Unit 2 Lesson 5: Points, Segments, and Zigzags

1 What's the Point? (Warm up)

Student Task Statement

If A is a point on the plane and B is a point on the plane, then A is congruent to B.

Try to prove this claim by explaining why you can be certain the claim must be true, or try to disprove this claim by explaining why the claim cannot be true. If you can find a counterexample in which the “if” part (hypothesis) is true, but the “then” part (conclusion) is false, you have disproved the claim.

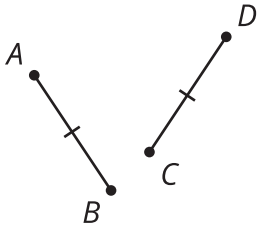
2 What's the Segment?

Student Task Statement

Prove the conjecture: If AB is a segment in the plane and CD is a segment in the plane with the same length as AB, then AB is congruent to CD.

Activity Synthesis

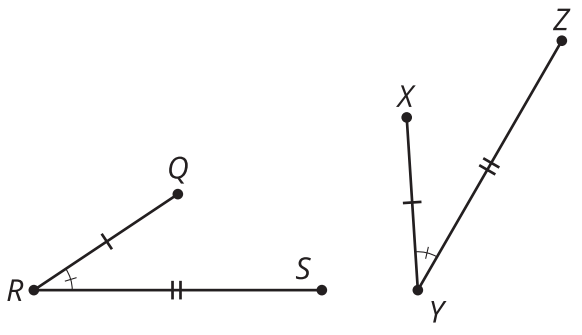
$AB = CD$ **so,** $\overline{AB} \cong \overline{CD}$



3 Zig Then Zag

Student Task Statement

$\overline{QR} \cong \overline{XY}, \overline{RS} \cong \overline{YZ}, \angle R \cong \angle Y$



1. Here are some statements about 2 zigzags. Put them in order to write a proof about figures QRS and XYZ.
   - 1: Therefore, figure QRS is congruent to figure XYZ.
   - 2: S' must be on ray YZ since both S' and Z are on the same side of XY and make the same angle with it at Y.
   - 3: Segments QR and XY are the same length, so they are congruent. Therefore, there is a rigid motion that takes QR to XY. Apply that rigid motion to figure QRS.
   - 4: Since points S' and Z are the same distance along the same ray from Y, they have to be in the same place.
   - 5: If necessary, reflect the image of figure QRS across XY to be sure the image of S, which we will call S', is on the same side of XY as Z.
2. Take turns with your partner stating steps in the proof that figure $ABCD$ is congruent to figure $EFGH$.