



## Mini-Map for M.EE.HS.G.CO.4-5

Subject: Mathematics

Geometry—Congruence (G.CO)

Grade: 10

### Learning Outcome


DLM Essential Element	Grade-Level Standard
<p><b>M.EE.HS.G.CO.4-5</b> Given a geometric figure and a rotation, reflection, or translation of that figure, identify the components of the two figures that are congruent.</p>	<p><b>M.G.CO.4</b> Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.</p> <p><b>M.G.CO.5</b> 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.</p>

### Linkage Level Descriptions

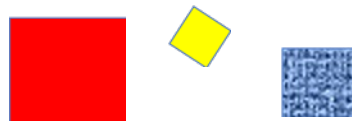
Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
<p>Recognize "same" as the object that shares all of the same attributes as other objects in a group.</p> <p>Recognize "different" as the object that shares some or none of the attributes as other objects in a group.</p>	<p>Match familiar shapes such as squares, rectangles, circles with shapes of the same size but with different orientations. Match familiar solids such as spheres, rectangular prisms, cubes, or pyramids with solids of the same size but with different orientations.</p>	<p>Identify the figure that is translated from the original view as a translation (slide), rotated from the original view as a rotation (turn), or reflected from the original view as a reflection (flip). Match a familiar shape, such as a square, circle, triangle, or rectangle, to a congruent figure with or without rotation or reflection.</p>	<p>Communicate understanding that two shapes are congruent if the second can be obtained from the first by a sequence of rotations, reflections, and translations.</p>	<p>Describe a sequence of transformations that would result in one figure being superimposed precisely over the other figure.</p>

## Initial Precursor and Distal Precursor Linkage Level Relationships to the Target

### *How is the Initial Precursor related to the Target?*

Recognizing congruency requires a student to first recognize when basic objects and shapes are the same or different. Work on this understanding by providing students with a shape and naming it (e.g., “this is a square” ). Then, provide multiple examples of the same shape so students can make comparisons, focusing student attention on the characteristics that make this a particular shape (e.g., a square has 4 sides that are the same size). As students explore shapes, label them and describe them as same or different.

NOTE: When presenting the same shape for comparison, do use shapes with different colors, textures, sizes, and orientation so that students understand the attribute that makes it that shape (e.g., 4 sides that are the same size).



### *How is the Distal Precursor related to the Target?*

As students develop an understanding of same and different shapes, provide opportunities for students to match or group the same shapes based on the shape size (e.g., “this is a big square”, “this is a little square”). As students progress with identifying the size of shapes, the educator can begin to introduce different orientations of the shape.

NOTE: As new attributes (e.g., size and orientation) are introduced, be sure to support the student in remembering that the attribute doesn't change the name of the shape.

## Instructional Resources

Released Testlets
See the <a href="#">Guide to Practice Activities and Released Testlets</a> .
Using Untested (UN) Nodes
See the document <a href="#">Using Mini-Maps to Plan Instruction</a> .

[Link to Text-Only Map](#)

**M.EE.HS.G.CO.4-5** Given a geometric figure and a rotation, reflection, or translation of that figure, identify the components of the two figures that are congruent.

