Common Core Standards - Resource Page

The resources below have been created to assist teachers' understanding and to aid instruction of this standard.

Domain	**Standard:** 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).
Congruence **Experiment with transformations in the plane**	Questions to Focus Learning What is the difference between a rigid transformation and a non-rigid transformation? What transformations are isometries? Some transformations preserve distance and angle, and some do not. Student Friendly Objectives *Knowledge Targets* I know the difference between transformations that are isometries (rigid) and those that are not isometries. I can differentiate between the various isometries, e.g., reflections, rotations, or translations. I know that isometries preserve angle measure, betweenness, collinearity, and distance. I know that a transformation is a function. *Reasoning Targets* I can recognize transformations that are dilations, and classify them as contractions or expansions. I can define a transformation given a figure and its image. *Performance Targets* I can use patty paper, transparencies, or geometry software to demonstrate transformations in a plane. *Product Targets* I can show a one-to-one correspondence between the original figures coordinates (called the pre-image or input values) and the transformed figure's coordinates (called the image or output values). I can create the image of a figure given a transformation.

Vocabulary

contraction
dilation
expansion
horizontal stretch
image
isometry
input
mapping
non-rigid transformation
output
pre-image
reflection
rigid transformation
rotation
transformation
translation
vector
vertical stretch

Teacher Tips

Build on student experience with rigid motions from earlier grades. Point out the basis of rigid motions in geometric concepts, e.g., translations move points a specified distance along a line parallel to a specified line; rotations move objects along a circular arc with a specified center through a specified angle.

Vertical Progression

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, 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.7 - Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. G.CO.8 - Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

The above information and more can be accessed for free on the Wiki-Teacher website.
Direct link for this standard: G.CO.2