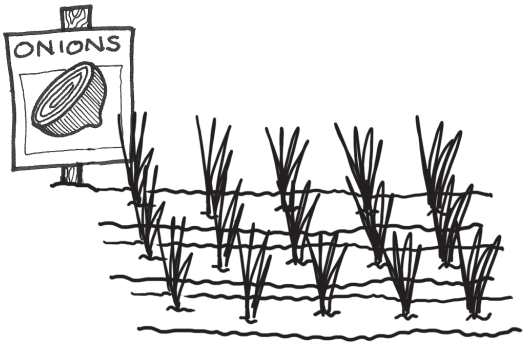
Student Guide

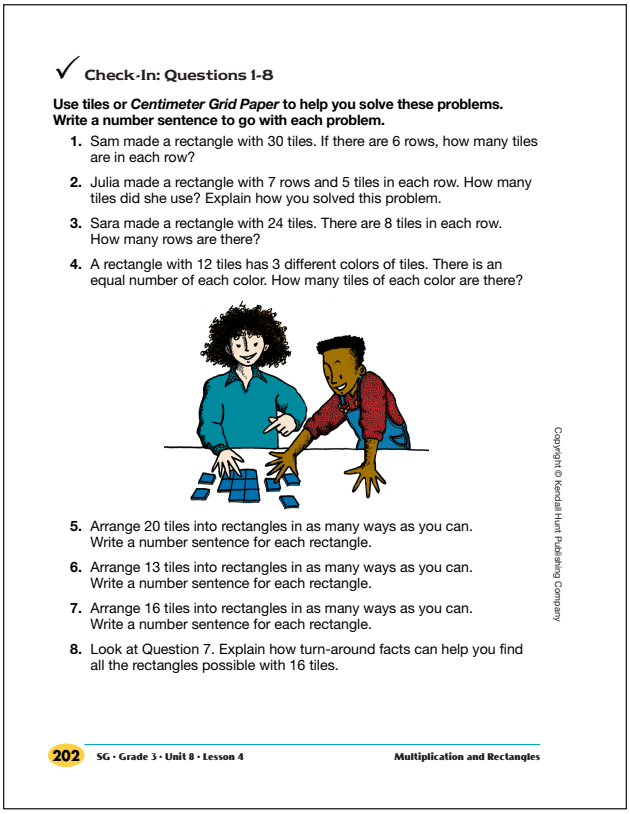
Multiplication and Rectangles (SG p. 202)
Questions 1–8

1. 5 tiles. $6 \times 5 = 30$ tiles
2. 35 tiles; Possible response: I skip counted by 5 seven times on the number line and landed on 35. $7 \times 5 = 35$
3. 3 rows; 8 tiles $\times$ 3 rows = 24 tiles
4. 4 tiles of each color; 3 colors $\times$ 4 tiles = 12 tiles
5.* $1 \times 20 = 20$
   $2 \times 10 = 20$
   $4 \times 5 = 20$
   $5 \times 4 = 20$
   $10 \times 2 = 20$
   $20 \times 1 = 20$
6.* $1 \times 13 = 13$
   $13 \times 1 = 13$
7.* $1 \times 16 = 16$
   $2 \times 8 = 16$
   $4 \times 4 = 16$
   $8 \times 2 = 16$
   $16 \times 1 = 16$
8. I started with the shortest width, 1 tile, then I used the turn-around fact for the largest width. This worked until I reached the square 4×4.

Homework (SG p. 203)
Questions 1–5

1. $3 \times 6 = 18$
2. $4 \times 7 = 28$
3. $5 \times 8 = 40$
4. $2 \times 10 = 20$
5. $3 \times 5 = 15$ or $5 \times 3 = 15$





✓ Check-In: Questions 1-8

Use tiles or *Centimeter Grid Paper* to help you solve these problems. Write a number sentence to go with each problem.

1. Sam made a rectangle with 30 tiles. If there are 6 rows, how many tiles are in each row?
2. Julia made a rectangle with 7 rows and 5 tiles in each row. How many tiles did she use? Explain how you solved this problem.
3. Sara made a rectangle with 24 tiles. There are 8 tiles in each row. How many rows are there?
4. A rectangle with 12 tiles has 3 different colors of tiles. There is an equal number of each color. How many tiles of each color are there?

5. Arrange 20 tiles into rectangles in as many ways as you can. Write a number sentence for each rectangle.
6. Arrange 13 tiles into rectangles in as many ways as you can. Write a number sentence for each rectangle.
7. Arrange 16 tiles into rectangles in as many ways as you can. Write a number sentence for each rectangle.
8. Look at Question 7. Explain how turn-around facts can help you find all the rectangles possible with 16 tiles.

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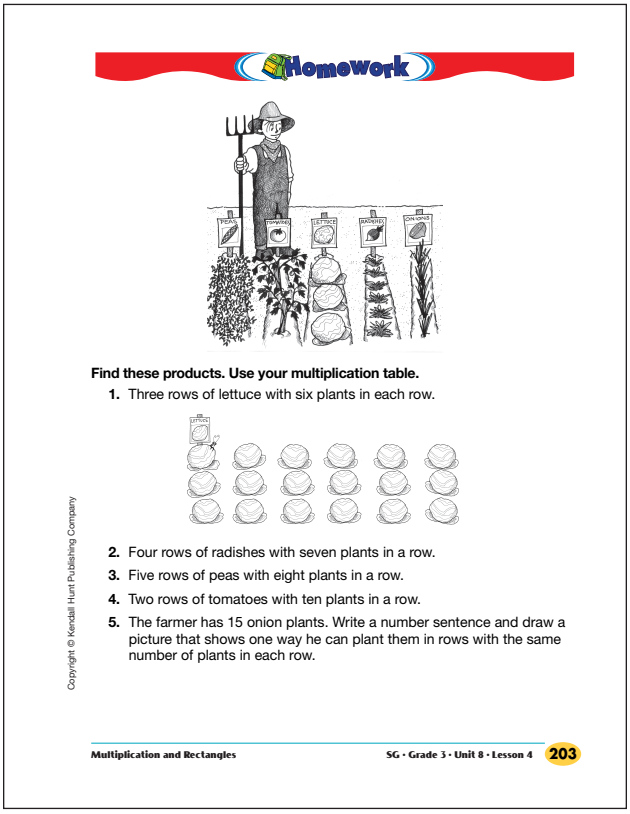

Homework

Find these products. Use your multiplication table.

1. Three rows of lettuce with six plants in each row.

2. Four rows of radishes with seven plants in a row.
3. Five rows of peas with eight plants in a row.
4. Two rows of tomatoes with ten plants in a row.
5. The farmer has 15 onion plants. Write a number sentence and draw a picture that shows one way he can plant them in rows with the same number of plants in each row.

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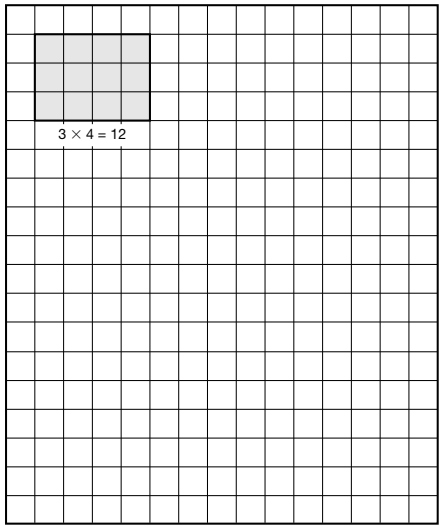
***Answers and/or discussion are included in the lesson.**

Name _____ Date _____

Exploring Factors Using Tiles

1. Diana drew the rectangle below to show 3 × 4 = 12. Use 12 tiles to make as many rectangles as you can. Shade them in and write a multiplication sentence by each rectangle.



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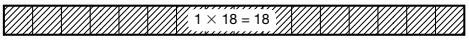
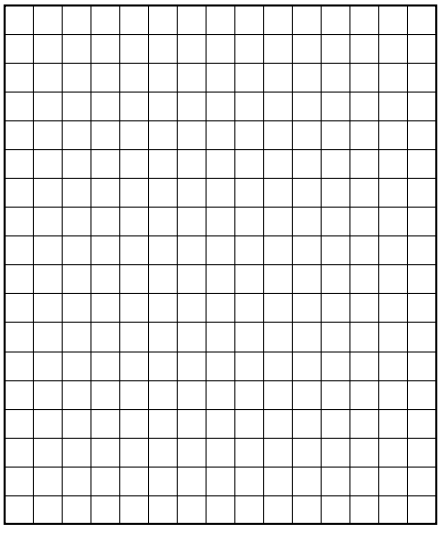
Name _____ Date _____

2. Darius knows he can make a rectangle like the one below to show 1 × 18. Use 18 tiles to make as many rectangles as you can on the grid. Write a number sentence by each rectangle.





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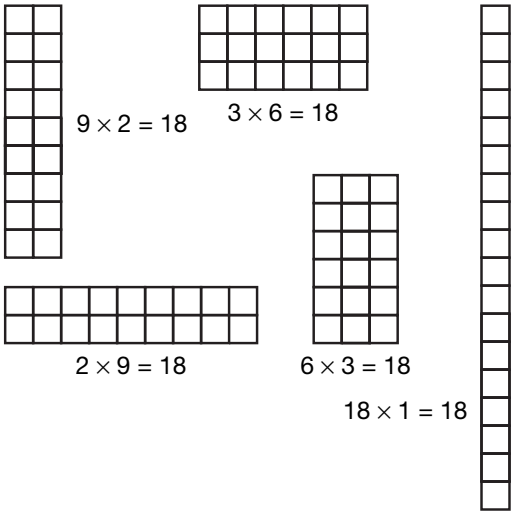
Student Activity Book

Exploring Factors Using Tiles (SAB pp. 269–270) Questions 1–2

1.* See Figure 3 Lesson.

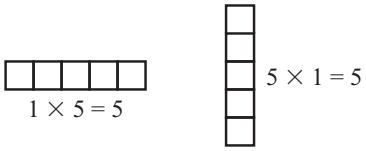
2.

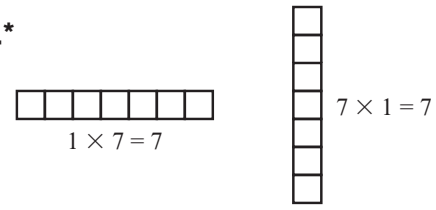


***Answers and/or discussion are included in the lesson.**

Finding More Rectangles (SAB pp. 277–278)

Questions 1–6

1.* 

2.* 

3.* They only have 1 row or 1 column.

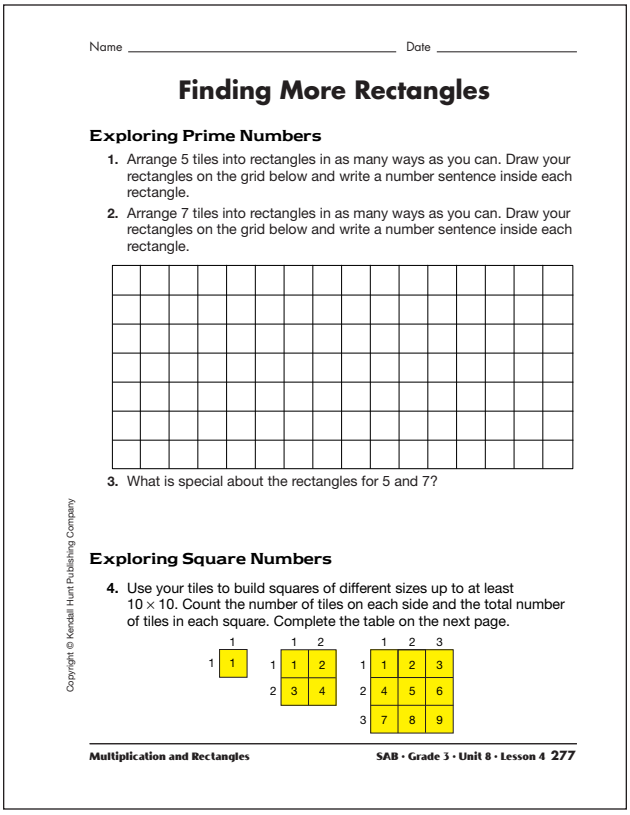
4.

Number on a Side	Number in Square	Multiplication Facts
1	1	1 × 1 = 1
2	4	2 × 2 = 4
3	9	3 × 3 = 9
4	16	4 × 4 = 16
5	25	5 × 5 = 25
6	36	6 × 6 = 36
7	49	7 × 7 = 49
8	64	8 × 8 = 64
9	81	9 × 9 = 81
10	100	10 × 10 = 100

5. Check multiplication tables.

6. A.* Both factors are the same.

B.* They form a diagonal.



Name _____ Date _____

Finding More Rectangles

Exploring Prime Numbers

1. Arrange 5 tiles into rectangles in as many ways as you can. Draw your rectangles on the grid below and write a number sentence inside each rectangle.
2. Arrange 7 tiles into rectangles in as many ways as you can. Draw your rectangles on the grid below and write a number sentence inside each rectangle.

3. What is special about the rectangles for 5 and 7?

Exploring Square Numbers

4. Use your tiles to build squares of different sizes up to at least 10 × 10. Count the number of tiles on each side and the total number of tiles in each square. Complete the table on the next page.

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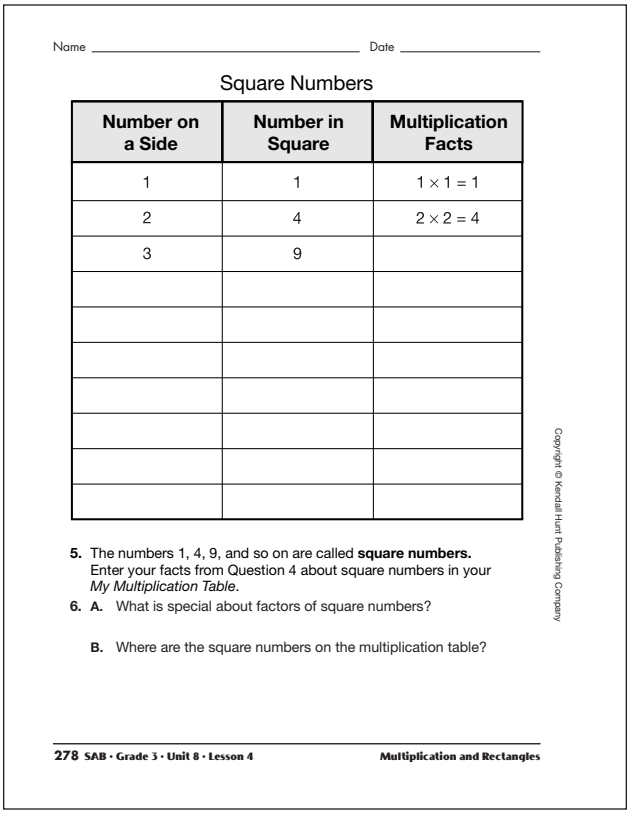

Name _____ Date _____

Square Numbers

Number on a Side	Number in Square	Multiplication Facts
1	1	1 × 1 = 1
2	4	2 × 2 = 4
3	9	

5. The numbers 1, 4, 9, and so on are called **square numbers.** Enter your facts from Question 4 about square numbers in your *My Multiplication Table*.
6. **A.** What is special about factors of square numbers?

B. Where are the square numbers on the multiplication table?

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