



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 represent and solve multistep problems using equations?

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 the students. Read the direction line.
- Read and discuss the parts of Step 1.
- Guide a volunteer to tap **Answer** to display the answer.
- Tap the **Action Arrow**. Read and discuss the parts of Step 2.
- Guide a volunteer to tap **Answer** to display the answer.

Teaching the Math

Read and discuss the problem. Make sure students understand that the solution to the problem can be found by breaking the question into steps. In order to find each step, have students underline important information in the problem.

Discuss with students the series of single-step equations they can model and solve in order to answer this multistep problem.

Ask: The models for Steps 1 and 2 both represent multiplication equations. Why does the model for Step 1 show 3 equal sections while the model for Step 2 shows 2 equal sections? **Because in Step 1 there are 3 memory cards, and in Step 2 there are 2 memory cards. The equal sections represent the number of memory cards.**

Answer Key

$$\underline{192} = n$$

$$\underline{32} = p$$

**Using the Whiteboard**

- Remind the students of the problem by pulling out the Problem tab, if necessary.
- Discuss the parts of Step 3
- Guide a volunteer to tap **Answer** to display the answer.
- Tap the **Action Arrow**. Discuss the parts of Step 4.
- Guide a volunteer tap **Answer** to display the answers.

Teaching the Math

Ask: How does the model represent the equation given in Step 3? Each addend is represented by a box shown in the bar. There are two addends; therefore, there are two boxes in the bar. The sum or total, A , is represented by the bracket.

Ask: Notice that the bar model in Step 4 represents subtraction. How could you draw a model to represent $306 - 39 = x$? I could replace 224 in the model with 306, 78 with 39, and y with x .

Answer Key

$$224 = A \qquad 146 = y$$

So, Crismari has 146 gigabytes of memory left on her computer.

**Using the Whiteboard**

- Pull out the Key Concept tab and discuss the information with the students. Relate the information to the multistep equation.
- Read the direction line to the students.
- Discuss the problem.
- Change the **Pen** color to red.
- Guide a volunteer to use the **Pen** to use the workspace to figure out the answers to the first equation and write the numbers on the blank lines.
- Use the **Eraser** to clear the workspace.
- Guide different volunteers to use the **Pen** to work out each part of the problem and write the answers on the blank lines.

Teaching the Math

Lead a discussion about the Order of Operations. Write the following problems on the board and **ask**: What is the first step you would perform to solve the problem?

$$63 - 8 + 13 + 19 \text{ subtract 8 from 63}$$

$$180 - 5 \times 11 \times 2 \text{ multiply 5 by 11}$$

In this method, students will write a multistep equation to solve the same problem from the previous pages.

Ask: Compare this method to the first. Both methods require several steps to solve. This method uses one equation and the order of operations. The first method uses several one-step equations.

Answer Key

$$\underline{192} + \underline{2} \times \underline{16} - \underline{78} = n$$

$$\underline{192} + \underline{32} - \underline{78} = n$$

$$\underline{224} - \underline{78} = n$$

$$\underline{146} = n$$

**Using the Whiteboard**

- Read the direction line and the problem to the students.
- Tap the first **Action Arrow**. Read the directions.
- Guide a volunteer to use the **Pen** to write the answer on the blank lines. Repeat for the second equation.
- Tap the second **Action Arrow**. Read the directions.
- Guide a volunteer to use the **Pen** to write the answer on the blank lines. Repeat for the final equation.
- Tap **Math Talk** to reveal a discussion question.

Teaching the Math

This problem connects to the learning model. Have students explain their thinking as they answer the question.

Use **Math Talk** to check students' understanding of the Order of Operations.

Ask: If you add before multiplying, will you get the same answer? Explain. **No; possible explanation: It is important to follow the order of operations and multiply first then add.**

Common Errors

Error Students do not follow the order of operations correctly.

Example Find the value of n .

$$2 \times 5 + 10 \times 3 = n$$

Student answer: $60 = n$

Springboard to Learning Tell students to look at all of the operations before solving and make a plan to solve using the order of operations. They should show each step of their work.

Answer Key

$$\underline{85} + \underline{5} \times \underline{20} - \underline{32} = n$$

$$\underline{85} + \underline{100} - \underline{32} = n$$

$$\underline{185} - \underline{32} = n$$

$$\underline{153} = n$$

**Using the Whiteboard**

- Read the directions and the problem 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.
- Tap **Try Another!** to reveal a new problem.
- Guide a volunteer to use the **Pen** to write an estimate, work out the problem in the workspace and then write the answer on the blank line.

Teaching the Math

Encourage students to explain their thinking as they work out each problem.

Answer Key

$$\underline{451} = n \qquad \underline{173} = n$$



Using the Whiteboard

- Read the problem to the students.
- Guide a volunteer to use the **Pen** to solve the problem in the workspace and then write the answer on the blank line.
- Tap **Try Another!** and repeat as for the first problem.

Teaching the Math

Tell students that they may solve these multistep problems using either a series of one-step equations or using a multistep equation and the order of operations.

Answer Key

160 stamps and cards
274 marbles and shells

**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 view the correct answer.

Teaching the Math**Test Prep Coach**

In the problem, if students selected:

- A)** They found the number of pinecones before the trade
- B)** They found the number of acorns before the trade
- C)** They found the number of pinecones and acorns before the trade.

Answer Key

D) 138

**Using the Whiteboard**

- Read the problem to the students.
- Tap the first **Action Arrow** to reveal the model. Relate the model to the problem.
- Tap the second **Action Arrow** to reveal the steps. Relate the steps to the problem.
- Tap the third **Action Arrow** and read the directions to the students.
- Guide a volunteer to use the **Pen** to write the description of the error on the blank lines.
- Guide a volunteer to use the **Pen** to use the correct steps to solve the problem.

Teaching the Math

After students review Dominic's work, have them identify the step in which the error was made. Students should identify that Dominic wrote the equation correctly and drew the bar model correctly, but he did not solve correctly.

The second line of Dominic's solution is correct, but in the third line he should have multiplied. Remind students that multiplication and division come before addition and subtraction.

Answer Key

Dominic did not follow the order of operations.

$$\begin{array}{l}
 \underline{5} \times \underline{12} + \underline{4} \times \underline{20} - \underline{15} = n \\
 \underline{60} + \underline{4} \times \underline{20} - \underline{15} = n \\
 \underline{60} + \underline{80} - \underline{15} = n \\
 \underline{140} - \underline{15} = n \\
 \underline{125} = n
 \end{array}$$

Using the Whiteboard

- Read aloud the *Essential Question*: How can you represent and solve multistep problems using equations?
- You may use the Essential Question as a discussion question or have a volunteer use the **Pen** to write an answer on the whiteboard.
- Pull out the Answer tab to reveal a possible answer.

Answer Key

Essential Question: Possible answer: I can make models using the information given. Then I can use the models to write and solve the equations needed to solve the problem.

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