Congruency

STRAND: Measurement and Geometry

STRAND CONCEPT: Congruence and Similarity

SOL 6.9

Remediation Plan Summary

Students compare line segments, angles, and polygons for congruence, using tracing and direct measurement.

Common Errors and Misconceptions

Students have a difficult time with congruence. They do not understand that the shape and the angles must be the same to be congruent. They confuse congruent with similar.

Materials

>Protractors
>Centimeter rulers
>Permanent markers
>Patty paper or tracing paper
>"Warm-up" handouts
>"Determining Congruence" handouts
>"Determining Congruence Table" handouts
>Exit Slip

Introductory Activity

Distribute the "Warm-up" worksheets, and if necessary, explain to students or remind them how to measure using a centimeter ruler. After they have completed the activity, go over the answers before going on to the lesson.

Plan for Instruction

1. Distribute the "Determining Congruence" and "Determining Congruence Table" handouts.
2. Part A: Have students measure each pair of line segments, using a centimeter ruler, and record their measurements on the "Determining Congruence Table." Have them compare the two measurements of the pairs of segments. If the two measurements are the same, the two line segments are congruent; if the two measurements are different, the two line segments are non-congruent. (Teacher Note: It is important for students to fully understand that line segments and other shapes may be congruent even if they look different because they are oriented differently. If students need reinforcement with this concept, have them practice reorienting pairs of congruent line segments and pairs of congruent figures.)
3. Part B: Have students measure each angle in degrees, using a protractor, and record the measures of the angles in the "Determining Congruence Table." Have students compare

the measures of the two angles: if the two angles have the same measure, then the two angles are congruent; if the two angles have different measures, then the two angles are not congruent.

4. Part C: Distribute patty paper or tracing paper and permanent markers. Have students trace on the paper one of the polygons in each pair, using a permanent marker, and compare the pair of polygons by placing the traced polygon on top of the other polygon in the pair. If they are an exact match in size and shape, then the two polygons are congruent; if the two polygons differ in size and/or shape, then the two polygons are non-congruent. As you define congruent and non-congruent figures:
   -Discuss the geometric markings for congruency (≅) and similarity (~). For example, figure ABC is congruent to figure DEF (ABC≅DEF) or figure LMN is similar to figure PQR (LMN~PQR).
   -Discuss the geometric markings on figures that indicate congruence of length (hash marks), angle measure (arcs) and parallel sides (arrows).

Pulling It All Together (Reflection)

Have students answer the questions on the "Reflection" sheet. Review the responses as you walk around and check the students' work.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

Name:

Warm-up

Measure each line segment, using a centimeter ruler, and record each measurement.
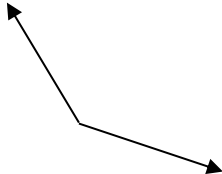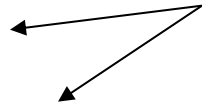
1. _____   Measure = _____
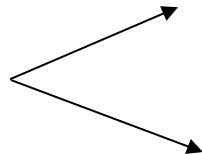
2. _____   Measure = _____

3. _____   Measure = _____

4. _____   Measure = _____

Measure each angle in degrees, using a protractor, and record each measure.

5.   Measure = _____

6.   Measure = _____
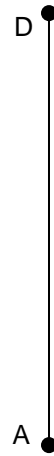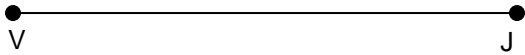
7.   Measure = _____

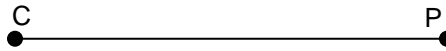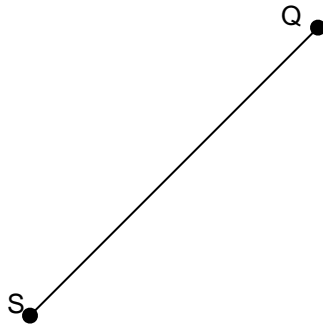8. Define *congruent*: _____

Name:

Determining Congruence

Part A

Measure each line segment in each pair, using a centimeter ruler, and record each measurement in the table. Then, determine whether the two line segments in each pair are congruent or noncongruent. Record your answers in the table.
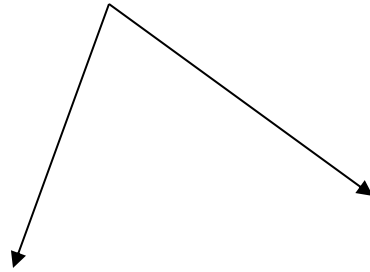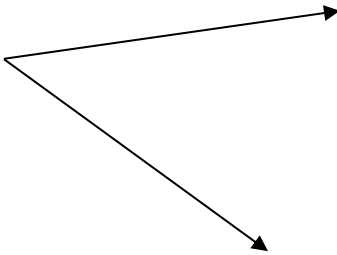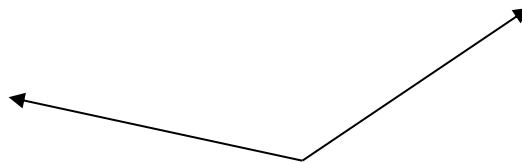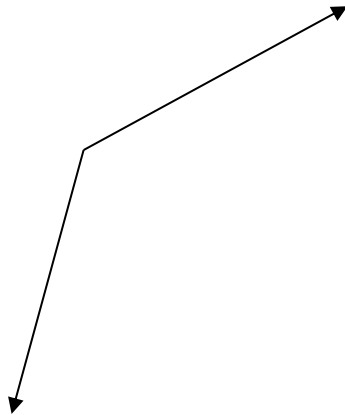
1.

2.

3.
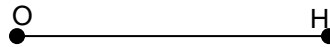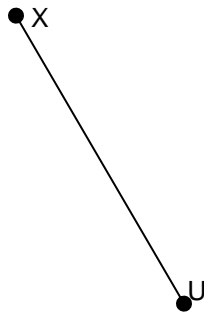
Name:

Determining Congruence

Part B

Measure each angle in each pair, using a protractor, and record each measurement in the table. Then, determine whether the two angles in each pair are congruent or noncongruent. Record your answers in the table.
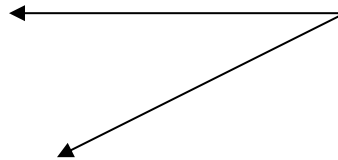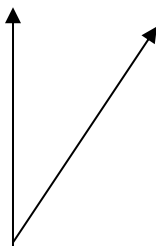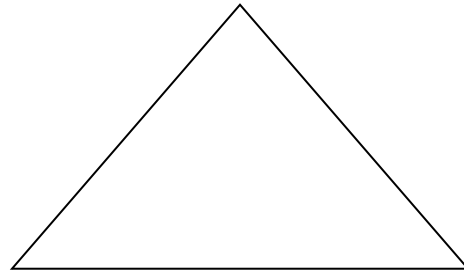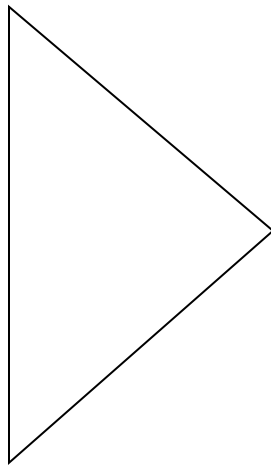
4.
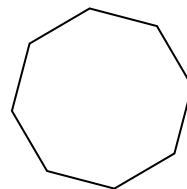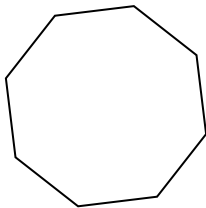
5.

6.

Name:

Determining Congruence

Part C

Trace one of the polygons in each pair, using patty paper or tracing paper and a marker. Then, place the tracing over the other polygon in the pair to determine whether the two polygons are congruent or noncongruent. Record your answers in the table.
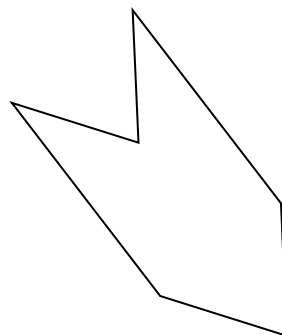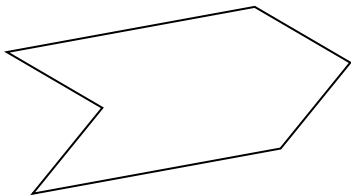
7.

8.

9.

Name:

Determining Congruence Tables

Part A

Number	Measure Line Segment 1	Measure Line Segment 2	Congruent or Noncongruent
1			
2			
3			

Part B

Number	Measure Angle	Measure Angle 2	Congruent or Noncongruent
4			
5			
6			

Part C

Number	Congruent or Noncongruent
7	
8	
9	

Name:

Exit Slip

1. Draw 2 noncongruent shapes

2. Draw 2 noncongruent line segments.

3. Draw two congruent line segments.

4. Draw two congruent angles.