

EISENHOWER PROFESSIONAL DEVELOPMENT PROGRAM

Mathematics Within: Algebraic Patterns

Lesson Plan

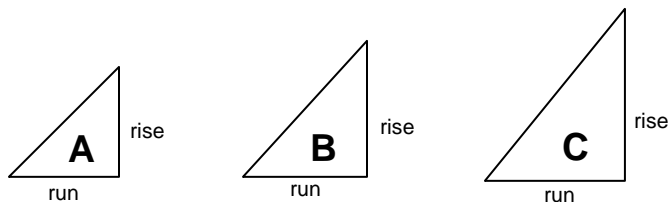
Participant Name: John Zetah

Broad Topic: Algebra (Geometry Integrated)

Subtopic: Slope and Triangles

Specific Objective(s):

- o The students will create similar triangles from a slope line on a coordinate grid.
- o The students will review how to find the slope of a line. (Rise over run)



- o The students will define what makes similar triangles.

Materials/Supplies:

- o Coordinate Grid (overhead)
- o Yarn
- o Straight Edges
- o Handouts –
 - Challenge question “relationships”
 - Similar triangles
 - Triangle cut outs (for each person)
- o Large triangle (4) (for each group)
- o Transparencies

Lesson:

- o Introduction

Using an overhead of a coordinate grid, create a line with a piece of yarn at a slope of 2. Connect some sort of object (air balloon, etc.) to the end of the yarn. Pose the question “What is the slope the air balloon traveled along the red line?” (This introduction acts as a quick review of slope. A lesson on slope should be taught before this.) Identify the technique for finding the slope and identify the line that has the slope 2.
- o Activity 1

Pass out triangle cutouts and “relationships” handout. Challenge the students to individually create the longest list possible of different relationships these two triangles have. Give around 3 minutes for this. Then, allow the students to work in groups of four for 3 more minutes. As a class, reveal and discuss the relationships they found.

Possible answers: 3 sides, 3 angles, same angles (congruent angles), similar triangles, right triangles, each have an angle of 90° , one side has the same slope, rise over run.

Identify that the two triangles are similar. Define what similar means: corresponding angles must be congruent. Note corresponding angles for similar quadrilaterals.



- o Activity 2

Pass out the handout “Similar triangles” and the straight edges with pencils/colored pencils. Challenge the students to individually create as many similar triangles using the line (on the sheet) as one side of your triangle. The students need to record their data. A sample should be on the sheet. Model an example. Have the class share their answers.

- o Closure

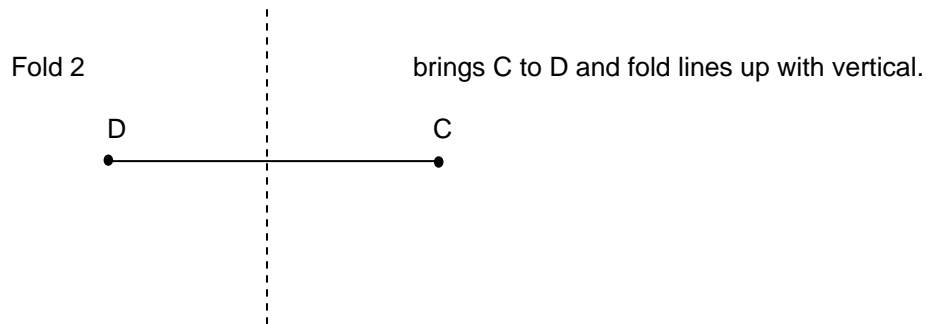
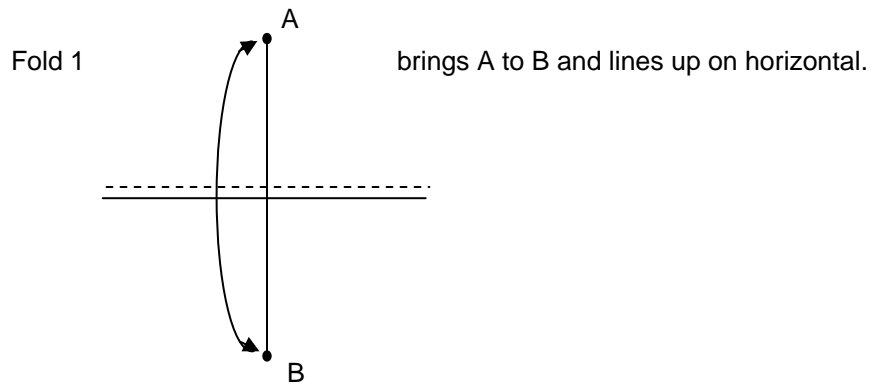
Challenge: Have four large triangles cut out for each table. Challenge the table to find two triangles that are similar and to prove why. To prove right angles, see page 3 for the activity “Folding proof.”

- o Unit: Everyday Mathematics, Grade level 3.

Folding activity.

Like the proof part:

Emphasis on thinking and drawing out comments. Development of language is good with definitions. Folding proof is good.



Compare with

