Mathematics

Unit/Timeframe: Transformations and Symmetry / 11 days	Grade Level: 9, 10, 11, 12
Content Standards	**2017 MA Literacy Framework**
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.CO.5 - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. 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.	Speaking and Listening Standard: Comprehension and Collaboration 2. Reason abstractly and quantitatively 3. Construct viable arguments and respond to the reasoning of others. Writing Standard: Text, type and purposes 1C. Use words, phrases and clauses with precision.

Essential Questions	**Skills/Knowledge**		
How are rigid transformations used to show geometric relationships? Why are compositions of rigid transformations important? How are tessellations related to transformations? Why might this be useful? Why is symmetry important in the real world?	Students will use rigid motions to reflect figures on the coordinate plane. Students will use rigid motions to translate figures on the coordinate plane. Students use rigid motions to rotate figures about points on a coordinate plane. Students use two or more rigid motions to transform figures on the coordinate plane. Students use symmetry to describe the transformations that carry a figure onto itself.		

Common Resources	**Common Assessments**
Geometry Textbook and Accompanying Resources	Common assessment for Transformations and Symmetry

Vocabulary
Tier II: angle of rotation center of symmetry composition of transformation isometry

line of symmetry
magnitude of symmetry
order of symmetry
point of symmetry
point symmetry
magnitude of symmetry
order of symmetry
point of symmetry
point symmetry
principle of superposition
semi regular tessellation
rigid transformation
rotational symmetry
symmetry
tessellation
translation vector
vector
Tier III:

Additional Notes