Name _____

Multiply Using Partial Products

Essential Question How can you use place value and partial products to multiply by a 1-digit number?

Common Core **Number and Operations in Base Ten—4.NBT.B.5**

MATHEMATICAL PRACTICES
MP1, MP7

Unlock the Problem

Real World

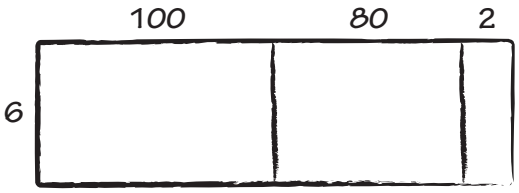
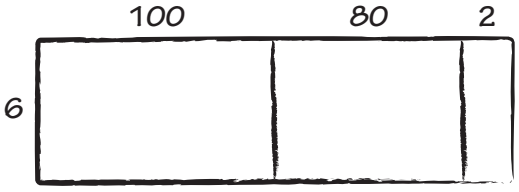
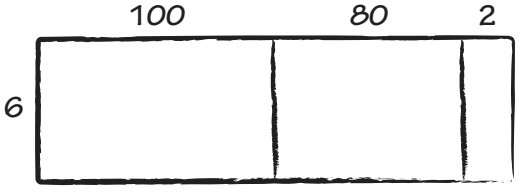
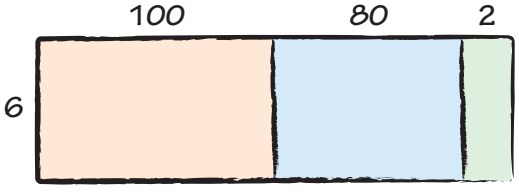
CONNECT How can you use what you know about the Distributive Property to break apart numbers to find products of 3-digit and 1-digit numbers?

- How can you write 182 as a sum of hundreds, tens, and ones?

_____

Use place value and partial products.

Multiply. 6×182 **Estimate.** $6 \times 200 =$ _____

	SHADE THE MODEL	THINK AND RECORD
STEP 1		182 × 6 _____ ← Multiply the hundreds. 6 × 1 hundred = 6 hundreds
STEP 2		182 × 6 600 ← Multiply the tens. 6 × 8 tens = 48 tens
STEP 3		182 × 6 600 480 ← Multiply the ones. 6 × 2 ones = 12 ones
STEP 4		182 × 6 600 480 + 12 _____ ← Add the partial products.

So, $6 \times 182 = 1{,}092$. Since 1,092 is close to the estimate of 1,200, it is reasonable.

Math Talk

MATHEMATICAL PRACTICES 2

Use Reasoning How can you use the Distributive Property to find 4×257?

Example

Use place value and partial products.

Multiply. $2 \times 4{,}572$ **Estimate.** $2 \times 5{,}000 =$ _____

$$\begin{array}{r} 4{,}572 \\ \times \quad 2 \\ \hline \\ \\ \\ + \\ \hline \\ \end{array}$$

← 2×4 thousands $=$ 8 thousands

← 2×5 hundreds $=$ 1 thousand

← 2×7 tens $=$ 1 hundred, 4 tens

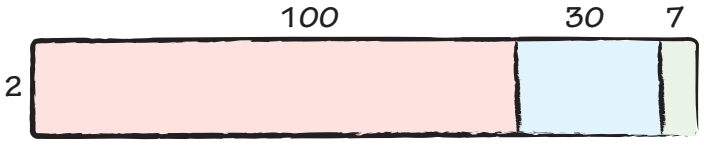
← 2×2 ones $=$ 4 ones

← Add the partial products.

Share and Show

MATH BOARD

1. Use the model to find 2×137.



$$\begin{array}{r} 137 \\ \times \quad 2 \\ \hline \\ \\ + \\ \hline \\ \hline \end{array}$$

Estimate. Then record the product.

2. Estimate: _____

$$\begin{array}{r} 190 \\ \times \quad 3 \\ \hline \\ \\ + \\ \hline \\ \end{array}$$

3. Estimate: _____

$$\begin{array}{r} 471 \\ \times \quad 4 \\ \hline \\ \\ + \\ \hline \\ \end{array}$$

4. Estimate: _____

$$\begin{array}{r} \$3{,}439 \\ \times \quad 7 \\ \hline \\ \\ \\ + \\ \hline \\ \end{array}$$

Math Talk MATHEMATICAL PRACTICES 6

Explain how using place value and expanded form makes it easier to find products.

Name _____

On Your Own

Estimate. Then record the product.

5. Estimate: _____

$$\begin{array}{r} \$53 \\ \times \quad 4 \\ \hline \\ + \\ \hline \end{array}$$

6. Estimate: _____

$$\begin{array}{r} \$473 \\ \times \quad 9 \\ \hline \\ \\ + \\ \hline \end{array}$$

7. Estimate: _____

$$\begin{array}{r} 608 \\ \times \quad 6 \\ \hline \\ \\ + \\ \hline \end{array}$$

Practice: Copy and Solve

Estimate. Then record the product.

8. 2×78

9. $2 \times \$210$

10. $9 \times \$682$

11. $8 \times 8{,}145$

MATHEMATICAL PRACTICE 2 Use Reasoning Algebra

Find the missing digit.

12.
$$\begin{array}{r} \square 5 \\ \times \quad 7 \\ \hline 455 \end{array}$$

13.
$$\begin{array}{r} 248 \\ \times \quad 3 \\ \hline \square 44 \end{array}$$

14.
$$\begin{array}{r} \$395 \\ \times \quad \square \\ \hline \$2{,}370 \end{array}$$

15.
$$\begin{array}{r} 3{,}748 \\ \times \quad 4 \\ \hline 1\,\square{,}992 \end{array}$$

16. GO DEEPER A store bought 9 cases of light bulbs in May and 8 cases in June. There are 48 light bulbs in a case. How many light bulbs did the store buy in May and June?

_____

17. GO DEEPER Mr. Wilson saved $2,500 to buy airline tickets for his family. He bought 6 airline tickets for $372 each. How much of his savings does Mr. Wilson have after he buys the tickets?

_____

18. GO DEEPER Coach Ramirez bought 8 cases of bottled water for a road race. There are 24 bottles in each case. After the race, 34 bottles of water were left. How many bottles were used at the race? Explain.

_____

_____

_____

Problem Solving • Applications Real World

19. MATHEMATICAL PRACTICE 4 **Use Diagrams** Look at the picture. Kylie has 832 songs on her portable media player. Lance has 3 times as many songs. How many fewer songs can Lance add to his player than Kylie can add to hers?

20. GO DEEPER James wants to buy the new portable media player shown. He has 5 times as many songs as Susan. Susan has 1,146 songs. Will all of his songs fit on the portable media player? How many songs does James have?

WRITE Math • Show Your Work

21. THINK SMARTER The sum of a 3-digit number and a 1-digit number is 217. The product of the numbers is 642. If one number is between 200 and 225, what are the numbers?

22. THINK SMARTER Mrs. Jackson bought 6 gallons of juice for a party. Each gallon has 16 cups. After the party, 3 cups of juice were left over. At the party, how many cups did people drink? Show your work and explain how you found your answer.

Name _____

Multiply Using Partial Products

Common Core

COMMON CORE STANDARD—4.NBT.B.5
Use place value understanding and properties of operations to perform multi-digit arithmetic.

Estimate. Then record the product.

1. Estimate: 1,200

$$\begin{array}{r} 243 \\ \times \quad 6 \\ \hline \end{array}$$

1,200
240
+ 18
1,458

2. Estimate: _____

$$\begin{array}{r} 640 \\ \times \quad 3 \\ \hline \end{array}$$

3. Estimate: _____

$$\begin{array}{r} \$149 \\ \times \quad 5 \\ \hline \end{array}$$

4. Estimate: _____

$$\begin{array}{r} 721 \\ \times \quad 8 \\ \hline \end{array}$$

5. Estimate: _____

$$\begin{array}{r} 293 \\ \times \quad 4 \\ \hline \end{array}$$

6. Estimate: _____

$$\begin{array}{r} \$416 \\ \times \quad 6 \\ \hline \end{array}$$

7. Estimate: _____

$$\begin{array}{r} 961 \\ \times \quad 2 \\ \hline \end{array}$$

8. Estimate: _____

$$\begin{array}{r} 837 \\ \times \quad 9 \\ \hline \end{array}$$

Problem Solving Real World

9. A maze at a county fair is made from 275 bales of hay. The maze at the state fair is made from 4 times as many bales of hay. How many bales of hay are used for the maze at the state fair?

_____

10. Pedro gets 8 hours of sleep each night. How many hours does Pedro sleep in a year with 365 days?

_____

11. WRITE Math Explain how you can find 4×754 using two different methods.

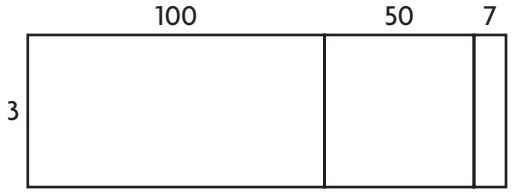
_____

_____

Lesson Check (4.NBT.B.5)

1. A passenger jet flies at an average speed of 548 miles per hour. At that speed, how many miles does the plane travel in 4 hours?

2. Use the model to find 3×157.



Spiral Review (4.NBT.A.2, 4.NBT.B.4, 4.NBT.B.5)

3. The school fun fair made $1,768 on games and $978 on food sales. How much money did the fun fair make on games and food sales?

4. Use the table below.

State	Population
North Dakota	646,844
Alaska	698,473
Vermont	621,760

List the states from least to greatest population.

5. A National Park covers 218,375 acres. What is this number written in expanded form?

6. Last year a business had profits of $8,000. This year its profits are 5 times as great. What are this year's profits?

FOR MORE PRACTICE GO TO THE Personal Math Trainer