INTRODUCTION TO SOLIDS
GRADE LEVEL: Grade 6
DURATION: 1 hr

SPECIFIC OBJECTIVES Students should be able to:

1. identify characteristics of solids (prisms & pyramids)
2. sort a variety of objects from the environment according to common characteristics
3. give the different classification of solids

PREREQUISITE

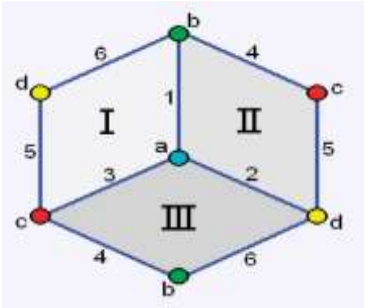
Students should already have knowledge of: a) the properties of various plane shapes

MATERIALS/MANIPULATIVES

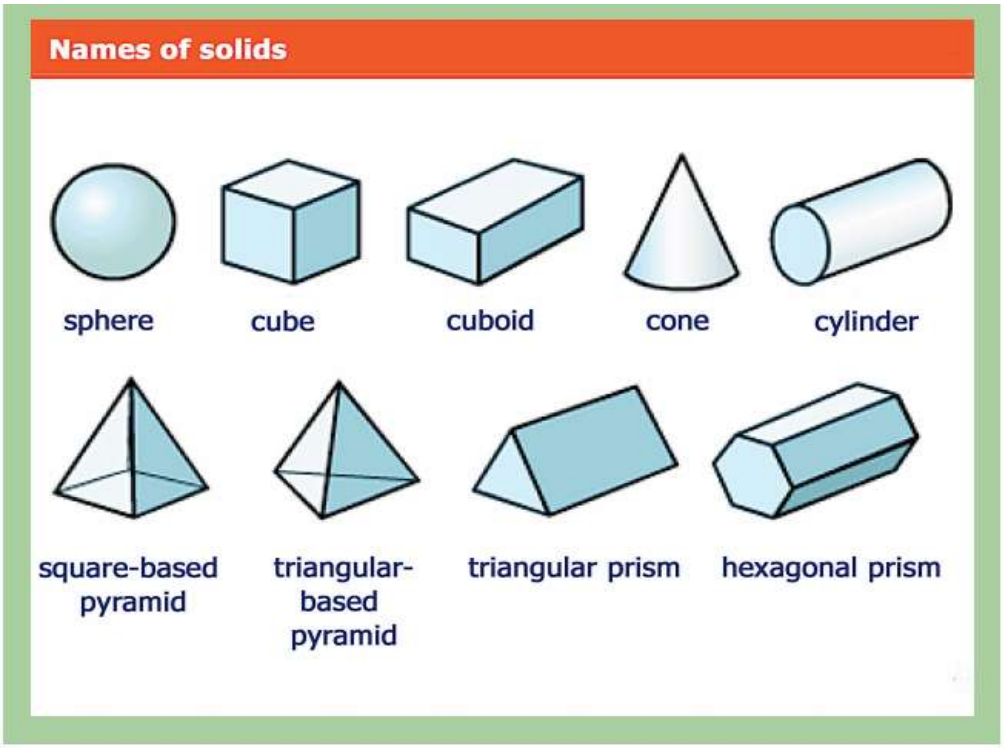
Solids from the environment, shapes for sorting, tape, vocabulary cards and constructed solids

CONTENT OUTLINE

- **Solids** are three-dimensional shapes.
- A **prism** is a solid, with two parallel faces called bases. The other faces are always parallelograms. The prism is named by the shape of its base.
- A solid is a **pyramid** if it has 3 or more triangular faces sharing a common vertex. The base of a pyramid may be any polygon.
- An **edge** is formed where two faces meet.
- A **vertex** is the point where three or more faces meet.

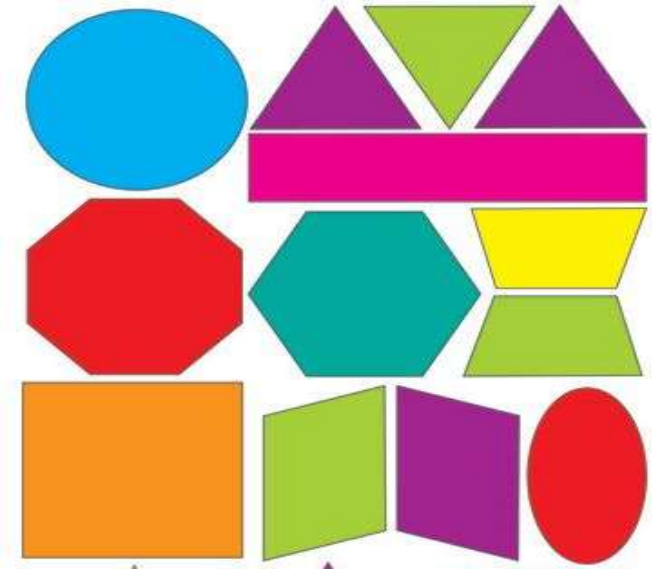


Example of a solid
coloured circles (letters): vertices
coloured lines (numbers): edges
roman numerals: faces



ENGAGE

In groups/ Table or elbow partners, students sort the shapes based on similarities.



Lead Questions:

1. How many groups have you identified?
2. Why have you grouped your shapes in the way you have done?
3. What category name can you give to each group?
4. How are the shapes similar?

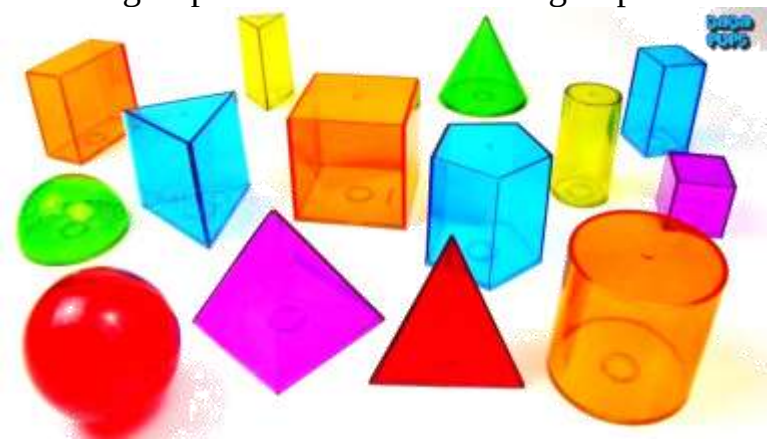
Situation:

Mom took a bag of rice from the basket. As she placed it on the table it fell from her hands and the bag broke.

Use as many shapes as you can to create a container to help mom secure the rice.

Students will use tape to fasten the shapes together. Students will describe their creation.

EXPLORE:
In table groups sort these solids into groups based on similarities.



Have students justify their reasons for the groupings, e.g. those that can stack and those that can roll.
As pupils supply their reasons for grouping, a discussion will be held in order to arrive at an explanation of each grouping of solids.

Lead Questions for discussion:

1. How are the shapes in the groups similar?

Explore:
Share Vocabulary cards with students:

A **prism** is a solid, with two parallel faces called bases. The other faces are always parallelograms. The prism is named by the shape of its base.

A solid is a **pyramid** if it has 3 or more triangular faces sharing a common vertex. The base of a pyramid may be any polygon.

Students will read each vocabulary card and from the cards restate the definition in their own words.

Lead Question:
Ask: Which group solids would you identify as pyramids and which would you identify as prism?
Say: Use evidence from the solids and the definition to justify your response

As students offer their justification allow time for other students to ask questions and make observations.

Ask: As you have placed your solids into grouping, how can you further describe the solids using the following words?

- Vertex
- Faces (type/name of face)
- Edges

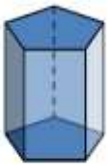
Students will trace along edges, rub the faces and point to vertices of these solids as they describe the solids

ELABORATE:
Pupils will discuss the cone and the cylinder.
Ask: Do they have vertices, edges? How many faces?
Can you identify examples of cube, cuboid and other solids in their environment?

EVALUATION:

Worksheet 4 – Faces, Edges and Vertices of Solids

In your group, discuss the characteristics of each solid and classify each as a prism or a pyramid. Be ready to share with the class

Solid Names	Solids	Number of Faces	Number of Edges	Number of Vertices	Shape of Faces
Triangular Pyramid			6		
					Square Triangles
Cube				8	
		6			
Triangular Prism			9		
Pentagonal Prism		7			
				12	

Name : _____ Score : _____

Faces, Edges & Vertices

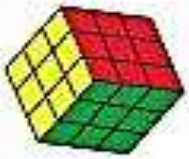
Circle the object that best fits the description.

1) 6 faces, 12 edges, 8 vertices


2) 5 faces, 8 edges, 5 vertices



3) 6 faces, 12 edges, 8 vertices


4) 5 faces, 9 edges, 6 vertices


5) 5 faces, 8 edges, 5 vertices



Evaluation (Teacher):

Were students able to:

	0% - 50%	51% - 80%	81% - 100%
Identify properties of pyramids			
Identify properties of prisms			
Use the math vocabulary correctly when communicating			
sort a variety of objects from the environment according to common characteristics			
Work collaboratively			

Comments:

Areas of strengths:

_____

Areas of weaknesses

_____

Actions to be taken

_____