

Yearlong Honors GEO Edlio

Unit 3A	<i>Geometry: Concepts and Connections</i> Congruence
Days 1-2	Standards: G.GSR.3.1 Use geometric reasoning and symmetries of regular polygons to develop definitions of rotations, reflections, and translations. G.GSR.3.2 Verify experimentally the congruence properties of rotations, reflections, and translations: lines are taken to lines and line segments to line segments of the same length; angles are taken to angles of the same measure; parallel lines are taken to parallel lines G.GSR.3.3 Use geometric descriptions of rigid motions to draw the transformed figures and to predict the effect on a given figure. Describe a sequence of transformations from one figure to another to use transformation properties to determine congruence. LT: - o I can translate a figure on the coordinate plane and identify the coordinates of the image. - o I can identify the rule for a translated image on the coordinate plane. - o I understand vocabulary associated with transformations. SC: - o I can graph a figure on the coordinate plane. - o I can apply a translation rule to a figure on the coordinate plane. - o I can define and identify figures as preimages and images. - o I can identify/use vocabulary correctly including: rigid and non rigid transformations, congruent figures, similar figures.

	- o I can use displacement and arrow notation to write and apply rules of translations. - o I understand that a translation is a rigid transformation resulting in a image that is congruent to a pre-image. Lesson/Activity: students will explore translations and vocabulary associated with transformations including rigid/non rigid transformations, transformation, similar figures, congruent figures, translation, arrow notation, isometry preimage, image, displacement
Day 3	Standards: G.GSR.3.1 Use geometric reasoning and symmetries of regular polygons to develop definitions of rotations, reflections, and translations. G.GSR.3.2 Verify experimentally the congruence properties of rotations, reflections, and translations: lines are taken to lines and line segments to line segments of the same length; angles are taken to angles of the same measure; parallel lines are taken to parallel lines G.GSR.3.3 Use geometric descriptions of rigid motions to draw the transformed figures and to predict the effect on a given figure. Describe a sequence of transformations from one figure to another to use transformation properties to determine congruence. LT: - o I can identify a reflection on the coordinate plane and write the rule for the reflection. - o Given a rule for a reflection, I can graph the pre-image and image. SC: - o I can graph a reflection across the x-axis, y-axis, $y = x$, $y = -x$ and any horizontal or vertical line. - o I can identify and write the rule given a reflection across the x-axis, y-axis, $y = x$, $y = -x$ and any horizontal or vertical line. - o I can find the coordinates of a reflection across the x-axis, y-axis, $y = x$, $y = -x$ and any horizontal or vertical line.

	o I understand that a reflection is a rigid transformation such that the pre-image is congruent to the image. Lesson/Activity: students will explore reflections through graphing and identifying rules. Vocab includes: reflection, line of reflection, line of symmetry
Day 4-5	Standards: G.GSR.3.1 Use geometric reasoning and symmetries of regular polygons to develop definitions of rotations, reflections, and translations. G.GSR.3.2 Verify experimentally the congruence properties of rotations, reflections, and translations: lines are taken to lines and line segments to line segments of the same length; angles are taken to angles of the same measure; parallel lines are taken to parallel lines G.GSR.3.3 Use geometric descriptions of rigid motions to draw the transformed figures and to predict the effect on a given figure. Describe a sequence of transformations from one figure to another to use transformation properties to determine congruence. LT: - o I can identify a reflection on the coordinate plane and write the rule for the reflection. - o Given a rule for a reflection, I can graph and identify the coordinates of the pre-image and image. - o I can identify a rotation on the coordinate plane and write the rule for the rotation. - o Given a rule for a rotation, I can graph and identify coordinates of the pre-image and image. SC: - o I can graph a reflection across the x-axis, y-axis, $y = x$, $y = -x$ and any horizontal or vertical line. - o I can identify and write the rule given a reflection across the x-axis, y-axis, $y = x$, $y = -x$ and any horizontal or vertical line.

	- o I can find the coordinates of a reflection across the x-axis, y-axis, $y = x$, $y = -x$ and any horizontal or vertical line. - o I can identify clockwise and counterclockwise movements. - o I can graph a rotation including 90, 180 and 270 degrees clockwise and counterclockwise. - o I can write the rule for a rotation including 90, 180 and 270 degrees clockwise and counterclockwise. - o I understand that rigid transformations such as reflections and rotations result in congruent figures (pre-image and image are congruent) Lesson/Activity: students will explore reflections and rotations through graphing and identifying rules. Vocab includes: reflection, line of reflection, line of symmetry, rotation, clockwise, counterclockwise
Day 6-7	Standards: G.GSR.3.1 Use geometric reasoning and symmetries of regular polygons to develop definitions of rotations, reflections, and translations. G.GSR.3.2 Verify experimentally the congruence properties of rotations, reflections, and translations: lines are taken to lines and line segments to line segments of the same length; angles are taken to angles of the same measure; parallel lines are taken to parallel lines G.GSR.3.3 Use geometric descriptions of rigid motions to draw the transformed figures and to predict the effect on a given figure. Describe a sequence of transformations from one figure to another to use transformation properties to determine congruence. LT: • I can graph a composition or sequence of transformations and identify the coordinates of the image. • I can identify the sequence of rules for figures that have undergone a composition of transformations. SC: • I can identify and write the rules for rotations, reflections, and translations. • I can identify the sequence for a composition of transformations and write the rule.

	• I can graph a composition of transformations and identify the coordinate points of the image. • I understand that a sequence of rigid transformations such as translations, reflections and rotations result in congruent figures. Lesson/Activity: students will explore a sequence/composition of transformations graphing pre-images and images. Students will also explore writing/identifying rules for figures that have undergone multiple transformations.
Day 8	Quiz or Task covering transformations.

G.MM.1.1: Explain applicable, mathematical problems using a mathematical model.

G.MM.1.2: Create mathematical models to explain phenomena that exist in the natural sciences, social sciences, liberal arts, fine and performing arts, and/or humanities domains.

G.MM.1.3: Using abstract and quantitative reasoning, make decisions about information and data from a mathematically applicable situation.

G.MM.1.4: Use various mathematical representations and structures with this information to represent and solve real-life problems.

These 8 Mathematical Practices and the overarching Practice Standard are essential to the instruction in this unit.

G.MP: Display perseverance and patience in problem-solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration and expression. Seek help and apply feedback. Set and monitor goals.

G.MP.1: Make sense of problems and persevere in solving them.

G.MP.2: Reason abstractly and quantitatively.

G.MP.3: Construct viable arguments and critique the reasoning of others.

G.MP.4: Model with mathematics.

G.MP.5: Use appropriate tools strategically.

G.MP.6: Attend to precision.

G.MP.7: Look for and make use of structure.

G.MP.8: Look for and express regularity in repeated reasoning.
