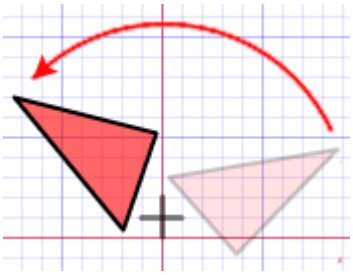
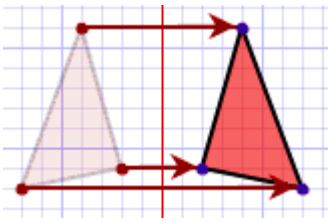
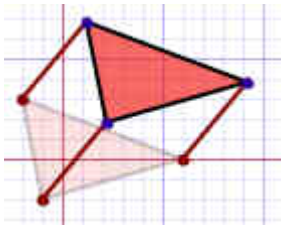
Week of August 17 /8th grade

Transformations, Congruence, and Similarity

The three main Transformations are:

Rotation  **Turn!**

Reflection  **Flip!**

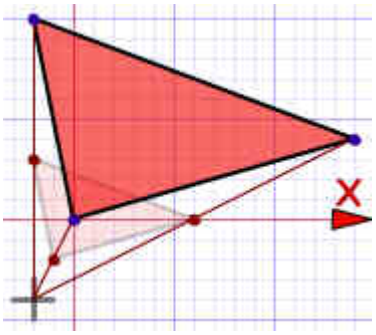
Translation  **Slide!**

After any of those transformations (turn, flip or slide), the shape still has **the same size**, **area**, **angles** and **line lengths.**

If one shape can become another using Turns, Flips and/or Slides, then the two shapes are called **Congruent**.

Resizing

The other important Transformation is **Resizing** (also called *dilation, contraction, compression, enlargement* or even *expansion*). The shape becomes bigger or smaller:

Resizing 

If you have to resize to make one shape become another then the shapes are **not congruent**, but they are **Similar**.

MCC8.G.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them. Standard-**MCC8.G.3** Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

- Week Objectives: Given a figure (pre-image) and a transformation specify the figure resulting from the transformation (image).
- Given a transformed figure (image) and a transformation, specify the original figure (pre-image).
- Given a figure (pre-image) and a transformation draw the result of the transformation.
- Solve equations with variables on both sides

Pre-Assessment: Students will complete the online assessment from the site listed below: **http://studyjams.scholastic.com/studyjams/jams/math/geometry/transformations.htm (on index card and turn in to your classroom basket)**

Monday August 17th

Lesson's vocabulary: Transformation, Translation, Rotation, and Reflection

Objective: What are the three Transformations?

What is a transformation? A transformation is a general term for four specific ways to manipulate the shape of a point, a line, or shape. The original shape of the object is called the pre-image and the final shape and position of the object is the image under the transformation.

Opening/Engage/I Do

Discuss with students their definition of a reflection, rotation, and translation. Show the following video to introduce the three transformations

https://search.yahoo.com/search;_ylt=A0LEVy4gIHlTlU0AkmBXNyoA?p=gangnam+style-transformation+style&fr2=sb-top&fr=yfp-t-430-s

Summary: Students will write their definition/examples of the three transformations.

What is a rotation? A rotation is a transformation that turns a figure about a fixed point called the center of rotation. An object and its rotation are the same shape and size, but the figures may be turned in different directions**. (Turn)**

What is a reflection? A Reflection is a transformation in which the figure is the mirror image of the other. **(Flip)**

What is a translation? A translation is moving a shape, without rotating or flipping it. "Sliding" The shape still looks exactly the same, just in a different place. **(Slide)**

Work-time/Explore/We Do

Student work with their group members to complete the following interactive activity

Introduce the activity with the following interactive link:
http://www.shodor.org/interactivate/activities/Transmographer/

Reteach: Using the worksheet listed below, I will work with students who need additional assistance. http://www.superteacherworksheets.com/geometry/translation-rotation-reflection-1_TZQTQ.pdf

Closing/Explain/You Do (Post-Assessment)

Have each student choose a figure and apply 2 transformations to it (noting what he or she did). Have students change places and try to determine how to undo each transformation.

Tuesday Aug 18th

Pre-Assessment: Translate, rotate, and reflect the given two-dimensional object on the coordinate plane. **(Put your answer on index card and turn in to your classroom basket)**

Objective: Student will translate, reflect, and rotate two-dimensional objects on the coordinate plane.

Opening/Engage/I Do (Identifying Transformations) Rotation (turn), reflection (flip-looking in the mirror), and translation (slide)

Summary: Students will write a postcard to a student that is our explaining how to translate, reflect, and rotate two-dimensional objects on the coordinate plane.

Work-time/Explore/We Do

Students will complete practice problems involving graphing transformations.

Closing/Explain/You Do (Post-Assessment)-Students will summarize their learning

Exit Pass (graph paper)

Make sure you label the points of the pre-image and the new image. Students will create one shape and use the three transformations to move the shape.

Wednesday Aug 19th

Pre-Assessment: To identify rotation of 90 degrees, 180 degrees, and 270 degrees, students are given a short matching assessment.

Objective: Students will rotate image 90 degrees, 180 degrees, and 270 degrees (clockwise and counter clockwise) and describe what happens to each point from the pre-image to the new image.

Rotation notes: http://www.mathsisfun.com/geometry/rotation.html

Opening/Engage

Timed Drill on Equations

Students will review definitions of Transformations (Smart board Activity)

Work-time/Explore/We Do

Students will work with their group to complete the rotation worksheet**.**

http://www.kutasoftware.com/FreeWorksheets/GeoWorksheets/12-Rotations.pdf

Reteach: Small Group-Review 90, 180, 270 degree-model each rotation and check for understanding. Login to https://ple.platoweb.com and complete the rotation review lesson.

Closing/Explain/You Do-Summary

Key Points Summary-Students make a list of bulleted key points of the learning from the lesson.

Using the Smart board, a student from each group will model the steps to rotate an image 90 degrees, 180 degrees, and 270 degrees and what happened to each point from the pre-image to the new image.

Opening/Engage/I Do

Thursday Aug 20th

Pre-Assessment- Match the graph with rule: Reflect over the x axis, reflect over the y axis, and reflect across a certain line.

Objective: Students will graph each figure and its image under the given **reflection**. Find the coordinates of the vertices of each image. **(Reflect over the x and y axis, and over a given line. Students will write the rule for the reflection**)

Opening/Engage/I Do

Teacher will use the site below to introduce reflections. Students should take notes and the teacher will check for understanding after each section.

http://www.mathsisfun.com/geometry/reflection.html

Summary: Revisit Anticipation Guide/Pre-Assessment -Ask students to go back to the anticipation guide/pre-assessment from the beginning of the lesson and revise their answers. Ask them to justify the changes.

Work-time/Explore/We Do

Study Island Assessments on Transformations/Equations Review

Closing/Explain-You Do/Summary

Ticket out the Door: Students will write a summary of the lesson to give to a student that is absent.

Friday Aug 21st

Computer Lab

Students will complete 15 problems (Variables on Both Sides)

Math Games