

6Richmond Public Schools
Department of Curriculum and Instruction
Curriculum Pacing And Resource Guide – Unit Plan



Course Title/ Course #: Pre-Algebra Math 8

Unit Title/ Marking Period # (MP): Transformations/MP 2

Start day: 82

Meetings (Length of Unit): 8 Days

| <i>Desired Results ~ What will students be learning?</i> |
|---|
| <u>Standards of Learning/ Standards</u> |
| 8.8 The student will a) Apply transformations to plane figures; and b) Identify applications of transformations |
| <u>Essential Understandings/ Big Ideas</u> |
| How does the transformation of a figure on the coordinate grid affect the congruency, orientation, location and symmetry of an image? Translations, rotations and reflections maintain congruence between the preimage and image but change location. Dilations by a scale factor other than 1 produce an image that is not congruent to the preimage but is similar. Rotations and reflections change the orientation of the image. |
| <u>Key Essential Skills and Knowledge</u> |
| <ul style="list-style-type: none">• Demonstrate the reflection of a polygon over the vertical or horizontal axis on a coordinate grid.• Demonstrate 90, 180, 270, and 360 degree clockwise and counterclockwise rotations of a figure on a coordinate grid. The center of rotation will be limited to the origin.• Demonstrate the translation of a polygon on a coordinate grid.• Demonstrate the dilation of a polygon from a fixed point on a coordinate grid.• Identify practical applications of transformations including, but not limited to, tiling, fabric, and wallpaper designs, art and scale drawings.• Identify the type of transformation in a given example. |

Vocabulary

| | | |
|---|--|--|
| Coordinate Grid Axis Y axis X axis Origin Quadrant Clockwise Counter clockwise Image Pre-Image | Transformation Reflection Rotation Translation Dilation Scale Factor Polygon Vertical Horizontal | |
|---|--|--|

Assessment Evidence ~ What is evidence of mastery? What did the students master & what are they missing?

Assessment/ Evidence

Mulligan Checkpoint 8.8
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Interactive Achievement
HCPS Mini Quizzes
Students need to know how to plot points on a coordinate plane
Students need to apply each transformation
Students need to recognize a transformation in real life situations.
Make sure students know the differences between the image and pre-image and how to denote each one properly.

Project Idea #1 [Transformation Rabbit Project](#)

Project Idea #2 [Transformations Project](#)

Learning Plan ~ What are the strategies and activities you plan to use?

Learning Experiences/ Best Practice

Activity:

- Use a foldable to allow students to draw and label the coordinate grid. Make sure students know how to plot a point. Put emphasis on points on the x and y axis. Have the students show what clockwise and counter clockwise are on the coordinate grid.

Activity:

- Create a foldable or graphic organizers for the different transformations. Use the NLVM apps to model and differentiate between the different transformations.

Activity (one transformation per day)

- Use the geoboards to apply the different transformations on the coordinate plane. Have students check their work with a neighbor. Students can work in pairs for this type of activity.

Activity:

- Have students create the first letter of their first or last name in one quadrant, block style. Have the students rotate, translate and reflect the letter.
- Students could also create an easy design in one of the quadrants and perform one of the transformations.

Activity:

- Guide students through the gizmo's.

Activity:

- Four corners activity in VDOE lesson plan. Each corner is a different transformation. Show a transformation from real life on a powerpoint. Students will go to the correct corner of the room.

Activity:

- Give students large paper and have them divide it into four sections (one for each transformation). Have the students cut out examples from magazines or print from the internet, of the different transformations.

Activity:

- [Transformations Map](#)

Technology Integrations

Gizmo

Educational Games-under resources

Compass Learning

Allen Teachers

Brain Pop

Khan Academy

Resources

Text:

Glencoe Pre-Algebra pages:
103-108 (Translations and Reflections on the Coordinate Plane)
311-316 (Dilations)
639-644 (Rotations)

Mulligan Math in Minutes 8.8
SOL Coach Book Va Edition: pages 94-101

Technology:

Gizmo-[Dilations](#)- Interactive Instructional Resource
Gizmo-[Quilting Bee: Symmetry](#)- Interactive Instructional Resource
Gizmo-[Reflections](#)- Interactive Instructional Resource
Gizmo-[Rock Art: Transformations](#)- Interactive Instructional Resource
Gizmo-[Rotations, Reflections and Translations](#)- Interactive Instructional Resource
Learn Alberta-[Transformations](#)-Interactive Site
Brain Pop-[Transformations](#)-Interactive Skills Practice
NLVM-[Interactive Geoboard](#)-Online Instructional Tool
Compass Learning-<https://www.thelearningodyssey.com> - M8133, M8136,

Virginia Department of Education

VDOE-[Transformations](#)-Lesson Plan

Other Sites

HCPS - [Transformations](#) - Instructional materials, practice page, assessments
Inside Mathematics-[Aaron's Design](#)-Math Performance Task
Math Playground-[Shape Mods](#)-Educational Review Game
The Number Twenty One-[Transformations Project](#)-Project Based Lesson

Cross Curricular Connection

English: use Venn Diagrams to compare and contrast the different attributes/changes that particular transformations have or do.
History: Make a coordinate grid on top of a US Map. Have students start at particular states, perform a given transformation(s) to determine where they would end. Here is link on teachers pay teachers. It is free-just sign up for an account. [Transformations Map](#)
Art: Have students create designs/pictures in the quadrants and then perform transformations. Scale drawings are examples of dilations.

