

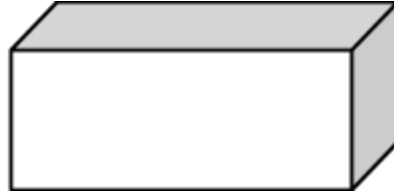
Lesson 1.5.5: Introducing Solids

Targets:

1. I understand how to classify 3D shapes.
2. I understand what the different parts of 3D shapes are called.

Warm Up:

Compare and contrast the two shapes that are given.



a.) How are the two shapes alike?

b.) How are the two shapes different?

Vocabulary

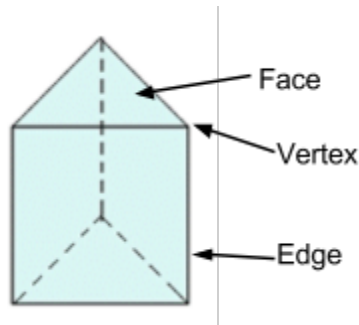
Make sure you have a definition for the following words. The website “Math is Fun” is a good place to start for your definitions. Label each figure with as many appropriate parts as possible. The definitions for the Polyhedron section are given to you.

Polyhedron

- 1.) **Polyhedron:** A solid (or 3D shape) formed by polygons that enclose a single region of space. From Greek, poly- means “many” and -edron means “faces”.
- 2.) **Face:** The flat polygonal surfaces on a polyhedron.
- 3.) **Edge:** A segment where two faces intersect.
- 4.) **Vertex:** A point of intersection of three or more edges.
- 5.) **Classifying Polyhedron:** You name a polyhedron based on its number of faces. Use the same prefixes as polygons.

# of Faces	Name
4	Tetrahedron
5	<u>Pentahedron</u>
6	<u>Hexahedron</u>
7	<u>Heptahedron</u>
8	<u>Octahedron</u>

Example of Pentahedron



This polyhedron has...

_____ # of faces

_____ # of vertices (vertex)

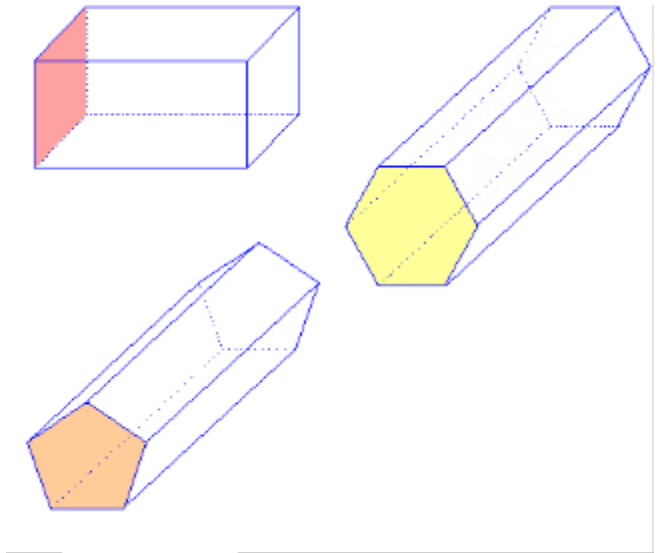
_____ # number of edges

Special Polyhedron

There are two very popular types of polyhedra called Prisms and Pyramids. Fill in an answer to each question below about these two types of polyhedron.

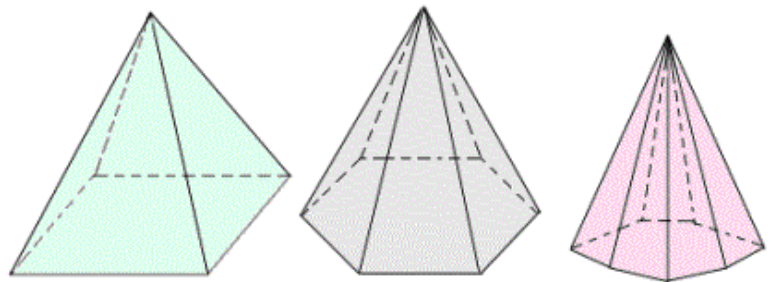
Prism

1. What is a Prism?
2. How do you name a Prism?
3. What is true about the Lateral Faces of a Prism?
4. Name each prism at the right.
5. How many of the following does the prism on the far right have?
 - a. Faces:
 - b. Edges:
 - c. Vertices:



Pyramid

1. What is a Pyramid?
2. How do you name a Pyramid?
3. What is true about all faces besides the base?
4. Name each pyramid at the right
5. How many of the following does the pyramid on the far left have?
 - a. Faces:
 - b. Edges:
 - c. Vertices:

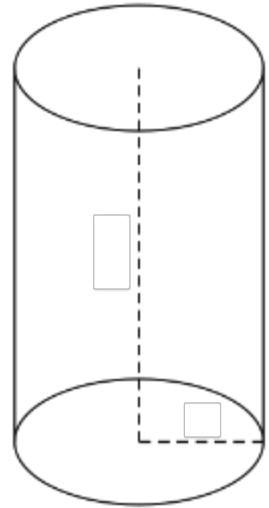


Other Solids

Polyhedra are not the only types of solids. There are also circular solids like the ones we will be exploring here. Make sure to have an answer for the following questions.

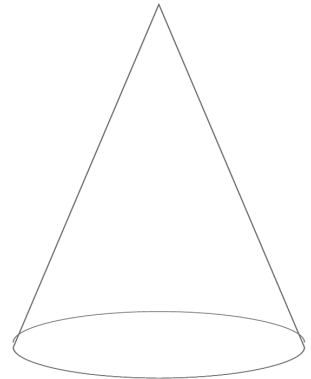
Cylinder

1. What is a cylinder?
2. What is true about the bases of a cylinder?
3. What is the axis of a cylinder?
4. What is the radius of a cylinder?
5. Label the bases, axis, and radius on the cylinder to the right.



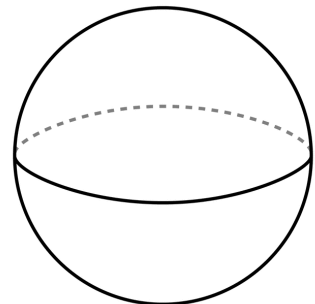
Cone

1. What is a cone?
2. What is the difference between a cone and a cylinder?
3. How many bases does a cone have?
4. What is the vertex of a cone?
5. Label the base, radius, and vertex of the cone to the right.



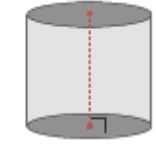
Sphere

1. What is a sphere?
2. What is the center of a sphere?
3. What is the radius of a sphere?
4. What is a hemisphere?
5. Label the radius and center of the sphere to the right.

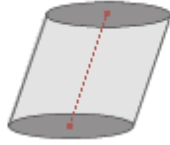


Right vs. Oblique

Look at the following solids below and compare the one labeled “right” and the ones labeled “oblique.”



right cylinder



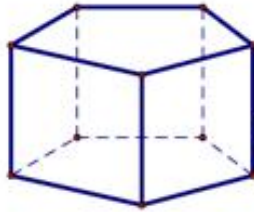
oblique cylinder



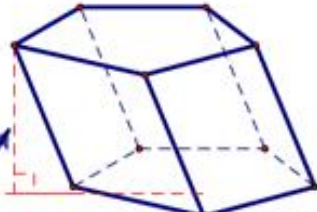
right cone



oblique cone



Right Prism



Oblique Prism

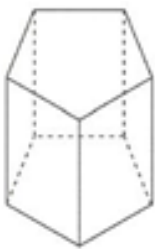
Altitude

1. What is the difference between a right prism and an oblique prism (or cylinder or cone)?
2. What is an altitude?
3. What is the difference between the altitude of a right solid and of an oblique solid?

Exit Ticket

Make sure you have definitions for all the words above. Then complete the activity below. What is the name of the following figures? If it is a type of polyhedron, list the number of faces, edges, and vertices.

1.)



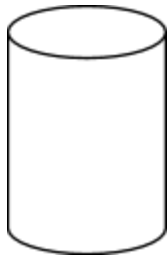
Name:

of Faces:

of Edges:

of Vertices:

2.)



Name:

3.)



Name: