Name ______________________

Multiply with Regrouping

I Can use regrouping to multiply whole numbers.

Florida's B.E.S.T.

- **Number Sense & Operations** 4.NSO.2.2, 4.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

UNLOCK the Problem Real World

By 1914, Henry Ford had streamlined his assembly line to make a Model T Ford car in 93 minutes. How many minutes did it take to make 25 Model Ts?

▲ The first production Model T Ford was assembled on October 1, 1908.

Use place value and regrouping.

Multiply. 93×25 **Estimate.** $90 \times 30 =$ ______

THINK	RECORD
STEP 1 • Think of 93 as 9 tens and 3 ones. • Multiply 25 by 3 ones.	$\begin{array}{r} ^{1} \\ 25 \\ \times\ 93 \\ \hline \square \end{array} \leftarrow 3 \times 25$
STEP 2 • Multiply 25 by 9 tens.	$\begin{array}{r} ^{4} \\ ^{\cancel{1}} \\ 25 \\ \times\ 93 \\ \hline 75 \\ \square \end{array} \leftarrow 90 \times 25$
STEP 3 • Add the partial products.	$\begin{array}{r} ^{4} \\ ^{\cancel{1}} \\ 25 \\ \times\ 93 \\ \hline 75 \\ +2,250 \\ \hline \square \end{array}$

So, 93×25 is 2,325. Since ______ is close to the estimate of ______, the answer is reasonable.

Math Talk **MTR 4.1** Engage in discussions on mathematical thinking.

Why do you get the same answer whether you multiply 93×25 or 25×93?

Different Ways to Multiply You can use different ways to multiply and still get the correct answer. Cyrus and Kasra both solved 67 × 40 correctly, but they used different ways.

Look at Cyrus' paper.

$$\begin{array}{ccccc} 60 & \times & 40 & = & 2{,}400 \\ 7 & \times & 40 & = & 280 \\ 2{,}400 & + & 280 & = & 2{,}680 \end{array}$$

So, Cyrus' answer is 67 × 40 = 2,680.

Look at Kasra's paper.

$$\begin{array}{r} {\scriptstyle 2} \\ 67 \\ \times\ 40 \\ \hline 00 \\ +\ 2{,}680 \\ \hline 2{,}680 \end{array}$$

So, Kasra also found 67 × 40 = 2,680.

1. What method did Cyrus use to solve the problem?

____

2. What method did Kasra use to solve the problem?

____

Share and Show | Math Board

1. Look at the problem. Complete the sentences.

Multiply ______ and ______ to get 0.

Multiply ______ and ______ to get 1,620.

Add the partial products.

0 + 1,620 = __________

$$\begin{array}{r} {\scriptstyle 4} \\ 27 \\ \times 60 \\ \hline 0 \\ +1{,}620 \\ \hline \square \end{array}$$

Name ________________________________

Estimate. Then find the product.

2. Estimate: ________

$$\begin{array}{r} 68 \\ \times\ 53 \\ \hline \end{array}$$

3. Estimate: ________

$$\begin{array}{r} 61 \\ \times\ 54 \\ \hline \end{array}$$

4. Estimate: ________

$$\begin{array}{r} 190 \\ \times\ 27 \\ \hline \end{array}$$

Math Talk

MTR 3.1 Complete tasks with mathematical fluency.

Why can you omit zeros of the first partial product when you multiply 20×34?

On Your Own

Estimate. Then find the product.

5. Estimate: ________

$$\begin{array}{r} 30 \\ \times\ 47 \\ \hline \end{array}$$

6. Estimate: ________

$$\begin{array}{r} 278 \\ \times\ 56 \\ \hline \end{array}$$

7. Estimate: ________

$$\begin{array}{r} 27 \\ \times\ 25 \\ \hline \end{array}$$

8. 34×65

9. $142 \times \$13$

10. 60×17

11. 462×45

12. $57 \times \$98$

MTR **Write a rule for the pattern. Use your rule to find the unknown numbers.**

13.

Hours	*h*	5	10	15	20	25
Minutes	*m*	300	600	900		

Rule: ________________

14. Owners of a summer camp are buying new cots for their cabins. There are 16 cabins. Each cabin needs 6 cots. Each cot costs $92. How much will the new cots cost?

____

15. A theater has 28 rows of 38 seats downstairs and 14 rows of 26 seats upstairs. How many seats does the theater have?

____

Problem Solving • Applications

16. Machine A can label 11 bottles in 1 minute. Machine B can label 12 bottles in 1 minute. How many bottles can both machines label in 15 minutes?

MATH on the Spot

a. What do you need to know? ____________________

____

b. What numbers will you use? ____________________

c. Tell why you might use more than one operation to solve the problem.

____

____

____

d. Solve the problem.

So, both machines can label ______ bottles in ______ minutes.

17. MTR A toy company makes wooden blocks. A carton holds 85 blocks. How many blocks can 19 cartons hold?

____

18. A company is packing cartons of candles. Each carton can hold 75 candles. So far, 50 cartons have been packed, but only 30 cartons have been loaded on a truck. How many more candles are left to load on the truck?

____

19. Mr. Garcia's class raised money for a field trip to the zoo. There are 23 students in his class. The cost of the trip will be $17 for each student. What is the cost for all the students? Explain how you found your answer.

____

____

Name ______________________________

Multiply by 2-Digit Numbers

I Can solve real-world problems using multiplication.

Florida's B.E.S.T.
- **Algebraic Reasoning** 4.AR.1.1
- **Number Sense & Operations** 4.NSO.2.3
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.4.1, MTR.6.1, MTR.7.1

UNLOCK the Problem — Real World

During the 2010 Great Backyard Bird Count, an average of 42 bald eagles were counted in each of 20 locations throughout Alaska. In 2009, an average of 32 bald eagles were counted in each of 26 locations throughout Alaska. Based on this data, how many more bald eagles were counted in 2010 than in 2009?

Use the graphic organizer to help you solve the problem.

Read the Problem

What do I need to find?

I need to find ____________ bald eagles were counted in 2010 than in 2009.

What information do I need to use?

In 2010, ______ locations counted an average of ______ bald eagles each.

In 2009, ______ locations counted an average of ______ bald eagles each.

How will I use the information?

I can solve simpler problems.

Find the number of bald eagles counted in ______.

Find the number of bald eagles counted in ______.

Then draw a bar model to compare the ______ count to the ______ count.

Solve the Problem

- First, find the total number of bald eagles counted in 2010.

  ______ × ______

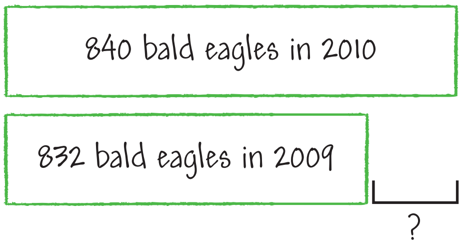
  = ______ bald eagles counted in 2010

- Next, find the total number of bald eagles counted in 2009.

  = ______ × ______

  = ______ bald eagles counted in 2009

- Last, draw a bar model. I need to subtract.



$840 - 832 =$ ______

So, there were ______ more bald eagles counted in 2010 than in 2009.

Try Another Problem

Prescott Valley, Arizona, reported a total of 29 mourning doves in the Great Backyard Bird Count. Mesa, Arizona, reported 20 times as many mourning doves as Prescott Valley. If Chandler reported a total of 760 mourning doves, how many more mourning doves were reported in Chandler than in Mesa?

Mourning dove ▶

Read the Problem	Solve the Problem
What do I need to find?	
What information do I need to use?	760 mourning doves in Chandler 580 mourning doves in Mesa ?
How will I use the information?	

- Is your answer reasonable? Explain. ______________________________

____

____

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

What is another way you could solve this problem?

Name ______________________________

Share and Show

Math Board

1. An average of 74 reports with bird counts were turned in each day in June. An average of 89 were turned in each day in July. How many reports were turned in for both months? (Hint: There are 30 days in June and 31 days in July.)

   First, write the problem for June.

   ____

   Next, write the problem for July.

   ____

   Last, find and add the two products.

   ________ reports were turned in for both months.

2. What if an average of 98 reports were turned in each day for the month of June? How many reports were turned in for June? Describe how your answer for June would be different.

   ____

   ____

   ____

3. There are 48 crayons in a box. There are 12 boxes in a carton. Mr. Chou ordered 11 cartons of crayons for the school. How many crayons did he get?

   ____

4. MTR Each of 8 bird-watchers reported seeing 15 roseate spoonbills in a day. If they each reported seeing the same number of roseate spoonbills over 14 days, how many would be reported?

   ____

Show the Math

Demonstrate Your Thinking

On Your Own

5. On each of Maggie's bird-watching trips, she has seen at least 24 birds. If she has taken 4 of these trips each year over the past 16 years, at least how many birds has Maggie seen?

MATH on the Spot

____

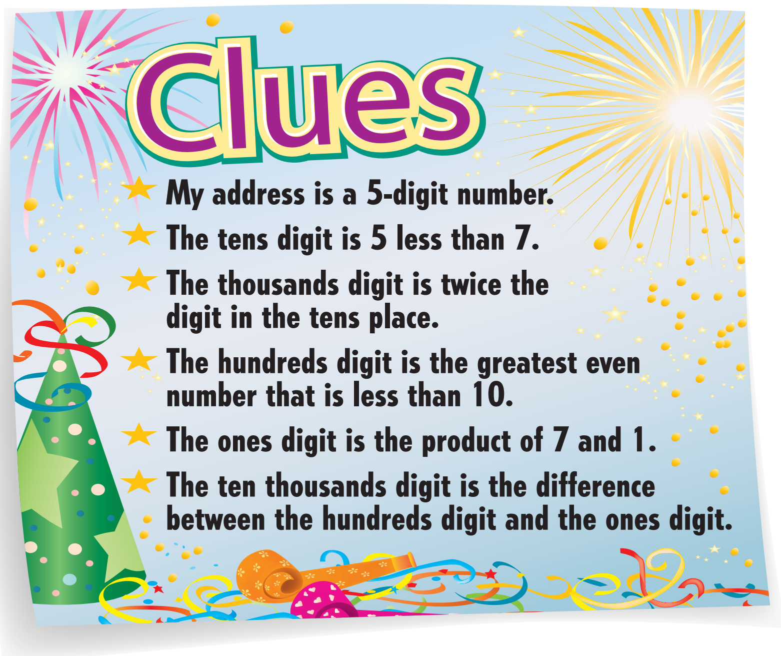
6. MTR There are 12 inches in a foot. In September, Mrs. Baeza orders 64 feet of ribbon for the Crafts Club. In January, she orders 9 feet less. How many inches of ribbon does Mrs. Baeza order? Explain how you found your answer.

____

____

____

7. Ekta is having a party on Saturday. She decides to write a riddle on her invitations to describe her house number on Cypress Street. Use the clues to find Ekta's address.



____

8. A school is adding 4 rows of seats to the auditorium. There are 37 seats in each row. Each new seat costs $99. What is the total cost for the new seats? Show your work.

____