



Mini-Map for M.EE.HS.G.MG.1-3

Subject: Mathematics

Geometry—Modeling with Geometry (G.MG)

Grade: 9

Learning Outcome


DLM Essential Element	Grade-Level Standard
<p>M.EE.HS.G.MG.1-3 Use properties of geometric shapes to describe real-life objects.</p>	<p>M.G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).</p> <p>M.G.MG.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).</p> <p>M.G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).</p>

Linkage Level Descriptions

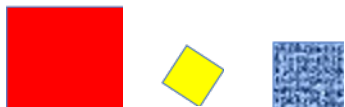
Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
<p>Recognize "same" as the object that shares all of the same attributes as other objects in a group.</p> <p>Recognize "different" as the object that shares some or none of the attributes as other objects in a group.</p>	<p>Match two 3-dimensional shapes (e.g., spheres, rectangular prisms, cubes, pyramids) or 2-dimensional shapes (e.g., squares, rectangles, triangles) that have the same orientation and either the same or different size.</p>	<p>Recognize a square, rectangle, circle, triangle, cube, cone, cylinder, and sphere.</p>	<p>Identify a real-world object using a geometrical shape (e.g., describing a roll of paper towels as a cylinder).</p>	<p>Create designs using paper clips, craft sticks, or straws to represent a given design problem (e.g., soccer field in the shape of a rectangle).</p>

Initial Precursor and Distal Precursor Linkage Level Relationships to the Target

How is the Initial Precursor related to the Target?

In order to describe real-life objects, students must 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 as well as three-dimensional shapes.

NOTE: As new attributes (e.g., size, orientation, three-dimensional) 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 Guide to Practice Activities and Released Testlets .
Using Untested (UN) Nodes
See the document Using Mini-Maps to Plan Instruction .

[Link to Text-Only Map](#)

M.EE.HS.G.MG.1-3 Use properties of geometric shapes to describe real-life objects.

