Name _____ Date _____

Practicing Multiplication Strategies

Connecting Methods

✓ **Self-Check: Question 1**

Use the *Multiplication Strategies Menu for Larger Numbers* in the *Student Guide* Reference section to help you solve each problem.

1. Irma solved 4 × 539 using rectangles.

	500	30	9	
4	4 × 500 = 2000	4 × 30 = 120	4 × 9 = 36	2000 120 + 36 2156

A. Use her rectangles to fill in the blanks for the same problem using expanded form.

539 × 4 = 500 + ☐ + 9 × 4

☐ + 120 + ☐ = 2156

B. Write a number sentence to show how Irma broke apart 539.

Number sentence: _____

C. What numbers did Irma multiply in both problems to get 2000?

Use the Self–Check Questions and the menu to check your progress and choose practice with using multiplication methods.

Can I Do This?	Working On It! I could use some extra help.	Getting It! I just need some more practice.	Got It! I'm ready for a challenge.
Show that I understand multiplication methods. **Make connections between methods.**	★Q# 2, 4–6, 9, 12	●Q# 2, 4, 6–10, 12	■Q# 3, 4, 7–12

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***Student Activity Book* - Page 239**

Student Activity Book

Practicing Multiplication Strategies

Questions 1–16 (SAB pp. 239–246)

1. A. 30; 2000; 36

B. 539 = 500 + 30 + 9

C. 4 and 500; 4 × 500 = 2000

2. A. 80; 1200; 80; 7; 21

B. 487 = 400 + 80 + 7

C. 3 and 80; 3 × 80 = 240

3. A. 600; 32,000; 600; 280; 32,000; 280

B. 8679 = 8000 + 600 + 70 + 9

C. It represents 2 thousands that were carried over by multiplying 4 × 600 = 2400 and adding the carried over 300.

D. In the box where 4 and 600 are multiplied to get 2400.

4. A. 7 × 70 = 490; 7 × 6 = 42; 490; 42

B. 2000 + 800 + 30 + 6; 4000; 30

C. 450, 18

Name _____ Date _____

★●**2.** John solved 487 × 3 using the all-partials method.

A. Complete the same problem using the rectangle method. Fill in the boxes with the correct numbers.

487 × 3 = 21 + 240 + 1200 = 1461

	400	☐	7	
3	3 × 400 = ☐	3 × ☐ = 240	3 × ☐ = 21	1200 240 + ☐ 1461

B. Write a number sentence to show how John broke apart 487.

Number sentence: _____

C. What numbers did he multiply in both problems to get 240?

■**3.** Ana solved 8679 × 4 using the compact method.

A. Fill in the rectangles for the same problem.

$\overset{2\ 3\ 3}{8679} \times 4 = 34{,}716$

	8000	☐	70	9	
4	4 × 8000 = ☐	4 × ☐ = 2400	4 × 70 = ☐	36 9 = × 4	2400 ☐ + 36 34,716

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B. Write a number sentence to show how Ana broke apart 8679.

Number sentence: _____

C. What does the little 2 above the 8 in the compact method represent?

D. Where is the same 2 in the rectangle method?

***Student Activity Book* - Page 240**

Name _____ Date _____

★●■**4.** Professor Peabody's cat had muddy feet and walked across some problems. Fill in the muddy spots to show the problems correctly.

A. 7 × 476

	400	70	6	
7	7 × 400 = 2800			2800 + 3332

B. 2836 × 5

2836 × 5 = ☐ × 5

10,000 + ☐ + 150 + ☐ = 14,180

C. 9 × 452

452 × 9 = 3600 + ☐ = 4068

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5. 350

6. 400; 5; 240

7. 4200; 630; 4858

8. 140; 18,000

9. $300 \times 3 = 900$.
298×3 will be 2×3 or 6 less.
$900 - 6 = 894$. $298 \times 3 = 894$

10. Cut 486 in half to get 243. Double 5 to get 10.
10 x 243 = 2430. $5 \times 486 = 2430$.

11. 252 is like \$2.52. $3 \times$ \$2.50 is \$7.50.
$3 \times 2¢ = 6¢$. Add in $6¢$ to get \$7.56.
So $252 \times 3 = 756$.

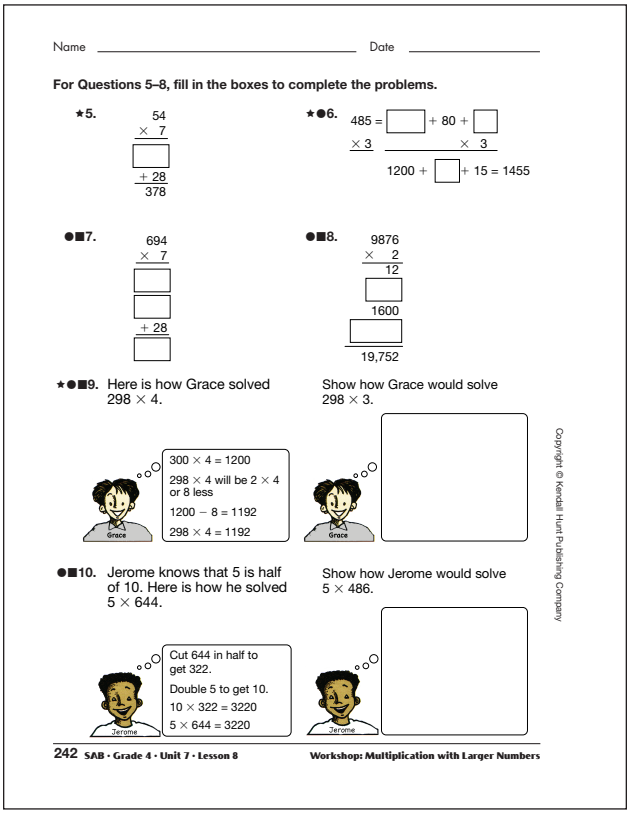
12. Paper-and-pencil and mental math strategies will vary.

A. 3736; Possible paper-and-pencil strategy:

$$\begin{array}{r} 467 \\ \times\ 8 \\ \hline \end{array} \quad = \quad \begin{array}{r} 400 + 60 + 7 \\ \times\ 8 \\ \hline 3200 + 480 + 56 \end{array} = 3736$$

B. 1196; Possible mental math strategy:
$4 \times 300 = 1200$. 299 is one less than 300.
$4 \times 1 = 4$. $1200 - 4 = 1196$.
$4 \times 299 = 1196$

C. 1020; Possible mental math strategy:
204 is like \$2.04. $5 \times$ \$2.00 = \$10.00.
$5 \times 4¢ = 20¢$. Add $20¢$ to get \$10.20, so
$204 \times 5 = 1020$.


Name _____ Date _____

For Questions 5–8, fill in the boxes to complete the problems.

★5. 54 × 7 = □ + 28 = 378

★●6. 485 = □ + 80 + □ ; × 3 ; × 3 ; 1200 + □ + 15 = 1455

●■7. 694 × 7 = □ □ + 28 □

●■8. 9876 × 2 = 12 □ 1600 □ = 19,752

★●■9. Here is how Grace solved 298 × 4.

Grace: 300 × 4 = 1200; 298 × 4 will be 2 × 4 or 8 less; 1200 − 8 = 1192; 298 × 4 = 1192

Show how Grace would solve 298 × 3.

●■10. Jerome knows that 5 is half of 10. Here is how he solved 5 × 644.

Jerome: Cut 644 in half to get 322. Double 5 to get 10. 10 × 322 = 3220; 5 × 644 = 3220

Show how Jerome would solve 5 × 486.

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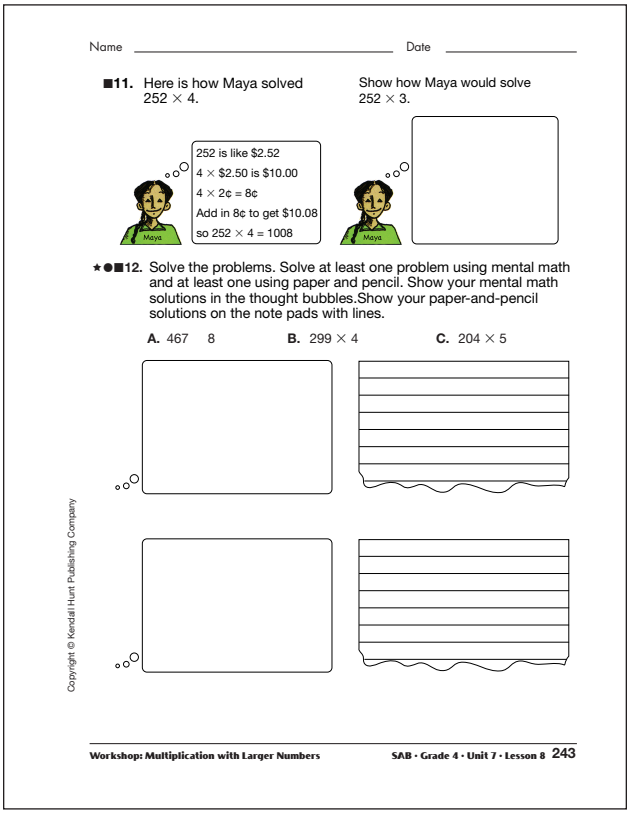
242 SAB · Grade 4 · Unit 7 · Lesson 8 Workshop: Multiplication with Larger Numbers

***Student Activity Book* - Page 242**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■11. Here is how Maya solved 252 × 4.

Maya: 252 is like \$2.52; 4 × \$2.50 is \$10.00; 4 × 2¢ = 8¢; Add in 8¢ to get \$10.08; so 252 × 4 = 1008

Show how Maya would solve 252 × 3.

★●■12. Solve the problems. Solve at least one problem using mental math and at least one using paper and pencil. Show your mental math solutions in the thought bubbles.Show your paper-and-pencil solutions on the note pads with lines.

A. 467 8 **B.** 299 × 4 **C.** 204 × 5

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Workshop: Multiplication with Larger Numbers SAB · Grade 4 · Unit 7 · Lesson 8 243

***Student Activity Book* - Page 243**

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Name _____ Date _____

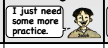
Using Different Methods

✓ **Self-Check: Question 13**

Use the *Multiplication Strategies Menu for Larger Numbers* in the *Student Guide* Reference section to help you.

13. Solve 324 × 8 using three different strategies or methods.

Use the Self-Check Question and the menu to check your progress and choose practice with multiplication strategies and methods.

Can I Do This?	Working On It!	Getting It! 	Got It!
Use different methods to multiply large numbers by 1-digit numbers.	★Q# 14–16 Use each of these methods at least once: • rectangle • all-partials • expanded form	●Q# 14–16 Use each of these methods at least once: • rectangle • all-partials • expanded form • compact method	■Q# 14–16 Use each of these methods at least once: • rectangle • all-partials • expanded form • compact method

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***Student Activity Book* - Page 244**

13. Strategies and methods will vary. Some possible responses:

	300	20	4
4	1200	80	16
4	1200	80	16

$2400 + 160 + 32 = 2592$

$$\begin{array}{r} 324 \\ \times \quad 8 \\ \hline 2400 \\ 160 \\ + \ 32 \\ \hline 2592 \end{array}$$

$$\begin{array}{r} 300 + \ 20 + \ 4 \\ \times \ 8 \\ \hline 2400 + 160 + 32 \end{array} = 2592$$

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Methods and strategies will vary. One possible method is given for each problem. Look for evidence that students are choosing strategies that "fit" the problem.

14. A. 240; $10 \times 48 = 480$
$480 \div 2 = 240$

B. 2036; $500 \times 4 = 2000$;
$9 \times 4 = 36$;
$2000 + 36 = 2036$

C. 7578;
$$\begin{array}{r} 842 \\ \times\ 9 \\ \hline 18 \\ 360 \\ 7200 \\ \hline 7578 \end{array}$$

D. 3858;
$600 + 40 + 3$
$\times\ 6$
$3600 + 240 + 18 = 3858$

E. 2772;
$$\begin{array}{r} {\scriptstyle 1} \\ 924 \\ \times\ 3 \\ \hline 2772 \end{array}$$

F. 2784; $300 \times 8 = 2400$
$50 \times 8 = 400$
$2 \times 8 = 16$
$2800 - 16 = 2784$

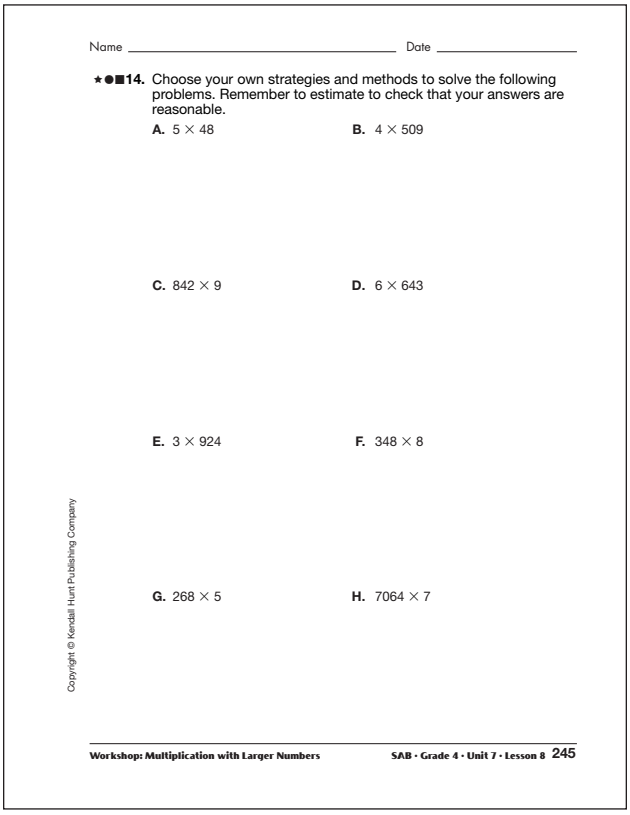
G. 1340; $268 \times 10 = 2680$
$2680 \div 2 = 1340$

H. 49,448;
$$\begin{array}{r} 7064 \\ \times\ 7 \\ \hline 28 \\ 420 \\ 49{,}000 \\ \hline 49{,}448 \end{array}$$

15. Answers will vary. A possible solution for Question 14A:
$5 \times 50 = 250$;
$5 \times 2 = 10$;
$250 - 10 = 240$

16. Answers will vary. A possible solution for Question 14H:
$7 \times 7000 = 49{,}000$

The answer should be a few hundred more than 49,000.



Name _____ Date _____

★●■**14.** Choose your own strategies and methods to solve the following problems. Remember to estimate to check that your answers are reasonable.

A. 5×48 **B.** 4×509

C. 842×9 **D.** 6×643

E. 3×924 **F.** 348×8

G. 268×5 **H.** 7064×7

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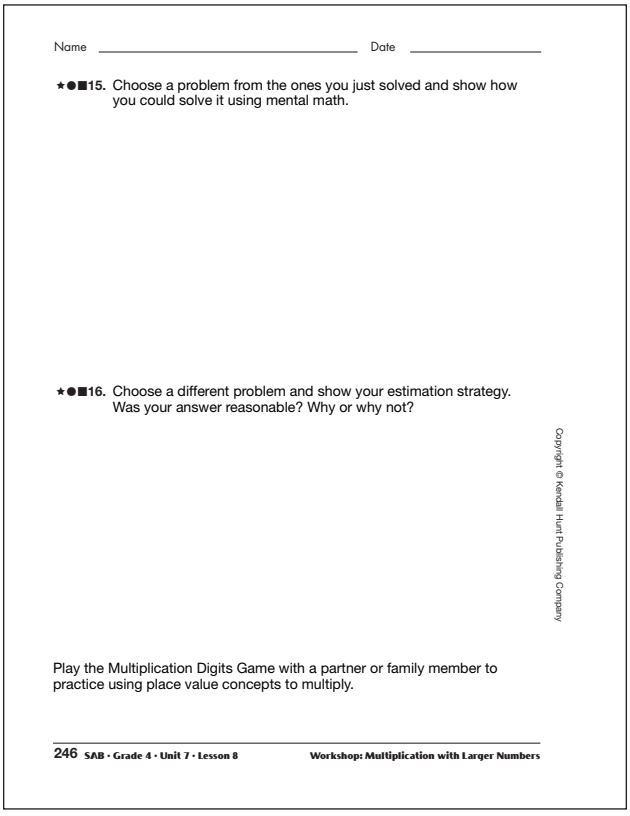

Name _____ Date _____

★●■**15.** Choose a problem from the ones you just solved and show how you could solve it using mental math.

★●■**16.** Choose a different problem and show your estimation strategy. Was your answer reasonable? Why or why not?

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Play the Multiplication Digits Game with a partner or family member to practice using place value concepts to multiply.

***Student Activity Book* - Page 246**

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