



TEACHER PAGE

Lesson: Determine Coordinates of Transformations- Shooting Pool

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New Arizona Math Strand 4 Geometry and Measurement Grades 9-12

Articulated 4MH2-03 Determine the new coordinates of a point when a single transformation is performed on a planar geometric figure.

Learning Objective: The student will be able to:

- determine and explain the new coordinates of an image that has been rotated, reflected, translated or dilated.
- define and explain the terms rotation, reflection, translation and dilation.
- explain the relationship of transformation to a game or sport.

Overview and Content:

Students are introduced to the process of finding coordinates of images that have been rotated, reflected, translated or dilated. After definitions and serious pool shooting the information is transferred from the pool table to a coordinate grid. Students will interact with placing on graphs coordinate points of a shape that has gone through a transformation. Or, students have to find the coordinates from the graph of a transformed shape.

Engage students:

Students will be shown how finding coordinates using transformations is used in the game of pool, or other games. Ask students to explain any strategies they use for winning certain games, or to develop a math strategy to improve their game of pool or miniature golf.

Follow-up/extensions:

SO WHAT presents sports transformations in football and golf. In DIG DEEPER, students will take a closer look at the game of billiards and work with reflecting a point over three lines in order to make the perfect shot. This takes thinking. In TALK ABOUT IT, student partners are asked to discuss the possible pathways of a difficult golf putt then draw at least two different routes.

Assessment:

Students will determine the correct coordinates from shapes on a coordinate plane that are changed images by any of the four types of transformations, and one variation of a type, studied in this lesson.

