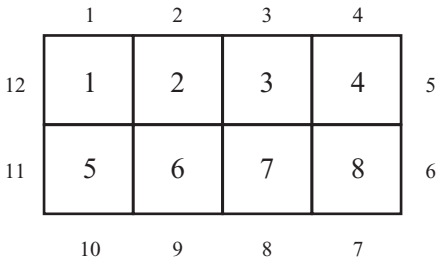
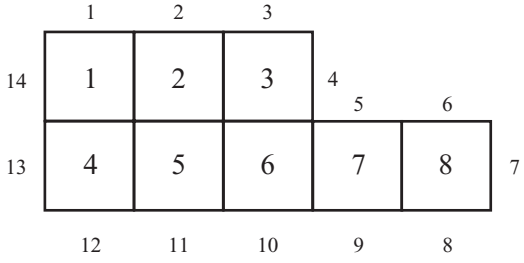
Student Guide

Questions 1–6 (SG p. 53)

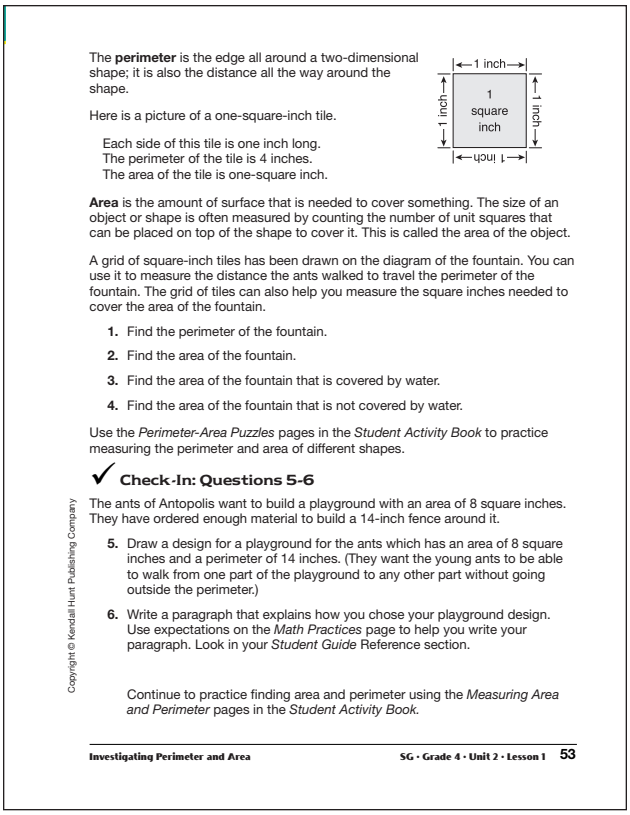
1. 20 inches
2. 21 square inches
3. Answers may vary. Solution range should be 6–7 square inches. Students may question whether the center square (i.e., the one with the circle in it) is covered by water or not.
4. Answers will vary. Solution range should be 14–15 square inches. See the answer for Question 3 above.
5.* Answers will vary. Some possible solutions are shown in Figure 4 in the lesson.
6.* Answers will vary. Possible response: First I took 8 square-inch tiles because I knew I needed an area of 8 square inches. Then I made a shape that was 2 rows of 4 tiles.



I counted the edge around my shape and it was 12 inches. The playground needed to have a perimeter of 14 inches so I changed the shape by moving 2 tiles. I counted the edge again.



My new perimeter was 14 inches but the area was still 8 square inches.



The **perimeter** is the edge all around a two-dimensional shape; it is also the distance all the way around the shape.

Here is a picture of a one-square-inch tile.

Each side of this tile is one inch long.
The perimeter of the tile is 4 inches.
The area of the tile is one-square inch.

1 inch
1 inch
1 square inch
1 inch
1 inch

Area is the amount of surface that is needed to cover something. The size of an object or shape is often measured by counting the number of unit squares that can be placed on top of the shape to cover it. This is called the area of the object.

A grid of square-inch tiles has been drawn on the diagram of the fountain. You can use it to measure the distance the ants walked to travel the perimeter of the fountain. The grid of tiles can also help you measure the square inches needed to cover the area of the fountain.

1. Find the perimeter of the fountain.
2. Find the area of the fountain.
3. Find the area of the fountain that is covered by water.
4. Find the area of the fountain that is not covered by water.

Use the *Perimeter-Area Puzzles* pages in the *Student Activity Book* to practice measuring the perimeter and area of different shapes.

✓ **Check-In: Questions 5-6**

The ants of Antopolis want to build a playground with an area of 8 square inches. They have ordered enough material to build a 14-inch fence around it.

5. Draw a design for a playground for the ants which has an area of 8 square inches and a perimeter of 14 inches. (They want the young ants to be able to walk from one part of the playground to any other part without going outside the perimeter.)
6. Write a paragraph that explains how you chose your playground design. Use expectations on the *Math Practices* page to help you write your paragraph. Look in your *Student Guide* Reference section.

Continue to practice finding area and perimeter using the *Measuring Area and Perimeter* pages in the *Student Activity Book.*

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