

Similar Triangles

You should submit this form in addition to any computer generated files/documents/models to your group folder on Angel. Please create a .zip file and upload the group of files as a single archive.

Name: Sarah Heigl
Grade level(s)/Subject taught: 9 th grade Algebra
Objectives: Students will use Geometers Sketchpad to create sets of similar triangles Students will be able to give a definition of similar triangles as well as examples.

Please provide a rich **one-page, single-spaced**, description or a *vision* of your best thinking on a way or ways you might teach the planned lesson. (approximately ½ page for the teacher role, ½ page for the student role). Also, construct a tentative rubric that you might use with your students (see example)

Items to include in your lesson plan: (Choose your discipline/concepts from your own area).

1. Write the Mathematical Concept or “key idea” that modeling will be used to teach: (e.g. Students use mathematical modeling/ multiple representation to provide a means of presenting, interpreting, communicating, and connecting mathematical information and relationships)

Students use measurement in both metric and English measure to provide a major link between the abstractions of mathematics and the real world in order to describe and compare objects and data.

Materials:

Wireless lab

Geometers Sketchpad

“...a rich **one-page, single-spaced**, description or a *vision* of your best thinking...”

Prompts:

1. How will you assess the prior knowledge of the student?
2. How will you begin the lesson?
3. What are the teacher and students doing every 5-10 minutes? (Teacher Actions and Student Actions)
4. How will you assess the learning for the lesson?

Using **Geometers Sketchpad** I plan on having my students...
(software / modeling package(s))

Prior knowledge will be assessed by a “Do Now” activity at the beginning of class. The class will then have a group discussion. This lesson will be after a couple of days of exploratory activity with geometers sketchpad and discussion of triangles. At this point students will have seen the teacher demonstrate how to make a triangle, circle, parallelogram, etc. They will follow the attached instruction page in order to create their own set of similar triangles. The teacher and student instructions are clearly stated on the instruction page. The teacher will demonstrate the example on the page and the students will follow along and create the same set of similar triangles. Students will then be instructed to create their own “new” set of similar triangles. Students will print their screens and turn in for the teacher to be able to review all students’ work and evaluate their understanding. This will also be considered a “ticket out the door.”

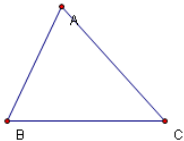
The class would begin with the students working on a "Do Now" problem involving similar triangles. We would then discuss the do now and make educated guesses as to exactly what the definition would be. After this the teacher would demonstrate an example of creating similar triangles with geometers sketchpad. Students will work through the example problem WITH the teacher. They then will be asked to follow the same instructions and create their own set of similar triangles. During this time, the teacher will be rotating around the room helping students with any difficulty that they might be having. Asking questions to get students thinking about what they are doing and exploring.

When students have completed their second set of similar triangles they will turn them in to the teacher so that she can assess if the students understand the concept taught that day.

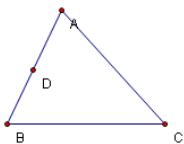
Similar Triangles Worksheet

In this activity you will be constructing a triangle, and then bisecting it with a parallel line. Remember to select the pointer and click off into "space" after everything you do. Your triangle should look different than the example on this page.

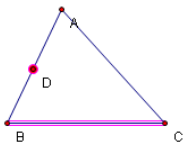
Construct a triangle by selecting the segment tool from the side. (Your triangle can be type you wish).



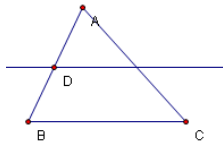
Next, construct a point on one side of the triangle, using the point tool.



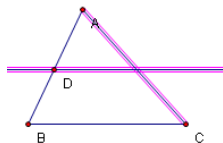
Select your new point and the "bottom" side of the triangle. (They should be highlighted pink/purple.)



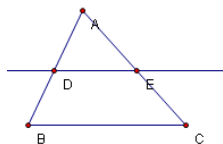
From the construct menu, choose parallel line.



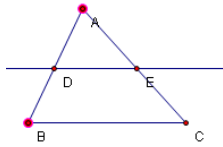
Construct the point at the intersection of the parallel line and the side that intersects it by selecting side AC and your parallel line.



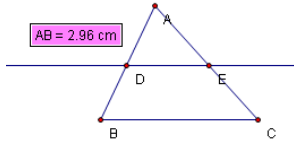
Now go to the construct menu and select intersection.



You now need to measure the lengths of the sides of triangle ABC. To do this you need measure the distance between two points. Select two points:

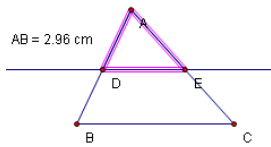


Then from the measure menu select distance



Continue until all three sides have been measured.

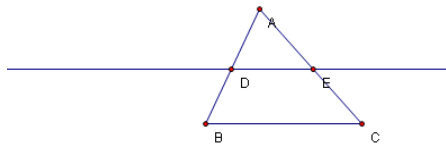
Now measure the length of the sides of the small triangle - in my example it is triangle ADE.



Final picture:

AB = 2.96 cm
AC = 3.60 cm
BC = 3.68 cm

AD = 1.55 cm
AE = 1.88 cm
DE = 1.93 cm



What is a definition for similar triangles?

What can you tell me about similar triangles?

Hand draw a set of similar triangles below.