

▶ ACTIVITY 4.3

Developing Concepts

GROUP ACTIVITY

Work with a partner.

MATERIALS

- 3 pencils
- protractor
- ruler

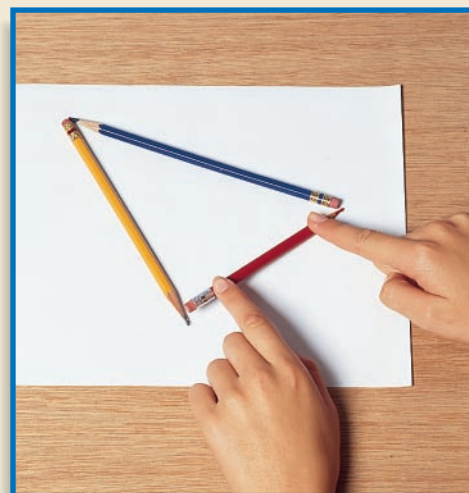
Investigating Congruent Triangles

Group Activity for use with Lesson 4.3

▶ **QUESTION** How much information do you need to know to tell whether two triangles are congruent?

▶ EXPLORING THE CONCEPT: SSS

- 1 On a piece of paper, place three pencils of different lengths so they make a triangle.
- 2 Mark each vertex of your triangle by pressing the pencil points to the paper.
- 3 Remove the pencils and draw the sides of your triangle.
- 4 Have your partner repeat **Steps 1–3** using the same three pencils. Try to make a triangle that is *not* congruent to the one you drew.



▶ EXPLORING THE CONCEPT: SAS

- 5 On a piece of paper, place two pencils so their erasers are at the center of a protractor. Arrange them to form a 45° angle.
- 6 Mark two vertices of a triangle by pressing the pencil points to the paper. Mark the center of the protractor as the third vertex.
- 7 Remove the pencils and protractor and draw the sides of your triangle.
- 8 Have your partner repeat **Steps 5–7** using the same two pencils. Try to make a triangle that has a 45° angle but is *not* congruent to the one you drew.

▶ DRAWING CONCLUSIONS

1. What do you notice about the triangles you made with three pencils? What do you notice about the triangles you made with two pencils and a 45° angle between them?
2. **CRITICAL THINKING** If you know that two sides of a triangle are congruent to two sides of another triangle, what other information do you need to tell whether the triangles are congruent?