

Geometric Transformations

1.1 Explore the building blocks of geometry

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: <ul style="list-style-type: none"> • Designing • Connecting • Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving 	Describe the following terms using points, lines, distance for all of the following: <ul style="list-style-type: none"> • Angles • Perpendicular Lines • Parallel Lines • Line Segments 	Describe the following terms using points, lines, distance for 3 of the following: <ul style="list-style-type: none"> • Angles • Perpendicular Lines • Parallel Lines • Line Segments 	Describe the following terms using points, lines, distance for 2 of the following: <ul style="list-style-type: none"> • Angles • 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

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

This standard may be reassessed in other reporting strands, as concepts are developed and taught.

Geometric Transformations

2.1 Explore with transformations

CCSS	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Represent, describe and compare transformations (G.CO.2, G.CO.5, 8.G.1)	<p>Can extend thinking beyond the standard, including tasks that may involve one of the following:</p> <ul style="list-style-type: none"> • Designing • Connecting • Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving 	<p>Graph coordinates (image) on the coordinate plane and write the ordered pairs for the new points after multiple transformations (reflections, translations, rotations)</p> <p>Given the image and the pre-image describe a sequence of reflections, translations, and rotations that maps one figure onto the other</p> <p>Compare transformations that preserve distance and angles to those that do not</p>	<p>Graph coordinates (image) on the coordinate plane and write the ordered pairs for the new points after one transformation (reflections, translations, and rotations)</p> <p>Given the image and the pre-image describe reflections, translations, and rotations that maps one figure onto the other</p> <p>Describe transformations that preserve distance and angles to those that do not</p>	<p>Graph coordinates on the coordinate plane and write the ordered pairs for the new points after one transformation (reflections and translations)</p> <p>Given an image and its pre-image, describe reflections and translations, that maps one figure onto the other</p> <p>Identify transformations that preserve distance and angles to those that do not</p>	<p>Little evidence of reasoning or application to solve the problem</p> <p>Does not meet the criteria in a level 1</p>
Describe symmetry (G.CO.3)		<p>Describe all the lines of symmetry as the lines of reflection of a rectangle, parallelogram, trapezoid, or regular polygon that carry each figure onto itself</p> <p>Describe the angle of rotation as the rotational symmetry of a rectangle, parallelogram, trapezoid, or regular polygon that carry each figure onto itself</p>	<p>Identify a line of symmetry of a rectangle, parallelogram, trapezoid, or regular polygon</p> <p>and</p> <p>Identify the angle of rotational symmetry of a rectangle, parallelogram, trapezoid, or regular polygon</p>	<p>Identify a line of symmetry of a rectangle, parallelogram, trapezoid, or regular polygon</p> <p>or</p> <p>Identify the angle of rotational symmetry of a rectangle, parallelogram, trapezoid, or regular polygon</p>	
Develop definitions of transformations (G.CO.4)		<p>Develop the definition of all the terms rotations, reflections and translations in terms of:</p> <ul style="list-style-type: none"> • Angles • Perpendicular lines • Parallel lines • Line segments. 	<p>Develop the definition for 4 of the terms rotations, reflections and translations in terms of:</p> <ul style="list-style-type: none"> • Angles • Perpendicular lines • Parallel lines • Line segments. 	<p>Develop the definition for 2 of the terms rotations, reflections and translations in terms of:</p> <ul style="list-style-type: none"> • Angles • Perpendicular lines • Parallel lines • Line segments. 	

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, perpendicular lines, parallel lines, and line segments.

8.G.1 Verify experimentally the properties of rotations, reflections, and translations

Geometric Transformations

2.2 Investigate and apply congruence definitions

CCSS	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
<p>Predict and decide congruency (G.CO.6)</p> <p>Corresponding sides and angles (G.CO.7)</p>	<p>Can extend thinking beyond the standard, including tasks that may involve one of the following:</p> <ul style="list-style-type: none"> • Designing • Connecting • Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving 	<p>Informally prove why two images are congruent using multiple transformations</p> <p>Use the definition of congruence in terms of rigid motions to:</p> <ul style="list-style-type: none"> • Decide if two given figures are congruent • Prove (two column, paragraph, etc.) that corresponding sides are congruent and corresponding angles are congruent in a pair of congruent triangles 	<p>Identify multiple transformations that show two images are congruent</p> <p>Use the definition of congruence in terms of rigid motions to:</p> <ul style="list-style-type: none"> • Decide if two given figures are congruent • Find missing sides or angles to show that corresponding sides are congruent and corresponding angles are congruent in a pair of congruent triangles 	<p>Identify the singular transformation that shows two images are congruent</p> <p>Use the definition of congruence in terms of rigid motions to:</p> <ul style="list-style-type: none"> • Decide if two given figures are congruent • Identify that corresponding sides are congruent and corresponding angles are congruent in a pair of congruent triangles 	<p>Little evidence of reasoning or application to solve the problem</p> <p>Does not meet the criteria in a level 1</p>

G.CO.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.

G.CO.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.