

ACTIVITY 11.3

Developing Concepts

GROUP ACTIVITY

Work with a partner.

MATERIALS

- graph paper
- pencil
- ruler

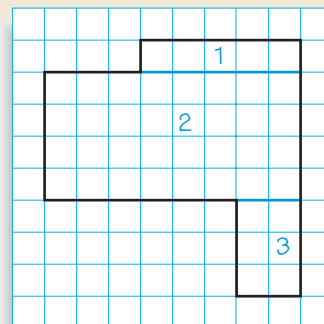
Group Activity for use with Lesson 11.3

Area Relationships in Similar Figures

► **QUESTION** How does the ratio of the areas of any two similar polygons compare to the scale factor?

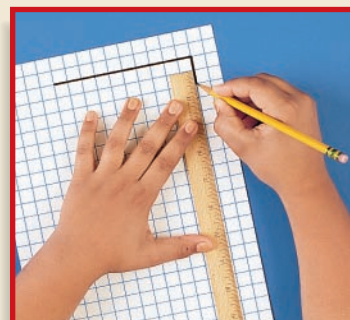
► EXPLORING THE CONCEPT

- 1 On a piece of graph paper draw a polygon. Use grid lines as sides of the polygon. An example is shown.
- 2 Divide your polygon into several rectangles. Calculate the area of each rectangle. Create a table like the one shown below to record the area of each rectangle.
- 3 Add the areas of the rectangles to find the total area of the polygon. Record your results.



Original polygon	Area	Similar polygon	Area
Rectangle 1	?	Rectangle 1	?
Rectangle 2	?	Rectangle 2	?
Rectangle 3	?	Rectangle 3	?
⋮	⋮	⋮	⋮
Total	?	Total	?

- 4 On another piece of graph paper draw a polygon that is similar to your original polygon. The ratio of the side lengths of the second polygon to the first polygon should be 2:1.
- 5 Repeat Steps 2 and 3 to find the area of the similar polygon.



► DRAWING CONCLUSIONS

1. Use a ratio to compare the area of the similar polygon to the area of the original polygon.
2. Make a conjecture about the relationship between the scale factor of two similar polygons and the ratio of their areas.

EXTENSION

CRITICAL THINKING Compare and discuss your conjecture with your partner. Work together to create a new pair of similar polygons to test the conjecture.