Mathematical Sciences: MMSC4
LESSON 15

UNIT STANDARD: 7464
Topic: SIMILARITIES AND DIFFERENCES IN SHAPES

By the end of this lesson, you should be able to:
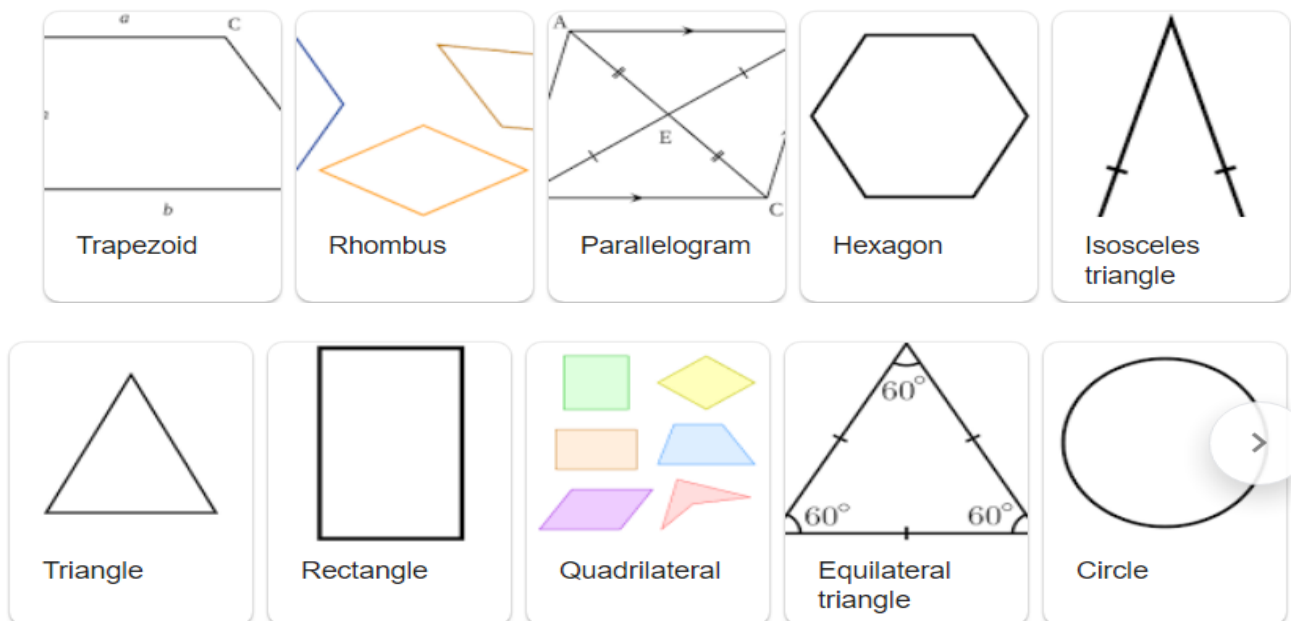   ● **Identify to different type of shapes**
   ● **State the differences of shapes.**
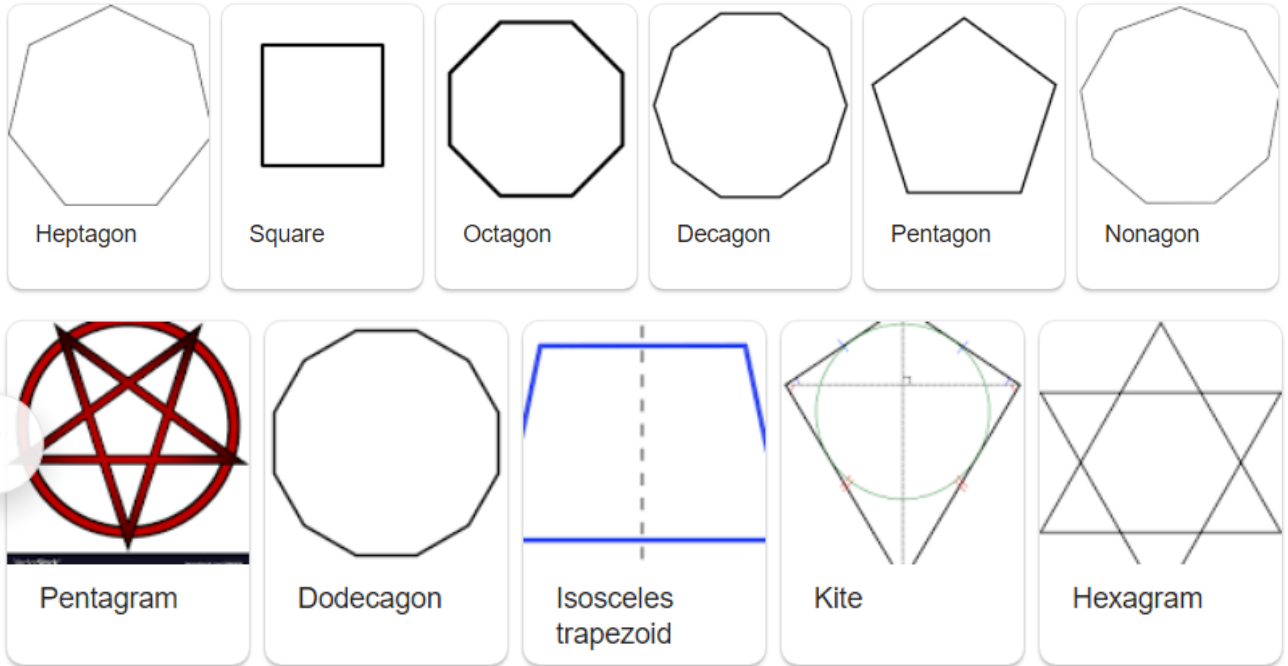   ● **State the similarities of shapes.**

1. **INTRODUCTION**
   ● In geometry, a two-dimensional **shape** can be defined as a flat plane figure or a **shape** that has two dimensions – length and width. Two-dimensional or 2-D **shapes** do not have any thickness and can be measured in only two faces.

   ● In mathematical terms, a **3D shape** has three dimensions – length, width and height. The D in '**3D**' stands for dimensional.
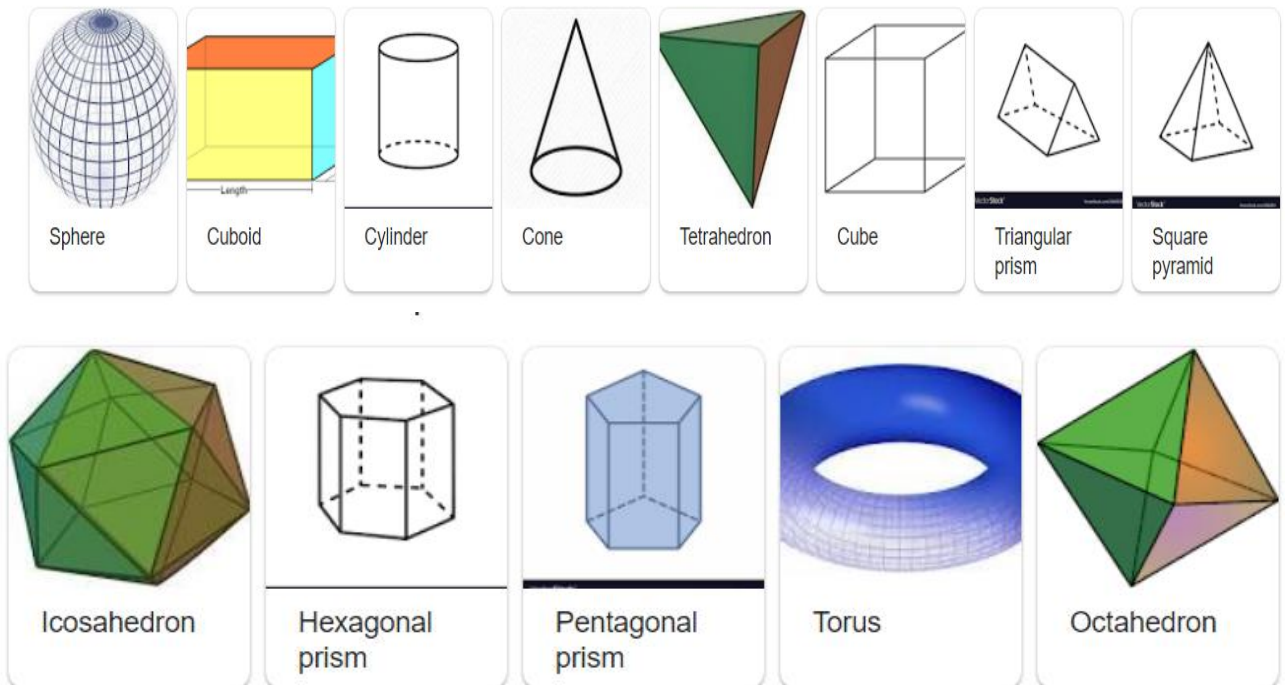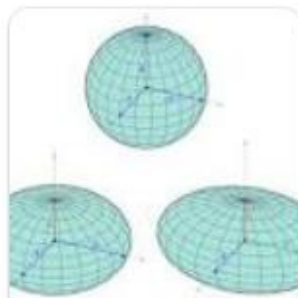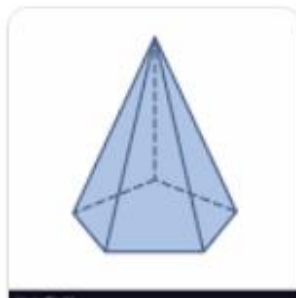
2D SHAPES

2D shapes

Trapezoid	Rhombus	Parallelogram	Hexagon	Isosceles triangle
Triangle	Rectangle	Quadrilateral	Equilateral triangle	Circle

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Heptagon	Square	Octagon	Decagon	Pentagon	Nonagon

Pentagram	Dodecagon	Isosceles trapezoid	Kite	Hexagram

3D SHAPES

Three-dimensional shapes

Sphere	Cuboid	Cylinder	Cone	Tetrahedron	Cube	Triangular prism	Square pyramid

Icosahedron	Hexagonal prism	Pentagonal prism	Torus	Octahedron

Ellipsoid	Pentagonal pyramid	Hexagonal pyramid	Octagonal prism
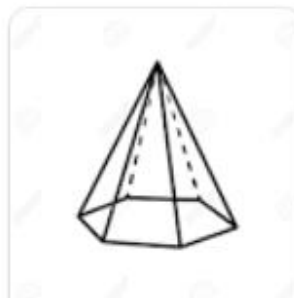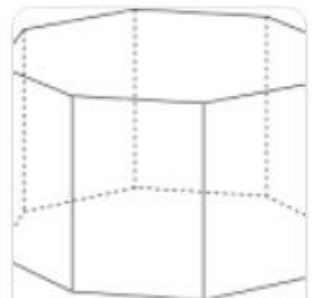
EXAMPLES OF 3D SHAPES

- Dice -- cubes.
- Shoe box -- cuboid or rectangular prism.
- Ice cream cone -- cone.
- Globe -- sphere.
- Egyptian tomb -- pyramid.
- Soda can -- cylinder.

ASPECTS OF 2D AND 3D

A 2D shape is a figure that has only length and height as its dimensions. Because 2D shapes lie on a flat surface, they are also known as plane figures or plane shapes. While they have areas, 2D shapes have no volume.

Apart from length and height, a 3D shape also has width or depth as its third dimension.

MATHEMATICAL DEFINITION FOR 2D AND 3D

In mathematics and physics, a 2D figure is plotted on two axes, namely the x- and y-axes. Whereas, a 3D figure is plotted on three axes, namely the x-, y-, and z-axes.

EXAMPLES OF 2D AND 3D

Circle, triangle, square, rectangle, and pentagon are some of the most common examples of 2D shapes.

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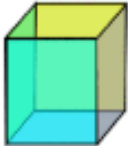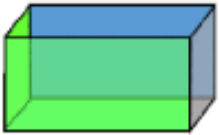
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Summary of difference between 2D and 3D

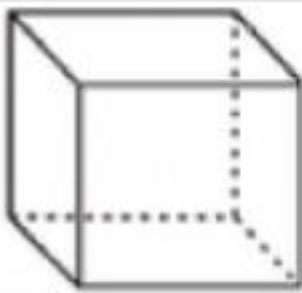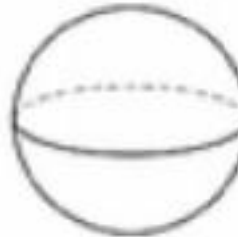|	2D	3D
Definition	Two-dimensional	Three-dimensional
Dimensions	Length and height	Length, height, and width
Mathematical Definition	x- and y-axes	x-, y-, and z-axes
Examples	Circle, triangle, square, rectangle, and pentagon	Cylinder, pyramid, cube, and prism

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Activity 1
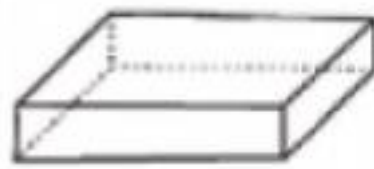
Circle the correct word to describe each shape.

1)		sphere	cube	pyramid	cylinder
2)		sphere	cube	cylinder	cone
3)		cuboid	cylinder	pyramid	prism
4)		sphere	pyramid	cuboid	cylinder
5)		pyramid	prism	sphere	cone
6)		sphere	cuboid	cylinder	prism
7)		cube	sphere	cylinder	cone

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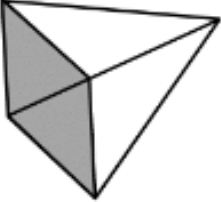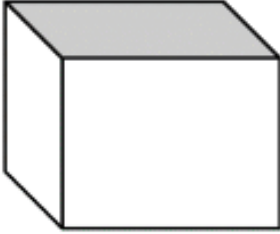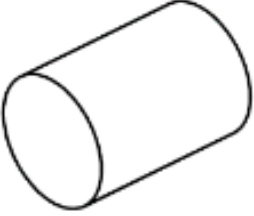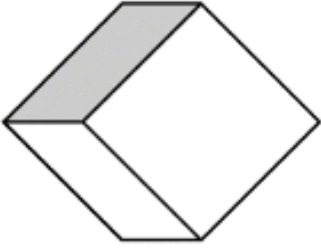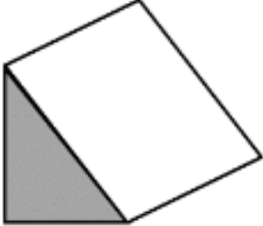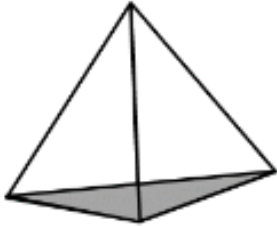
Activity 2

3D Shape Challenge

	Shape	Write the correct numbers		
		Faces	Sides	Corners
	Cube			
	Sphere			
	Cylinder			
	Rectangular Prism			

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Activity 3

Write down the name and number of faces for each 3d shape below.

Name of shape	Name of shape	Name of shape
Faces:	Faces:	Faces:
Name of shape	Name of shape	Name of shape
Faces:	Faces:	Faces:

Triangular prism	Cuboid	Cylinder
Square based pyramid	Triangular based pyramid	Cube

COMPILED BY: OLADEJI AO
      CHOBA MM
      LOGA R
      MOGARI SG