Chapter 9: Transformations

Content Area: **Math**
Course(s): **Geometry CP, Geometry A, Geometry H**
Time Period: **Marking Period 1**
Length: **10 Days**
Status: **Published**

Unit Introduction

Standards

MA.G-CO.A.2	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
MA.G-CO.A.4	Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
MA.G-CO.A.5	Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
MA.G-CO.B	Understand congruence in terms of rigid motions
MA.G-CO.B.6	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
MA.G-CO.B.7	Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
MA.G-SRT.A.1	Verify experimentally the properties of dilations given by a center and a scale factor:
MA.G-SRT.A.2	Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

Essential Questions

- How can you change a figure's position without changing its size and shape?
- How can you change a figure's size without changing its shape?
- How can you represent a transformation in the coordinate plane?
- How do you recognize congruence and similarity in figures?

Content

- 9.1 - Translations

- 9.2 - Reflections
- 9.3 - Rotations
- 9.4 - Compositions of Isometries
- 9.5 - Congruence Transformations
- 9.6 - Dilations
- 9.7 - Similarity Transformations

Skills

- Describe transformations
- Determine similarity
- Draw and identify rotation images of figures
- Draw transformations
- Find a dilation image
- Find a scale factor
- Find reflection images of figures
- Find similarity transformations
- Identify congruence transformations
- Identify congruent figures
- Identify equal measures
- Identify glide reflections
- Identify isometries
- Identify rigid motions
- Identify the type of symmetry in a figure
- Locate dilation images of figures
- Name images and corresponding parts
- To find translation images of figures.
- Use a composition of reflections
- Use relevant vocabulary, symbols and notation.
- Use scale factor to find length
- Write a reflection rule
- Write a rule to describe a translation