



## TEACHER PAGE

### Lesson: Planar Figures -- Transformations

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**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 its 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.

