided.

Answer Key

16,000 pounds

**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 chose the same number of ounces as pounds.
- B)** They chose the number of ounces in 1 pound.
- C)** They doubled the number of pounds.

Answer Key

D) 160 ounces

**Using the Whiteboard**

- Discuss the problem with students.
- Tap the first **Action Arrow** to reveal a direction line.
- Ask a volunteer to use the **Pen** to answer the question in the space provided.
- Tap the second **Action Arrow** to reveal another direction line.
- Have another volunteer use the **Pen** to answer the question in the space provided.
- Tap the third **Action Arrow** to reveal a concluding sentence.

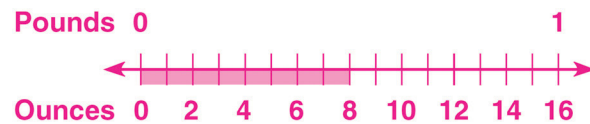
Teaching the Math

The problem requires students to identify an error in a solution involving a fraction of a pound.

Ask: How can you use a number line to find the number of ounces in a fraction of a pound? **Possible answer:** use the number line to show the relationship between pounds and ounces. Shade to show the fraction of the pound. Find the number of ounces in the fraction of the pound.

Answer Key

Possible answer: Dan's number line does not correctly show the number of ounces in a pound. There are 16 ounces in a pound. Half of 16 is 8, so there are 8 ounces in $\frac{1}{2}$ pound.



So, Alexis bought 8 ounces of grapes.

**Using the Whiteboard**

- Read aloud the *Essential Question*: How can you use models to compare customary units of weight?
- 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 can use models, such as a number line or a table, to show the relationship between the units being compared.

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