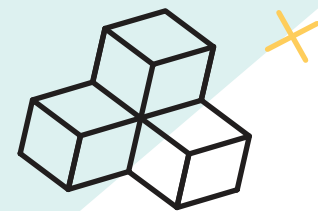


# K-12 Mathematics Geometry Progression



## Standards/Cluster

## Math

## Other Content Areas

Kindergarten

**K.G.A:** Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres)

- Locate shapes in the environment around you
- Describe relative position of objects
- Identify whether shapes are two- or three- dimensional

- Correctly name shapes
- Use attributes to sort shapes

1st Grade

**1.G.A:** Reason with shapes and their attributes

- Verbally describe the attributes of shapes
- Identify the name of a composite shape and each shape that forms it
- Decompose shapes into equal parts and then recompose to form the original shape

- Build and draw two dimensional shapes
- Solve shape puzzles and create designs with shapes

2nd Grade

**2.G.A:** Reason with shapes and their attributes

- Use precise vocabulary to describe the attributes of the shapes.
- Describe similarities and differences between two- and three- dimensional shapes
- Partition rectangles into squares and find the total number of squares
- Partition circles and rectangles into equal pieces and express the pieces as fractions

- Locate and describe two- and three- dimensional shapes around the classroom.
- Recognize two- and three- dimensional shapes in the world.
- Name fractions seen in diagrams or illustrations

3rd Grade

**3.G.A:** Reason with shapes and their attributes

- Describe, analyze, and compare properties of two-dimensional shapes
- Use geometric terms when describing quadrilaterals
- Find how many ways different shapes can be partitioned into parts with equal area
- Identify and describe the fractional name of the area of a shape

- Recognize shapes that are and are not quadrilaterals

4th Grade

**4.G.A:** Draw and identify lines and angles, and classify shapes by properties of their lines and angles

- Use correct geometric terminology when drawing shapes.
- Classify two-dimensional figures based on parallel or perpendicular lines, or angles of a specific size
- Discover and draw lines of symmetry in two-dimensional shapes

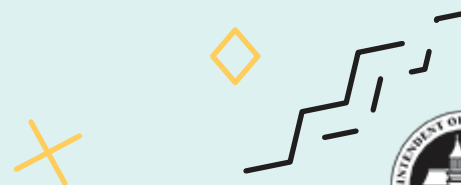
- Draw points, lines, line segments, rays, angles, and perpendicular and parallel lines.
- Identify parallel and perpendicular lines in context (ie. railroad tracks)

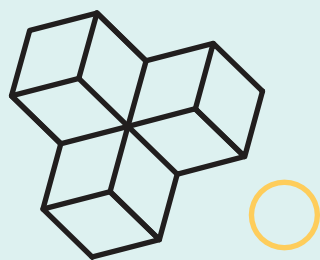
5th Grade

**5.G.B:** Classify two-dimensional figures into categories based on their properties

- Explain reasoning about the properties of shapes
- Sort and classify two-dimensional figures in a hierarchy based on properties.

- Use vocabulary associated with the properties of shapes to describe them precisely





# K-12 Mathematics Geometry Progression



## Standards/Cluster

## Math

## Other Content Areas

6th Grade

**6.G.A:** Solve real-world and mathematical problems involving area, surface area, and volume

- Solve real-world problems using composite figures to model real-world examples
- Reason that finding volume uses the same formula whether the edge lengths are whole or fractional units
- Visualize how nets relate to three-dimensional figures

- Find the area of triangles, special quadrilaterals and polygons
- Find volume of right prisms by multiplying area of the base by height.
- Use a model to determine surface area

7th Grade

**7.G.B:** Solve real-life and mathematical problems involving angle measure, area, surface area, and volume

- Explain the relationship between circumference and diameter, and circumference and area of a circle
- Solve problems by applying what you know about the types of angles
- Communicate orally and in writing about solutions and justifications for solutions

- Find area and circumference of a circle using formulas
- Solve real-life involving angle measure, area, surface area, and volume
- Interpret units in the context of area and volume problems

8th Grade

**8.G.C:** Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres

- Derive the formulas for cones, cylinders and spheres
- Explain in writing your understanding of the volume formulas for cones, cylinders and spheres

- Solve real-world problems that involve finding the volumes of cones, cylinders, and spheres.

High School

**G.GMD.A:** Explain volume formulas and use them to solve problems

- Use volume formulas for cylinders, pyramids, cones and spheres to solve problems
- Use dissection arguments to interpret formulas for volume

- Use volume formulas to suggest solutions to real-world problems involving geometric solids.

- The standards identified are representative of the focus at each grade level to demonstrate the developmental nature of our Learning Standards
- The math skills listed are applicable within the context of the identified standards but do not offer a comprehensive list of skills they describe
- The other content areas are examples to provide possible uses of the math skills within the listed standards

