WAUCONDA SCHOOL DISTRICT 118
UNIT PLANNING ORGANIZER

Subject: Honors Geometry

Unit: 3 Transformations

Pacing: 10 days

STAGE 1 – DESIRED RESULTS

Essential Questions:
- **How can you change a figure's position without changing its size and shape?**
- **How does a transformation affect the ordered pairs of the original shape?**
- **How do you recognize symmetry in a figure?**

Big Ideas:
- **The distance between any two points and the angles in a geometric figure stay the same when its location and orientation changes; it is reflected across a line, or it is rotated about a point.**
- **One or two congruent figures in a place can be mapped onto the other by a single reflection, translation, rotation or glide reflection.**
- **Use visualization, spatial reasoning, and geometric modeling to solve problems.**

CCSS (Priority Standards):
- **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.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, e.g., 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.**
- **G.CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).**
- **G.GPE.4 Use coordinates to prove simple geometric theorems algebraically.**

STAGE 2 – EVIDENCE		
Concepts **(What students need to know)**	**Performance Tasks** **(What students will be able to do)**	**21st Century Skills**
- Rigid Motion in a Plane - Translations and Vectors - Reflections - Rotations - Glide Reflections and Compositions	- Identify and perform the 3 basic rigid transformations: translations, reflections, and rotations. - Use coordinate notation and vector notation when performing translations on and off a coordinate grid. - Identify, use, and write proper notation for translations. - Identify, use, and write proper notation for reflections on and off a coordinate grid. - Identify, use, and write proper notation for rotations on and off a coordinate grid. - Identify and create composites of transformations. - Identify relationships between reflections and line symmetry. - Identify rotational symmetry and list possible angles of rotation. - Identify point symmetry.	

Common Formative/Summative Assessments:
- **Topic 3 Test**
- **Checks for Understanding**

Interim Assessments (Informal Progress Monitoring checks):
- **Warm-Ups**

Modified Common Assessments:

Modified Interim Assessments:

STAGE 3 – LEARNING PLAN
(INSTRUCTIONAL PLANNING)

Suggested Resources/Materials/Informational Texts

Suggested Research-based Effective Instructional Strategies

Identifying Similarities and Differences - The ability to break a concept into its similar and dissimilar characteristics allows students to understand (and often solve) complex problems by analyzing them in a more simple way. Teachers can either directly present similarities and differences, accompanied by deep discussion and inquiry, or simply ask students to identify similarities and differences on their own. While teacher-directed activities focus on identifying specific items, student-directed activities encourage variation and broaden understanding, research shows.

Summarizing and Note Taking - These skills promote greater comprehension by asking students to analyze a subject to expose what's essential and then put it in their own words. According to research, this requires substituting, deleting, and keeping some things and having an awareness of the basic structure of the information presented.

Cues, Questions, and Advance Organizers Cues - Questions, and advance organizers help students use what they already know about a topic to enhance further learning. Research shows that these tools should be highly analytical, should focus on what is important, and are most effective when presented before a learning experience

Cooperative Learning - Research shows that organizing students into cooperative groups yields a positive effect on overall learning. When applying cooperative learning strategies, keep groups small and don't overuse this strategy-be systematic and consistent in your approach.

Reinforcing Effort and Providing Recognition - Effort and recognition speak to the attitudes and beliefs of students, and teachers must show the connection between effort and achievement. Research shows that although not all students realize the importance of effort, they can learn to change their beliefs to emphasize effort.

Taken from: *Marzano's Nine Instructional Strategies for Effective Teaching and Learning*

Academic Vocabulary/ Word Wall	Enrichment/Extensions/ Modifications	Interdisciplinary Connection
Essential Vocabulary: Composition Image Line of Reflection Point Symmetry	**Composite Transformations "Project"**	

Preimage Reflection Reflective Symmetry Rigid Transformation Rotation Rotational Symmetry Transformation Translation Vector **Worth-knowing Vocabulary:** Non-rigid Transformation Glide Reflection Isometry Center of Rotation Angle of Rotation Line of Symmetry		