



# **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 expanded form to multiply a multidigit number by a 1-digit number?

**Common Core Standards for Mathematical Content**

**CC.4.NBT.5** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

**Common Core Standards for Mathematical Practice**

**CC.K–12.MP.4** Model with mathematics.

**CC.K–12.MP.6** Attend to precision.

**Navigating the *SMART Notebook* file**

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

- Have a student fill in the blank lines for the expanded form and Distributive Property using the **Pen**.
- Tap the first **Action Arrow**. Invite a different volunteer to use the **Highlighter Tool** to shade the hundreds section of the model and use the **Pen** to write the product for the hundreds place.
- Tap the second **Action Arrow**. Invite a different volunteer to use the **Highlighter Tool** to shade the tens section of the model in a different color and use the **Pen** to write the product for the tens place.

**Teaching the Math**

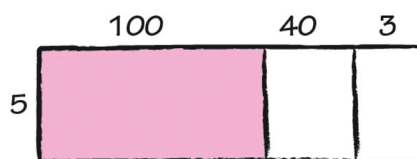
Students use expanded form and the Distributive Property to multiply a 3-digit number by a 1-digit number. Work through the steps with students.

**Ask:** How can you write a number in expanded form? **Possible answer:** Write the number as the sum of the value of each digit, starting with the greatest place value.

**Ask:** How do you use the Distributive Property to multiply? **Possible answer:** Multiply each addend in expanded form by the 1-digit number. Then add the partial products.

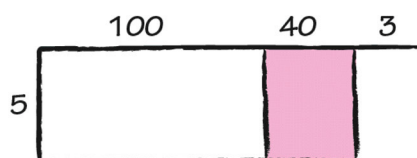
**Answer Key**

$$5 \times 143 = 5 \times (100 + 40 + 3) \\ = (5 \times 100) + (5 \times 40) + (5 \times 3)$$

**SHADE THE MODEL****STEP 1****THINK AND RECORD**

Multiply the hundreds.

$$(5 \times 100) + (5 \times 40) + (5 \times 3) \\ \underline{500} + (5 \times 40) + (5 \times 3)$$

**STEP 2**

Multiply the tens.

$$(5 \times 100) + (5 \times 40) + (5 \times 3) \\ 500 + \underline{200} + (5 \times 3)$$

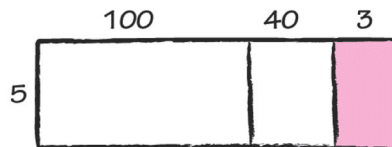
**Using the Whiteboard**

- Pull out the Problem tab to remind students of the original problem.
- Invite a different volunteer to use the **Highlighter Tool** to color the ones section of the model and use the **Pen** to write the product for the ones place.
- Have a student tap the **Action Arrow** to reveal Step 4.
- Invite a volunteer to add the products and complete the multiplication sentence.
- Tap **Math Talk** to reveal a discussion question.

**Teaching the Math**

**Ask:** How does the model relate to the Distributive Property? **Possible answer:** Each rectangle represents multiplying an addend in expanded form by the 1-digit number.

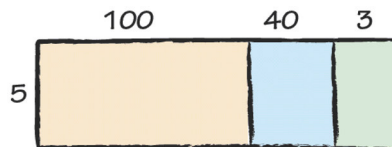
**Ask:** Why do you add in the final step? **Possible answer:** After I find each partial product, I need to add the partial products to find the answer.

**Answer Key****STEP 3**

Multiply the ones.

$$(5 \times 100) + (5 \times 40) + (5 \times 3)$$

$$500 + 200 + \underline{15}$$

**STEP 4**

Add the partial products.

$$\begin{array}{r} 500 \\ 200 \\ + 15 \\ \hline 715 \end{array}$$

So,  $5 \times 143 = \underline{715}$ .

**Math Talk**

**Yes.** Possible explanation: 143 is between 100 and 200. So,  $5 \times 143$  is between  $5 \times 100 = 500$  and  $5 \times 200 = 1,000$ . Since 715 is between 500 and 1,000, the answer is reasonable.

**Using the Whiteboard**

- Read the problem with students.
- Read Step 1. Ask a volunteer to use the **Pen** to write the answers on the blank lines.
- Tap the **Action Arrow** to the right of Step 1 to reveal Step 2.
- Invite a student to use the **Pen** to add the partial products in the grid.
- Tap the **Action Arrow** on the left hand side of the page.
- Have a student use the **Pen** to write the answer on the blank line.

**Teaching the Math**

**Ask:** When writing 1,250 in expanded form, why don't you write anything for the ones place? **Possible answer:** The value of the ones digit is zero. Adding zero doesn't change the sum of the partial products, so I don't need to include it.

**Ask:** How is multiplying by a 3-digit number similar to multiplying by a 4-digit number using expanded form? **Possible answer:** The steps are the same. Depending on the digits in the 3-digit and 4-digit numbers, you may have more or fewer partial products.

**Answer Key**

$$5 \times 1,250 = 3 \times 1,000 + 200 + 50$$

$$= (3 \times 1,000) + (3 \times 200) + (3 \times 50)$$

		3	0	0	0
		6	0	0	
	+	1	5	0	
		3	7	5	0

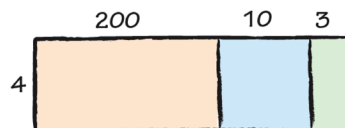
So, the shop ordered **3,750** animals.



## Using the Whiteboard

- Read the instructions on the slide.
- Ask volunteers to use the **Pen** to fill in blank lines and add the partial products to reach the answer.

## Answer Key

Find  $4 \times 213$ . Use expanded form.

		8	0	0
		4	0	
	+		1	2
		8	5	2

$$4 \times 213 = \underline{4} \times (\underline{200} + \underline{10} + \underline{3})$$

$$= (\underline{4} \times \underline{200}) + (\underline{4} \times \underline{10}) + (\underline{4} \times \underline{3})$$

Use the Distributive Property.

$$= \underline{800} + \underline{40} + \underline{12}$$

$$= \underline{852}$$

**Using the Whiteboard**

- Read the first problem.
- Have a student stamp 59 blocks (5 tens and 9 ones) on to the Workmat.
- Hover over the **Other Forms** button to see 59 in expanded form.
- Tap the **Broom** to clear the Workmat.
- Write 59 in expanded form in the Workspace area using the **Pen**.
- Invite a student to use the **Pen** to find the product.
- Repeat these steps with the second problem, using the expanded form of 288.

**Teaching the Math****Common Errors**

**Error** Students may forget to multiply the 1-digit number by each addend when using the Distributive Property.

**Example**  $3 \times 288 = 3 \times (200 + 80 + 8) = (3 \times 200) + (3 \times 8)$

**Springboard to Learning** Tell students to underline each addend after they write it using the Distributive Property.  $3 \times 288 = 3 \times (\underline{200} + \underline{80} + \underline{8}) = (3 \times \underline{200}) + (3 \times \underline{80}) + (3 \times \underline{8})$

**Answer Key**

$$4 \times 59 = 236$$

$$3 \times 288 = 864$$

**Using the Whiteboard**

- Invite a volunteer to use the **Pen** to work out the solution to the problem and write it on the blank line.
- Tap **Try Another!** to replace the problem with another problem.
- Repeat these steps until all four problems have been solved.
- Tap **Math Talk** to reveal a discussion question.

**Teaching the Math**

In these problems, students should use expanded form. Have students check the reasonableness of their answer.

**Answer Key**

$$4 \times 21 = 84$$

$$5 \times 479 = 2,395$$

$$7 \times 596 = 4,172$$

$$4 \times 2,924 = 11,696$$

**Math Talk**

Possible explanation: breaking apart the greater factor makes multiplying easier.





**Using the Whiteboard**

- Ask a volunteer to use the **Pen** to work out the answer on the whiteboard.

**Answer Key**

\$237

**Using the Whiteboard**

- Ask a volunteer to use the **Pen** to work out the answer the question on the whiteboard.

**Teaching the Math**

This problem requires students to use higher order thinking skills as they evaluate if Tanya's statement is correct. This is a multistep problem requiring students to gather the correct information from the table.

**Ask:** What is the correct answer using the discounted price? **\$68**

**Answer Key**

**No.** Possible explanation: Tanya used the regular price rather than using the discounted price to get her answer.

**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**

If students selected:

- A)** They used the ones place for each digit.
- B)** They used the hundreds place for each digit.
- D)** They used the tens place for the digit 1.

**Answer Key**

**C)**  $(5 \times 300) + (5 \times 80) + (5 \times 1)$

**Using the Whiteboard**

- Read aloud the *Essential Question*: How can you use expanded form to multiply a multidigit number by a 1-digit number?
- 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 write the greater factor in expanded form. Then I can use the Distributive Property to multiply each addend by the 1-digit number and add the partial products to find the product.

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