Unit 6: Transformations

A. Transformations

CCSS	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Definitions of lines and angles (G.CO.1)	Can extend thinking beyond the standard, including tasks that may involve one of the following: • Designing •Connecting •Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving	Describe the following terms using points, lines, distance and circular arcs for **all** of the following: • Angles • Circles • Perpendicular Lines • Parallel Lines • Line Segments	Describe the following terms using points, lines, distance and circular arcs for **4** of the following: • Angles • Circles • Perpendicular Lines • Parallel Lines • Line Segments	Describe the following terms using points, lines, distance and circular arcs for **2** of the following: • Angles • Circles • Perpendicular Lines • Parallel Lines • Line Segments	Little evidence of reasoning or application to solve the problem Does not meet the criteria in a level 1
Represent, describe and compare transformations (G.CO.2, G.CO.5)		Draw **and** describe transformations of reflections, rotations, translations, and combinations of these, including mapping a figure onto another. Describe reflections, translations, **and rotations** as functions that take points on the plane as inputs and give other points as outputs **Compare** transformations that preserve distance and angles to those that do not	Draw **or** describe transformations of reflections, **rotations,** translations, **and a combination of these,** including mapping a figure onto another. **Describe** reflections and translations as functions that take points on the plane as inputs and give other points as outputs **Describe** transformations that preserve distance and angles to those that do not	Draw **and** describe a singular transformation of reflections and translations, including mapping a figure onto another. Given a function rule for reflections and translations, **identify the outputs** **Identify** transformations that preserve distance and angles to those that do not	
Describe transformations (G.CO.3)		Describe **and** illustrate rotations and reflections of a rectangle, parallelogram, trapezoid, or regular polygon that carry each figure onto itself.	Describe **or** illustrate rotations **and** reflections of a rectangle, parallelogram, trapezoid, or regular polygon that carry each figure onto itself.	Describe **or** illustrate rotations **or** reflections of a rectangle, parallelogram, trapezoid, or regular polygon that carry each figure onto itself.	
Develop definitions of transformations (G.CO.4)		Develop the definition **of all the terms** rotations, reflections and translations in terms of: • Angles • Circles • Perpendicular lines • Parallel lines • Line segments.	Develop the definition **for 4 of the terms** rotations, reflections and translations in terms of: • Angles • Circles • Perpendicular lines • Parallel lines • Line segments.	Develop the definition **for 2 of the terms** rotations, reflections and translations in terms of: • Angles • Circles • Perpendicular lines • Parallel lines • Line segments.	
Properties of Dilations (G.SRT.1)		**Verify** that when a side passes through the center of dilation, **the side and its image lie on the same line.**	Given an image and the pre-image, **determine the center of dilation**	**Perform dilation** with a given center and scale factor on a figure in the coordinate plane.	

G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

G.CO.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).

G.CO.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.

G.CO.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

G.CO.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

G.SRT.1 Verify experimentally the properties of dilations given by a center and a scale factor:

a. dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
b. the dilation of a line segment is longer or shorter in the ratio given by the scale factor.