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| **Grade Level:**  **LESSON PLANS ARE SUBJECT TO CHANGE DAILY!** | | 9th | | **Teacher/Room**: | | | | LPayne | | / | | 181 | **Course(s)/ Period(s):** | | Acc. Coordinate Alg | | / | 3 & 4 | **Week of:** | | 9/8-9/12 | |
| **Unit Vocabulary:** | | | Unit 5- See attached | | | | | | | | | | | | | | | | | | | |
| **Instructional Strategies Used:** | | | | | | **Activating Prior Knowledge, Graphic Organizers, Group Work, Guided Discovery, Interactive Lecture w/note taking. Cooperative Learning, Test/Quiz, Ticket out the door.** | | | | | | | | | | | | | | | | |
| **Monday** | | | | | **Tuesday** | | | | | | **Wednesday** | | | | **Thursday** | | | | | **Friday** | | |
| **Common Core Standard(s)**: **MCC9-12.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 measures to those that do not (e.g., translation versus horizontal stretch). | | | | | **Common Core Standard(s) MCC9-12.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 measure to those that do not (e.g., translation versus horizontal stretch).  **MCC9-12.G.CO.3** Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.  **MCC9-12.G.CO.4** Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.  **MCC9-12.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 | | | | | | **Common Core Standard(s)**: 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 measure to those that do not (e.g., translation versus horizontal stretch).  **MCC9-12.G.CO.3** Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.  **MCC9-12.G.CO.4** Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.  **MCC9-12.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 | | | | **Common Core Standard(s)**: 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 measure to those that do not (e.g., translation versus horizontal stretch).  **MCC9-12.G.CO.3** Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.  **MCC9-12.G.CO.4** Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.  **MCC9-12.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 | | | | | **Common Core Standard(s)**: 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 measure to those that do not (e.g., translation versus horizontal stretch).  **MCC9-12.G.CO.3** Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.  **MCC9-12.G.CO.4** Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.  **MCC9-12.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 | | |
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| **Essential Question: How can you define rotation, reflections, and translations of geometric figures?** | | | | | **Essential Question: how can you identify the effect of a reflection a a geometric figure?** | | | | | | **Essential Question: How can you identify the effects of a translation on a geometric figure?** | | | | **Essential Question: How can you identify the effects of a rotation on a geometric figure?** | | | | | **Essential Question: How can you identify the effects of a composition of translation on a geometric figure?** | | |
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| **Mini Lesson:** | | | | | **Mini Lesson:** | | | | | | **Mini Lesson:** | | | | **Mini Lesson:** | | | | | **Mini Lesson:** | | |
| * **Edmodo and remind 101** | | | | | * **Check homework** | | | | | | * **Check homework** | | | | * **Check homework** | | | | | * **Check homework** | | |
| **Activating Strategies:** | | | | | **Activating Strategies:** | | | | | | **Activating Strategies:** | | | | **Activating Strategies:** | | | | | **Activating Strategies:** | | |
| * Vocabulary Unit 5 | | | | | * **GSP** | | | | | | * **Miras** | | | |  | | | | |  | | |
| **Lesson: 16.1 transformations** | | | | | **Lesson: 16.2 reflections** | | | | | | **Lesson: 16.3 transformations** | | | | **Lesson: 16.4 rotations** | | | | | **Lesson: 17.1 compositions of translations** | | |
| * **1. Mira** * **2. Patty paper** * **GSP** * Introduction to Reflections, Translations, and Rotations | | | | | **1.Task exploring reflections and rotations**  **2. guided notes** | | | | | | 1. Mirrored Mappings .Guided notes | | | | 1.Coordinating Translations  Guided notes | | | | | **Transformations in the coordinate plane**  **Guided notes**  **Summary of the week’s task** | | |
| **Resource/Materials:** | | | | | * **Resource/Materials:** Wireless laptops for each student or student group. * LCD projector linked to teacher’s computer * Paper/Pencil * Geometer’s Sketchpad installed on each computer (*or other Geometry software*) * Student Worksheet or Alternative Version (**see below**) * translation\_sketch.gsp file on each laptop (or available for students’ use)<http://www.georgiastandards.org/Common-Core/Documents/translation_sketch.gsp> | | | | | | * **Resource/Materials:** Graph Paper * Pencil * MIRA’s * Patty Paper * Task | | | | **Resource/Materials:** Graph paper  Pencil  Ruler (optional)  Directions for students either on a hand-out or using a projector | | | | | **Resource/Materials:** Graph paper  Hand-out  Pencil  Straight-edge | | |
| * **Textbook, patty paper, mira, computer, task. Graph paper** | | | | | * **Textbook, patty paper, mira, computer, task. Graph paper** | | | | | | * **Textbook, patty paper, mira, computer, task. Graph paper** | | | | * **Textbook, patty paper, mira, computer, task. Graph paper** | | | | | * **Textbook, patty paper, mira, computer, task. Graph paper** | | |
| **Differentiation:**  ***Content/Process/Product:*** | | | | | **Differentiation:**  ***Content/Process/Product:*** | | | | | | **Differentiation:**  ***Content/Process/Product:*** | | | | **Differentiation:**  ***Content/Process/Product:*** | | | | | **Differentiation:**  ***Content/Process/Product:*** | | |
| * **Students can use computers or paper** | | | | | **EXTENSION**  19. Is there ever a time when a rotation is the same as a reflection? Explain.  20 Create an animation in a new Geometer’s Sketchpad window to support your answer to number 19. Email your animation to your teacher. | | | | | | * Graphic Organizers | | | | * Finished task | | | | | * Finished task | | |
| ***Grouping Strategy (if any):*** | | | | | ***Grouping Strategy (if any):*** | | | | | | ***Grouping Strategy (if any):*** | | | | ***Grouping Strategy (if any):*** | | | | | ***Grouping Strategy (if any):*** | | |
| * **Think pair share groups** | | | | | * Flexible Grouping | | | | | | * Flexible Grouping | | | | * NA | | | | | * NA | | |
| ***Assessment Strategy:*** | | | | | ***Assessment Strategy:*** | | | | | | ***Assessment Strategy:*** | | | | ***Assessment Strategy:*** | | | | | ***Assessment Strategy:*** | | |
|  | | | | | * Grouping based on formative assessment | | | | | | * Grouping based on formative assessment | | | | * NA | | | | | * NA | | |
| **Assessment :** | | | | | **Assessment :** | | | | | | **Assessment :** | | | | **Assessment :** | | | | | **Assessment :** | | |
| ***Formative:*** | ***Task*** | | | | ***Formative:*** | | | | Thumbs Up/Down | | ***Formative:*** | | | Task | ***Formative:*** | Task | | | | ***Formative:*** | | Task |
| ***Summative:*** | NA | | | | ***Summative:*** | | | | NA | | ***Summative:*** | | | Check homework | ***Summative:*** | Check homework | | | | ***Summative:*** | |  |
| **Homework: 16.1, pg. 447**  **8-38 even** | | | | | **Homework: 16.2, pg 455**  **14-44 even** | | | | | | **Homework: 16.3, pg 462,**  **12-40 even** | | | | **Homework: 16.4, pg 470**  **12-42 even** | | | | | **Homework: 17.1, pg 481 8-28 even, &extra credit project** | | |
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| Resources and Reflective Notes: | | | | | | |  | | | | | | | | | | | | | | | |

**Unit 5 ESSENTIAL QUESTIONS**

• What are the undefined terms essential to any study of geometry?

• How do you determine the type of transformation that has occurred?

• What effects do transformations have on geometric figures?

• Can a transformation change an object’s position, orientation, and / or size?

• How do we define and create geometric transformations?

• How do transformations of geometric figures and functions compare?

• What effects do transformations have on geometric figures?

• Which transformations create isometries?

• How do we know which transformations have created the mapping of an image?

• How do we translate geometric figures in the coordinate plane?

• How do we reflect points in a coordinate plane?

• How are reflections and rotations similar and different?

• How can we describe / represent a transformation (or series of transformations) that take place in the coordinate plane?

• How can the coordinate plane help me understand properties of reflections, translations and rotations?

• What is the relationship between reflections, translations and rotations?

• How do I apply what I’ve learned about transformations to figures in the coordinate plane?

**Unit 5 Vocabulary**

1. Angle: A figure created by two distinct rays that share a common endpoint (also known as a vertex). ∠ABC or ∠B or ∠CBA indicate the same angle with vertex B.
2. Angle of Rotation: The amount of rotation (in degrees) of a figure about a fixed point such as the origin.
3. Bisector: A point, line or line segment that divides a segment or angle into two equal parts.
4. Circle: The set of all points equidistant from a point in a plane.
5. Congruent: Having the same size, shape and measure. ∠A ≅ ∠B indicates that angle A is congruent to angle B.
6. Corresponding angles: Angles that have the same relative position in geometric figures.
7. Corresponding sides: Sides that have the same relative position in geometric figures.
8. Endpoint: The point at each end of a line segment or at the beginning of a ray.
9. Image: The result of a transformation.
10. Intersection: The point at which two or more lines intersect or cross.
11. Isometry: a distance preserving map of a geometric figure to another location using a reflection, rotation or translation. indicates an isometry of the figure M to a new location M’. M and M’ remain congruent.
12. Line: One of the undefined terms of geometry that represents an infinite set of points with no thickness and its length continues in two opposite directions indefinitely indicates a line that passes through points A and B.
13. Line segment: A part of a line between two points on the line. indicates the line segment between points A and B.
14. Parallel lines: Two lines are parallel if they lie in the same plane and do not intersect. indicates that line AB is parallel to line CD.
15. Perpendicular lines: Two lines are perpendicular if they intersect to form right angles. indicates that line AB is perpendicular to line CD.
16. Point: One of the basic undefined terms of geometry that represents a location. A dot is used to symbolize it and it is thought of as having no length, width or thickness.
17. Pre-image: A figure before a transformation has taken place.
18. Ray: A part of a line that begins at a point and continues forever in one direction. indicates a ray that begins at point A and continues in the direction of point B indefinitely.
19. Reflection: A transformation of a figure that creates a mirror image, “flips,” over a line.
20. Reflection Line (or line of reflection): A line that acts as a mirror so that corresponding points are the same distance from the mirror.
21. Rotation: A transformation that turns a figure about a fixed point through a given angle and a given direction, such as 90° clockwise.
22. Segment: See line segment.
23. Transformation: The mapping, or movement, of all points of a figure in a plane according to a common operation, such as translation, reflection or rotation.
24. Translation: A transformation that slides each point of a figure the same distance in the same direction.
25. Vertex: The location at which two lines, line segments or rays intersect.





