Unit 6: Identify and Describe Three-Dimensional Shapes

Content Area: **Mathematics**
Course(s): **Math K**
Time Period: **April**
Length: **3 weeks**
Status: **Published**

Unit Summary

In this unit, students will identify three-dimensional shapes. They will describe objects in the environment using the names of shapes and describe the relative positions using terms such as above, below, beside, in front of and next to.

Standards

MA.K-12.4	Model with mathematics.
	Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.
MA.K-12.7	Look for and make use of structure.
	Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7 × 8 equals the well remembered 7 × 5 + 7 × 3, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2 × 7 and the 9 as 2 + 7. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.
MA.K.G	Geometry
MA.K.G.A	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
MA.K.G.A.1	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.

MA.K.G.A.2	Correctly name shapes regardless of their orientations or overall size.
MA.K.G.A.3	Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").
MA.K.G.B	Analyze, compare, create, and compose shapes.
MA.K.G.B.4	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).
MA.K.G.B.5	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
MA.K.G.B.6	Compose simple shapes to form larger shapes.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
TECH.8.1.2.A.CS1	Understand and use technology systems.
TECH.8.1.2.A.CS2	Select and use applications effectively and productively.

Student Learning Objectives

Students will learn to...

- analyze and compare three-dimensional shapes by attributes.
- identify, name, and describe three-dimensional shapes: spheres, cubes, cylinders, and cones.
- solve problems by using the strategy use logical reasoning.
- use the terms above, below, beside, next to, in front of and behind to describe shapes in the environment.

Essential Questions

- How can identifying and describing shapes help you sort them?

Enduring Understandings

Students will understand that...

- shapes are all around us.
- real life objects are made of three-dimensional shapes.

Application

Students will be able to independently use their learning to...

- describe, classifiy and analyze three-dimensional objects by their attributes.

Skills

Students will be skilled at...

- using their observation skills to determine what is or what is not a particular three-dimensional shape.
- describing three-dimensional shapes by indicating whether or not the shapes have curved or flat surfaces.
- describing three-dimensional shapes by telling whether or not they can roll or stack.
- describing an object using the positional words such as inside, outside, above and below.
- identifying cubes, cones, cylinders and spheres and relate them to real-life objects.
- identifying the attributes of solid figures.
- recogizing that shapes can be combined to make other shapes.
- creating shapes by combining 2 solid figures