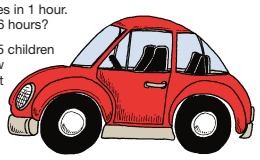
Multiplication Strategies

Solve the following problems:

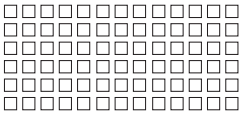
- **Decide whether you need an exact answer or an estimate.**
- **Then, decide whether it is more efficient to use mental math or paper-and-pencil. See the *Multiplication Strategies Menu* in the *Student Activity Book*.**

Show all your work with paper and pencil. Be prepared to explain your mental math strategies.

1. A sailboat can travel about 27 miles in 1 hour. How far can the sailboat travel in 6 hours?
2. There are 25 crackers in a box. If 5 children each ate one box of crackers, how many crackers did the children eat altogether?
3. Mr. Thomas drove for 3 hours without stopping. He drove about 55 miles every hour. About how far did he drive?



4. The Rodriguez family is having a big party. Mrs. Rodriguez knows she should have 70 cans of soda. Ana buys 3 cases of soda. Each case contains 24 cans of soda. Will this be enough soda? Why or why not?
5. There are about 22 students in each classroom at Smith School. There are 8 classrooms in the school. About how many students are in the school?
6. The array below has 6 rows of 13 tiles. How many tiles are in the array?



7. Maya's array has 7 rows of 50 tiles. Ming's array has 7 rows of 46 tiles. Whose array has more tiles? How do you know?

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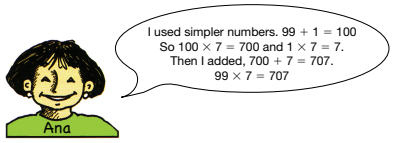
8. An array has 9 rows of 58 tiles. How many tiles are in the array?
9. An array has 5 rows of 86 tiles. How many tiles are in the array? Explain a way to do this problem in your head.
10. Ana solved 99 × 7.



Do you agree with Ana's solution? Tell Ana what you think of her solution.

11. Choose one problem in Questions 1–8 that you solved using mental math and explain your thinking.

Use the *Multiplication Strategies Menu* and the *Practicing Multiplication Strategies* pages in your *Student Activity Book* for more 2-digit by 1-digit multiplication practice.

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Student Guide

Multiplication Strategies

Questions 1–11 (SG pp. 161–162)

Strategies will vary.

1. 180 miles; About 30 miles × 6 hours = 180 miles or about 25 miles × 6 hours = 125 miles
2. 125 crackers; 25 crackers × 5 children = 125 crackers
3. Between 150 and 180 miles;
   50 miles × 3 hours = 150 miles;
   60 miles × 3 hours = 180 miles.
4. 72 cans;
   Yes, because 3 cases × 24 cans = 72 cans
5. About 160 students;
   20 students × 8 classrooms = 160 students
6. 78 tiles; 13 tiles × 6 rows = 78 tiles
7. * Maya has more tiles because Ming has fewer tiles per row and therefore fewer tiles overall.
8. 522 tiles; 9 rows × 58 tiles = 522 tiles
9. 430 tiles; 5 rows × 86 tiles = 430 tiles; using a mental strategy: 5 × 90 = 450; 5 × 4 = 20; 450 – 20 = 430
10. * Anna should have subtracted rather than added. 99 × 7 should be less than 100 × 7.
11. Answers will vary.

***Answers and/or discussions are included in the lesson.**

Student Activity Book

Multiplication Strategies

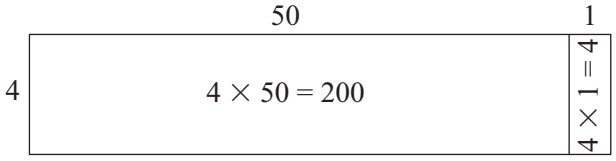
Questions 1–9 (SG pp. 139–140)

Strategies will vary. One possible strategy is given.

1. 150; Repeated addition: 30 + 30 + 30 + 30 + 30 = 150
2. 216; Using Expanded Form:

$$\begin{array}{r} 70 + 2 \\ \times\ 3 \\ \hline 201 + 6 = 216 \end{array}$$

3. 204; Using Expanded Form (and drawing a picture):



200 × 4 = 204

4. 490; Using Simpler Numbers: I know 98 + 2 = 100, 100 × 5 = 500 and 2 × 5 = 10. Then, 500 − 10 = 490.
5. 156; Thinking About Money: 25 + 25 + 25 + 25 + 25 + 25 = 150. 6 × 1 = 6. 150 + 6 = 156
6. 427; Using Expanded Form:

$$\begin{array}{rcl} 61 & = & 60 + 1 \\ \times\ 7 & & \times\ 7 \\ \hline & & 420 + 7 = 427 \end{array}$$

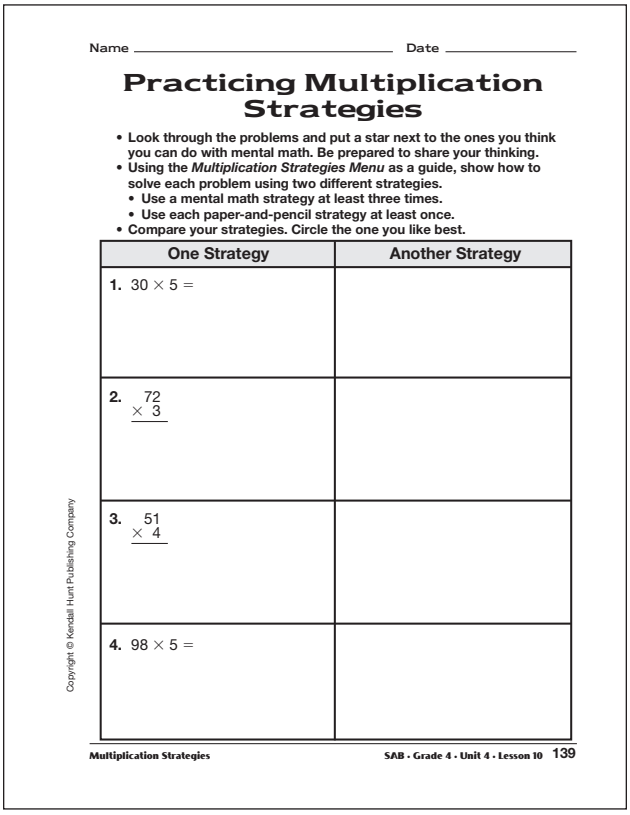
7.* 432; Using All-Partials:

$$\begin{array}{r} 49 \\ \times\ \ 8 \\ \hline 72 \\ +\ 360 \\ \hline 432 \end{array}$$

8. 474; Using All-Partials:

$$\begin{array}{r} 79 \\ \times\ \ 6 \\ \hline 420 \\ +\ 54 \\ \hline 474 \end{array}$$

9. 792; Using Simpler Numbers: I know 99 + 1 = 100. 100 × 8 = 800 and 1 × 8 = 8. 800 − 8 = 792.



Name _____ Date _____

Practicing Multiplication Strategies

- Look through the problems and put a star next to the ones you think you can do with mental math. Be prepared to share your thinking.
- Using the *Multiplication Strategies Menu* as a guide, show how to solve each problem using two different strategies.
  - Use a mental math strategy at least three times.
  - Use each paper-and-pencil strategy at least once.
- Compare your strategies. Circle the one you like best.

One Strategy	Another Strategy
1. 30 × 5 =	
2. 72 × 3	
3. 51 × 4	
4. 98 × 5 =	

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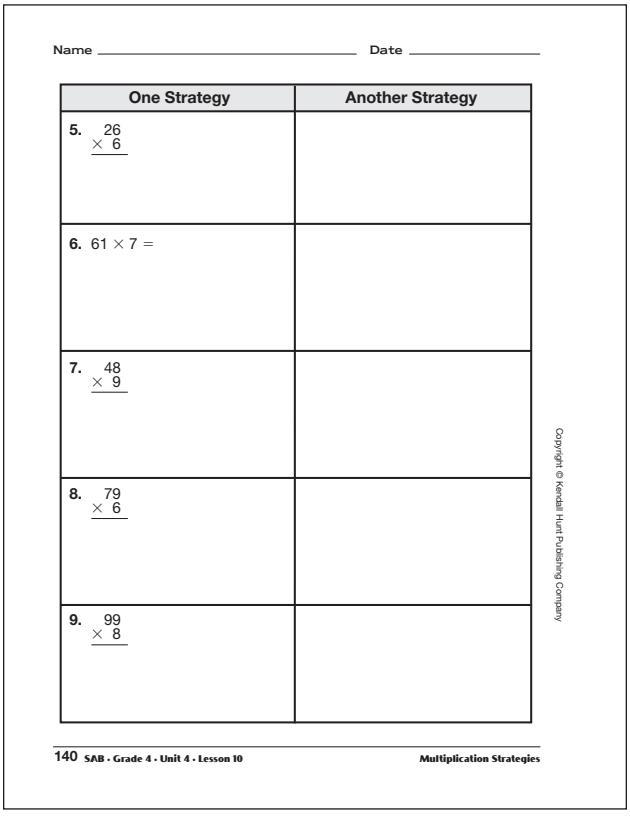

Name _____ Date _____

One Strategy	Another Strategy
5. 26 × 6	
6. 61 × 7 =	
7. 48 × 9	
8. 79 × 6	
9. 99 × 8	

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***Answers and/or discussions are included in the lesson.**