Lesson: Planar Figures -- Transformations

New Arizona Math Strand 4 Geometry and Measurement Grades 9-12
Articulated 4MH2-03 Identify the properties of the planar figure that is the result of two or more transformations.

Learning Objectives: The student will be able to:
- Identify the properties preserved by rotations, reflections, translations and dilations
- Define and explain with examples the terms of rotation, reflection, translation and dilation.

Overview and Content:
The process of transformations shows relationships between four types of transformations and properties they preserve. These include: collinearity, betweenness of points, angle measure, distance and orientation. Note the brief descriptions of each property.

Engaging Students:
Students are to be shown shapes undergoing four different types of transformations. They are to describe the behavior of each after observing the shapes during and after the transformations.

Follow-up and Extensions:
In TALK ABOUT IT, students have fun with manipulating their names. First, they need to write their name in “CAPS.” Then, the name is to be reflected over a horizontal and vertical line. With a partner, they are to identify and describe the reactions by naming the properties and actions. In DIG DEEPER, students are given a triangle to rotate around it sides. The figure created is a cone. Then they are asked to rotate the triangle around its two other sides and then describe the resulting figure. Finally, they are asked to describe the figure created by a rotating square. SO WHAT gives students a practical example of reflected results from precise angles and reflections of tri-fold mirrors.

Assessment:
True/False questions must be correctly answered to finish the lesson.

Teacher Note:
For students to better understand the concepts of transformations, a suggested learning sequence is for students to experience these concepts in the order of the performance objectives: 4MH2-01, 4MH2-02, 4MH2-03.