

MA.1.GR.1.1

Overarching Standard: *MA.1.GR.1 Identify and analyze two- and three-dimensional figures based on their defining attributes.*

Benchmark of Focus

MA.1.GR.1.1: Identify, compare and sort two- and three-dimensional figures based on their defining attributes. Figures are limited to circles, semi-circles, triangles, rectangles, squares, trapezoids, hexagons, spheres, cubes, rectangular prisms, cones and cylinders

Benchmark Clarifications

Clarification 1: Instruction focuses on the defining attributes of a figure: whether it is closed or not; number of vertices, sides, edges or faces; and if it contains straight, curved or equal length sides or edges.

Clarification 2: Instruction includes figures given in a variety of sizes, orientations and non-examples that lack one or more defining attributes.

Clarification 3: Within this benchmark, the expectation is not to sort a combination of two- and three-dimensional figures at the same time or to define the attributes of trapezoids.

Clarification 4: Instruction includes using formal and informal language to describe the defining attributes of figures when comparing and sorting.

Related Benchmark/Horizontal Alignment

- MA.1.DP.1.1

Vertical Alignment

Previous Benchmarks

MA.K.GR.1.1

Next Benchmarks

MA.2.GR.1.1

MA.2.GR.1.2

Terms from the K-12 Glossary

- | | | |
|------------|---------------------|-------------|
| • Circle | • Hexagon | • Trapezoid |
| • Cone | • Rectangle | • Triangle |
| • Cube | • Rectangular Prism | • Vertex |
| • Cylinder | • Square | |
| • Edge | • Sphere | |

Purpose and Instructional Strategies

The purpose of this benchmark is for students to recognize figures by their defining attributes as this will help them sort figures based on attributes rather than orientation, color or size. In Kindergarten, students identified circles, triangles, rectangles, squares, spheres, cubes, cones, and cylinders by a defining attribute. (*MTR.2.1, MTR.5.1*)

- Instruction includes a variety of examples and non-examples that lack a defining attribute.

- While the K-12 Glossary uses the inclusive definition of a trapezoid, students will not formally identify or classify trapezoids until grade 3.

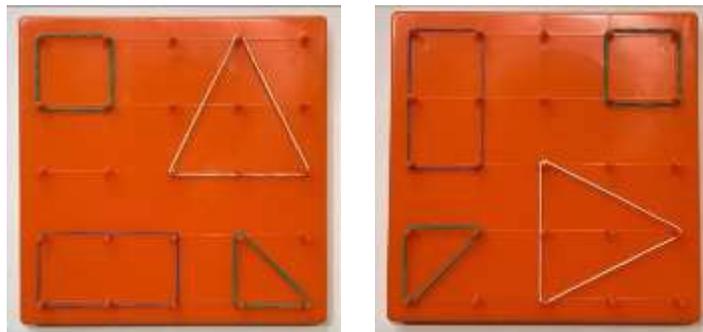
Common Misconceptions or Errors

- Students may only recognize a figure by its size or orientation. In these cases, students need practice in locating figures by a defining attribute like “find the two-dimensional figures with three vertices” rather than find the triangles.

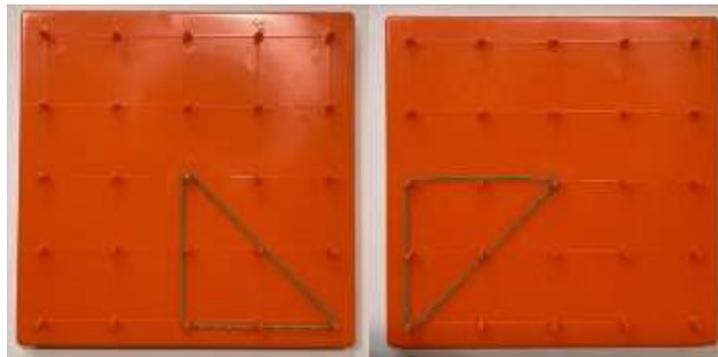
Strategies to Support Tiered Instruction

- Instruction provides opportunities to build shapes on a geoboard as the teacher calls out defining attributes (i.e., “make a two-dimensional figure with three vertices”). After creating a correct figure, the teacher has students rotate the geoboard 45 degrees to see that it is still the same figure.

- Example:



- Teachers may limit the amount and types of shapes built on the geoboard (i.e., only build a square or triangle) if students have difficulty with multiple shapes.
- Example:



Questions to ask students:

- **What is the difference between a defining attribute and a non-defining attribute?**
 - Sample answer that indicates understanding: *A defining attribute is what you see that always stays the same and is always true about that shape (closed shape, number of sides and vertices, equal length, angles). It helps you identify the shape. For example, the number of sides and vertices of a triangle is always 3 and a cylinder has both flat and curved faces with two of the flat faces being circles.*
 - Sample answer that indicates understanding: *A non-defining attribute is what you see about a shape that can change (size, color, and orientation/position). It cannot help you*

identify the shape. For example, if you ask the student to draw a red shape, it would not help them identify what shape to draw because any shape could be red.

- **What is the difference between a two-dimensional and three-dimensional shape? Can be more specific: What is the difference between a circle and a sphere?**
 - Sample answer that indicates understanding: *A two-dimensional shape is a flat closed shape and most of them have sides. A three-dimensional shape is a solid shape that have edges rather than sides.*
- **Point to a shape. Ask: What is the name of this shape? How do you know?**
 - Sample answer that indicates understanding: *This is a triangle because it is a closed shape with 3 straight sides and 3 vertices; This is a sphere because it is a solid shape with 1 curved face and no vertices.*

Instructional Tasks

Instructional Task 1

Provide students pictures of figures like the ones provided to the right.

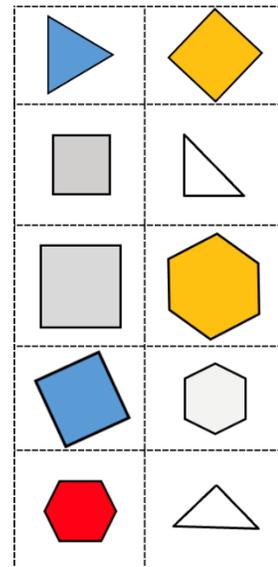
Part A: Sort the figures by ones that have three sides and ones that have four or more sides.

Part B: Discuss what they notice about the figures they sorted that have three sides. What is a two-dimensional figure called that has three sides? Ask students what they notice about the triangles. Are they all the same size? Do they all look the same? What makes them triangles.

Part C: Have students look at the figures they sorted in the “four or more sides” pile. What could these figures be sorting further by? Once students determine an attribute they can sort by, have students sort by that attribute.

Part D: How did you sort the figures? Ask students what they notice about the figures. Are they all the same size? Do they all look the same? Are they all the same figure?

Part E: Discuss which attributes put all of the same figures together and which did not. Have students take their sorted shapes to create a pictograph by stacking their shapes on top of each other.



Instructional Items

Instructional Item 1

Which of the figures below is a trapezoid. How do you know?



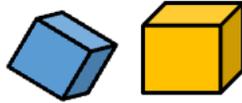
Instructional Item 2

This is a cone. What makes this a cone?



Instructional Item 3

Jill says these two shapes are both cubes. Do you agree with her? Why or why not?



Additional Resources:

[CPALMS Resources](#)

Kahn Academy Video: [Recognizing Shapes](#)

Nearpod Lesson: [Solid Shapes](#)

Read Aloud books: *Shapes Are Everywhere!* by Charles Ghigna & Captain Invincible and *the Space Shapes* by Stuart J. Murphy

Blog Post: [Teaching 2D & 3D Shapes](#)

IXL Practice: [Name the 3D Shape](#) & [Name the 2D Shape](#)

Resources/Tasks to Support Your Child at Home:

IXL Practice: [2D & 3D Shapes](#)

YouTube video: [2D & 3D Shapes](#)

PBS Online Games: [Shapes](#)

2D & 3D Attribute Poster: Draw various 2D shapes on a piece of paper for your child. Next to each shape have them write the shape name, number of vertices, and number of sides. Next draw 3D shapes and have your child write next to each one, the name of the shape, the number of edges, and the number of faces. Talk to your child about the defining attributes of each shape.

2D & 3D Shape Hunt: Take a walk around the neighborhood or even around the house and have your child look for shapes they see. As they find the shape, have them explain what attributes they used to help them identify the shape. As a bonus, you could have your child keep a tally of the shapes they find to see which shape is used more around their area.