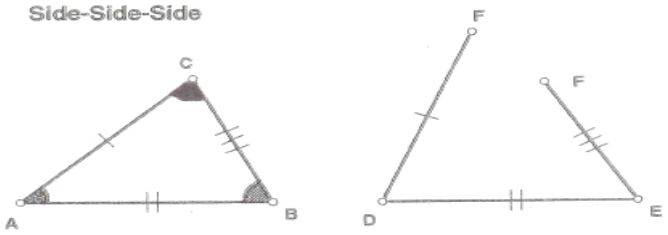
Triangle Congruence

Name(s):_____

If the three sides of one triangle are congruent to three sides of another triangle (SSS), must the two triangles be congruent? What if two sides and the angle between them in one triangle are congruent to two sides and the angle between them in another triangle (SAS)? Which combinations of parts guarantee congruence and which don't? In this activity, you'll investigate that question.

Sketch and Investigate

1. Open the sketch **Triangle Congruence** (Mac) or **3triangl\congrnce.gsp** (Windows). You'll see a figure like the one shown below, along with some text.



2. Read the text in the sketch and follow the instructions to try to make a triangle *DEF* that is not congruent to ΔABC.

Q1 Could you form a triangle with a different size or shape given the three sides? _____

Q2 If three sides of one triangle are congruent to three sides of another (SSS), what can you say about the triangles? Write a conjecture that summarizes your findings.

3. Double-click the SAS button and make a triangle *DEF* with those given parts. Try to make a triangle that is not congruent to ΔABC.

4. Experiment with each of the other buttons.

Q3 Of SSS, SAS, SSA, ASA, AAS, and AAA, which combinations of corresponding parts guarantee congruence in a pair of triangles? Which do not?