

Just In Time Quick Check
Standard of Learning (SOL) 4.11

Strand: Measurement and Geometry

Standard of Learning (SOL) 4.11

The student will identify, describe, compare, and contrast plane and solid figures according to their characteristics (number of angles, vertices, edges, and the number and shape of faces) using concrete models and pictorial representations.

Grade Level Skills:

- Identify concrete models and pictorial representations of solid figures (cube, rectangular prism, square pyramid, sphere, cone, and cylinder).
- Identify and describe solid figures (cube, rectangular prism, square pyramid, and sphere) according to their characteristics (number of angles, vertices, edges, and by the number and shape of faces).
- Compare and contrast plane and solid figures (circle/sphere, square/cube, triangle/square pyramid, and rectangle/ rectangular prism) according to their characteristics (number of sides, angles, vertices, edges, and the number and shape of faces).

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Just in Time Quick Check Teacher Notes







Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [4.11 - Characteristics of Solids](#) (Word) / [PDF Version](#)
- VDOE Word Wall Cards: Grade 4 ([Word](#)) / ([PDF](#))
 - Plane Figures
 - Solid Figures
 - Polygons: Triangle, Quadrilateral, and Pentagon
 - Polygons: Hexagon, Heptagon, and Octagon
 - Polygons: Nonagons and Decagons
 - Geometric Markings
 - Rectangle: Right Angle
 - Square: Right Angle
 - Sphere, Cube, Cylinder, and Cone
 - Rectangular Prism: Vertices
 - Square Pyramid
- Desmos Activity
 - [Polygraph: 3D Figures](#)

Supporting and Prerequisite SOL: [4.10a](#), [3.12a](#), [3.12b](#), [2.13](#)

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1) Use the word bank to identify the real life examples of solid figures.

Rectangular Prism	Cube	Sphere	Square Pyramid	Cone	Cylinder
					

2) Complete the table.

Solid Figure	Number of Faces	Shape(s) of Faces	Number of Vertices	Number of Edges
Sphere				
Square Pyramid				
Cube				
Rectangular Prism				

3) Think about how the following plane figures are similar and different from the solid figures. Complete the chart below. Use pictures, numbers and words to explain your thinking.

Plane and Solid Figures	Similar	Different
Circle and Sphere		
Square and Cube		
Triangle and Square Pyramid		
Rectangle and Rectangular Prism		

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Common Errors/Misconceptions and their Possible Indications

1) Use the word bank to identify the real life examples of solid figures.

Rectangular Prism	Cube	Sphere	Square Pyramid	Cone	Cylinder
					

Some students may have difficulty with the pictorial representation of a solid figure. In this case, it may indicate that a student has difficulty when not all faces, edges, and vertices are visible. Teachers may wish to have students explore solid figures using manipulatives and real life examples, and compare them to the pictorial representation.

2) Complete the table.

Solid Figure	Number of Faces	Shape(s) of Faces	Number of Vertices	Number of Edges
Sphere				
Square Pyramid				
Cube				
Rectangular Prism				

Some students may have difficulty filling in the chart because of the vocabulary terms faces, vertices, and edges. Teachers may wish to have students use real life examples to explore these characteristics. With exploration, the corners of each solid figure can be identified as vertices; the flat surfaces of solid figures can be identified as faces; and the line segments where the faces meet can be identified as edges. Additionally, students can be provided access to the Word Wall cards and anchor charts to support them in vocabulary development.

- 3) Think about how the following plane figures are similar and different from the solid figures. Complete the chart below. Use pictures, numbers and words to explain your thinking.

Plane and Solid Figures	Similar	Different
Circle and Sphere		
Square and Cube		
Triangle and Square Pyramid		
Rectangle and Rectangular Prism		

Some students may have difficulty filling in this chart because they are unfamiliar with the characteristics of solid and plane figures. This may indicate that a student is unfamiliar with the how solid and plane figures relate to one another. Teachers may wish to have students use manipulatives of plane and solid figures to create Venn diagrams that help students organize their thinking when comparing and contrasting characteristics. Teachers may also wish to provide word banks (i.e. two-dimensional, three-dimensional, face, edge, vertex, congruent, etc.) or sentence frames to assist the students in comparing the characteristics.