MAGNOLIA LESSON PLAN MATHS

A – Curriculum to Learning Objectives: Geometry

Prior Knowledge		• *Names of flat shapes*				
Class	**Ch. No.**	**Chapter Name**	**C. No.**	**Concept Name**	**L. Obj. No.**	**Learning Objectives**
1	1	Shapes	1.1	Understand Spatial Words	1.1.a	• basic flat and solid figures
					1.1.b	• corners and sides of objects/figures
					1.1.c	• outlines of the bases of the objects
2	1	Shapes	1.1	Identify the Geometrical Features of Objects	1.1.a	• lines, open figures and closed figures
					1.1.b	• drawing figures using lines
					1.1.c	• basic flat and solid figures
					1.1.d	• flat figures as outlines of the surfaces of solid figures
3	1	Shapes	1.1	Vertices and Diagonals of Two-dimensional Shapes	1.1.a	• identifying 2D shapes with straight and curved lines
					1.1.b	• identifying sides, corners and diagonals
					1.1.c	• making a tangram
					1.1.d	• recognising 3D shapes and their faces and edges
4	1	Shapes	1.1	Circle and its Parts	1.1.a	• circle and its parts
					1.1.b	• drawing a circle
			1.2	Reflection and Symmetry	1.2.a	• reflection and symmetry in figures
					1.2.b	• tessellation and tiling
5	1	Shapes	1.2	Nets and Views of Solids	1.2.a	• nets of cubes, cuboids, cylinders and cones
					1.2.b	• top, front and side views of objects

B – Vision-to-Action Plan: 1.1 Identify the Geometrical Features of Objects

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice	Areas to Focus
1 DD/MM/YYYY	1, 2 – THK, RCL	1.1.a	• Identify and recall the basic shapes of objects.	• Guided Learning • Using Concrete Material	• Geoboard	WB: Pg. 1 (Q. 1-3)	
2 DD/MM/YYYY	3 – REM/UND	1.1.a	• Describe the components of a straight line.	• Direct Instruction	• Chart of Point and Lines	WB: Pg. 1 (Q. 4-6)	
3 DD/MM/YYYY	4, 5 – REM/UND	1.1.a	• Describe the types and properties of straight and curved lines. • Describe open and closed figures.	• Guided Learning • Using Concrete Material	• Geoboard	TB: Pg. 4 (Example 1) WB: Pg. 2 (Q. 7-9) WB: Pg. 2 (Q. 14)	
4 DD/MM/YYYY	5-7 – APP	1.1.a, 1.1.b	• Define the basic features of various 2D figures. • Identify the types of lines used to form 2D figures.	• Direct Instruction • Practising	• Geoboard • ice cream sticks • bangles	WB: Pg. 2 (Q. 15) TB: Pgs. 6, 7 (Examples 2, 3) WB: Pg. 3 (Q. 16)	
5 DD/MM/YYYY	7, 8 – HOTS	1.1.c	• Relate geometrical shapes to objects in real life. • Define 'face', 'edge', 'vertex' and 'vertices'.	• Guided Learning • Direct Instruction	• Chart of Solid Figures • dice	WB: Pg. 3 (Q. 17)	

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice	Areas to Focus
6 DD/MM/YYYY	9, 10 – HOTS	1.1.c, 1.1.d	• Describe the properties of spheres and cones and find examples from real life. • Identify flat figures as outlines of solid figures.	• Interactive Discussion • Practising	• Chart of Solid Figures	TB: Pgs. 9, 10 (Example 4) WB: Pg. 3 (Q. 18)	
7 DD/MM/YYYY	10 – Drill Time	1.1.c	• Practise questions on 2D and 3D shapes.	• Activity Method • Practising	–	TB: Pg. 10 (Drill Time Q. 1-3) WB: Pg. 2 (Q. 10-13)	

Chapter 1

Shapes

— Let Us Learn About —

- lines, open figures and closed figures.
- drawing figures using lines.
- basic flat and solid figures.
- flat figures as outlines of the surfaces of solid figures.

Concept 1.1: Identify the Geometrical Features of Objects

Think

David drew shapes using objects like a can, a matchbox, a bangle and a cup.

Do you know what these shapes are?
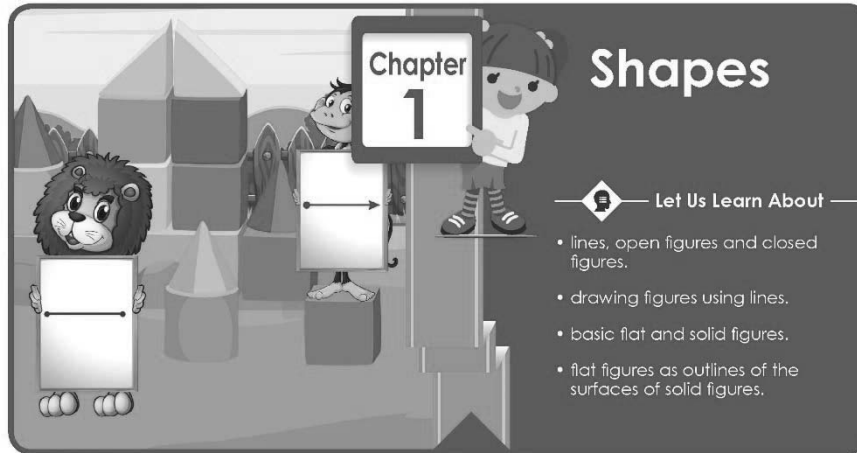
1

Important Words   **Duration: 1 min**

- Today: shape, object

Transactional Tip(s)   **Duration: 12 min**

Guided Learning:

- Use the Geoboard to show the basic 2D shapes.
- Have learners identify the flat shapes.
- Refer to the pictures in TB: Pg. 1, 'Think' and have learners identify the names of the solid shapes given.
- Have learners name a few solid shapes that they see in the classroom.

Class Pulse Check   **Duration: 1 min**

1) What is the shape of a kite?

Important Words   **Duration: –**
- Today: plane

Recall

We know about the following plane shapes:
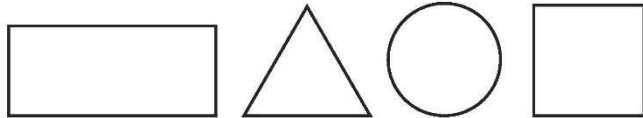
Now, let us recall and learn more about them in detail.

If we observe our surroundings, we will find objects of different shapes.

square   rectangle   circle

In your classroom, you find many objects of different shapes. For example, a book, paper or a blackboard looks like a rectangle.

Sometimes, we see different objects having the same shape. For example, a wall clock, a photo frame or a biscuit looks like a square.
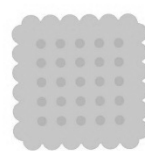
Transactional Tip(s)   **Duration: 15 min**

Using Concrete Material:
- Using the objects in the classroom such as blackboard, notebook, clock etc., explain the different shapes of these objects.
- Referring to TB: Pg. 2, 'Recall', have learners identify the shapes.
- Have learners name a few objects and help them identify their shapes.
- Have learners solve WB: Pg. 1, Q. 1-3.

Class Pulse Check   **Duration: 1 min**

1) What is the shape of a clock?

Remembering and Understanding

We can draw shapes using straight lines or curved lines. Let us learn about straight lines.

Point: A point is a dot. It has no shape or thickness and no dimensions. A point is denoted by a capital letter of the English alphabet. For example, A, X, Y, P and M shown below are points.
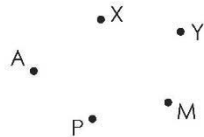
Line: Many points placed close to each other form a line. It has no thickness or breadth. A line only has length. So, it is called a one-dimensional figure.

A straight line has no ends. It extends on both the sides.

We name two points A and B on a line and write it as $\overleftrightarrow{AB}$. We read it as line AB.

Line segment: A line segment is a part of a line. It has two points, a starting point and an end point. A line segment has an exact length.

We write line segment AB as $\overline{AB}$. We read it as segment AB.

Ray: A ray is a part of a straight line, which has a starting point but no end point. It extends only on one side.
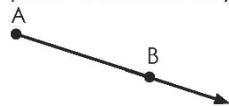
We write ray AB as $\overrightarrow{AB}$. We read it as ray AB.

Straight lines are of three types. They are horizontal lines, vertical lines and slant lines.

Important Words   **Duration: 1 min**
- Last class: shape, object, plane
- Today: point, line, dimension, thickness, line segment, ray

Transactional Tip(s)   Duration: 27 min

Direct Instruction:
- Using the Chart of Point and Lines, explain- point, line, line segment and ray.
- Referring to TB: Pg. 3, define- a point, line, line segment and ray and explain.
- Have learners solve WB: Pg. 1. Q. 4-6.

Class Pulse Check   Duration: 2 min
1) What is a line segment?
2) Which is the part of a line that has a starting point but no end point?

Important Words **Duration: 1 min**
- Last class: point, line, dimension, thickness, line segment, ray
- Today: horizontal, vertical, slant
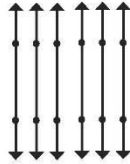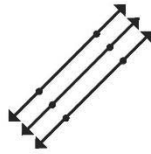
Horizontal lines: Sleeping lines drawn from left to right or from right to left are called horizontal lines.
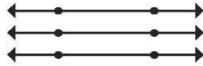
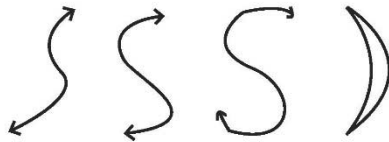**Vertical lines:** Standing lines drawn from top to bottom are called vertical lines.

Slant lines: Sloping lines are called slanting lines.

Note: We name a straight line by any two points on it.

Curved lines: Lines that are not straight are called curved lines.

A straight line or a curved line is a one-dimensional (1D) figure. Using straight lines, we can draw geometrical shapes such as a square, a rectangle or a triangle.

Example 1: Draw the following figures.

       a) Circle using a curved line   b) Square using straight lines

Solution: a)   b)

4

Transactional Tip(s) **Duration: 15 min**

Guided Learning:
- Draw and explain the features of horizontal, vertical and slant lines.
- Draw and explain curved lines.
- Give examples of shapes with straight and curved lines.
- Go through TB: Pg. 4, Example 1 and ask learners to solve the sub questions.
- Draw some of the letters and have learners identify the types of lines.
- Have learners solve WB: Pg. 2, Q. 7-9.

Class Pulse Check **Duration: 1 min**
1) What are horizontal lines?

Important Words **Duration:** – –

We can draw figures using straight lines or curved lines.

Open figures: Figures which do not end at the point where they begin from are called open figures.

Closed figures: Figures which end at the point where they begin from are called closed figures. Square, rectangle, triangle and circle are closed figures.

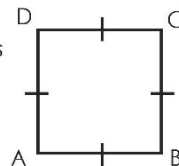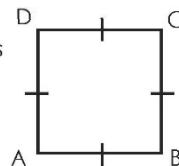**Application**

We can draw closed figures on a sheet of paper.

These figures have both height and width.

So, they are called **two-dimensional figures** or **2D figures** or **2D shapes**.

Let us learn about them in detail.

Square

1) It has four straight lines as sides. In the given figure, AB, BC, CD and DA are the sides.

2) All its sides are equal in length.

3) It has four corners. In the given figure, A, B, C and D are its corners.

4) We name a square using its corners. We name the given square as square ABCD.

Shapes 5

Transactional Tip(s) **Duration: 12 min**

Using Concrete Material:

• Using the Geoboard, explain open and closed figures.

• Identify various open and closed shapes using the pictures given in TB: Pg. 5.

• Have learners solve WB: Pg. 2, Q. 14.

Class Pulse Check **Duration: 1 min**

1) Give an example of a closed figure and an open figure.

We can draw figures using straight lines or curved lines.

Open figures: Figures which do not end at the point where they begin from are called open figures.

Closed figures: Figures which end at the point where they begin from are called closed figures. Square, rectangle, triangle and circle are closed figures.

🧠 **Application**

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Important Words   **Duration: 1 min**
- Last class: horizontal, vertical, slant
- Today: two-dimensional, length, corner, side

Transactional Tip(s)   **Duration: 12 min**

Direct Instruction:
- Referring to TB: Pg. 5, introduce the term '2D'.
- Using the Geoboard, show the shapes- square, rectangle and triangle.
- Refer to TB: Pgs. 5, 6 and explain their features.
- Instruct learners to solve WB: Pg. 2, Q. 15.

Class Pulse Check   **Duration: 1 min**
1) Which 2D figure has all sides of equal length?

Rectangle

1) It has four straight lines as sides. In the given figure, AB, BC, CD and DA are the sides.

2) Two pairs of opposite sides are equal in length.

3) It has four corners. In the given figure, A, B, C and D are its corners.

4) We name a rectangle using its corners. We name the given rectangle as rectangle ABCD.
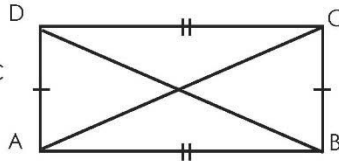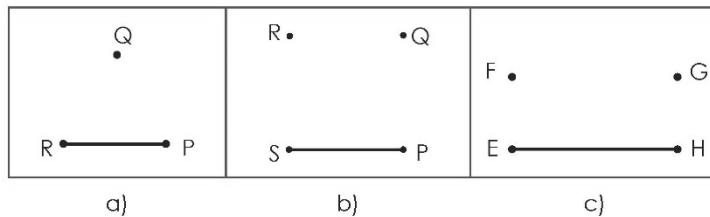
Triangle

1) It has three straight lines as sides. In the given figure, AB, BC and CA are the sides.

2) It has three corners. In the given figure, A, B, and C are the corners.

3) We name a triangle using its corners. We name the triangle as triangle ABC.
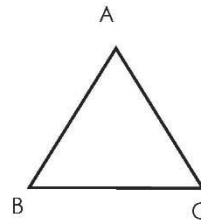
Circle

1) It is a curved line.

2) It has no sides or corners.

3) We name a circle by its centre 'O'.
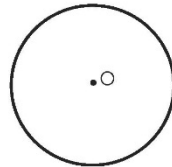
Example 2: Join the dots in order and name the shapes formed.

a)   b)   c)

Transactional Tip(s)   **Duration: 15 min**

Practising:

- Instruct learners to:
    - form closed figures by using ice cream sticks and bangles,
    - draw something (e.g., a car or person) using triangles and circles,
    - count the number of sides and corners in the figures they made.
- Have learners solve:
    - TB: Pg. 6, Example 2,
    - TB: Pg. 7, Example 3,
    - WB: Pg. 3, Q. 16.

Class Pulse Check   **Duration: 1 min**

1) How many slant lines does a triangle have?

Important Words   **Duration: 1 min**
- Last class: two-dimensional, length, corner, side
- Today: three-dimensional, solid shapes, geometrical

Solution:
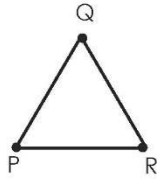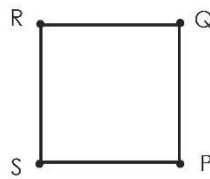
a) Triangle PQR   b) Square PQRS   c) Rectangle EFGH
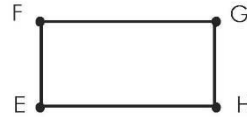
Example 3: Observe the following pictures. Tick the type of lines used to form each object. One is done for you.

Object				
Straight lines	✓			
Curved lines				

Higher Order Thinking Skills (H.O.T.S.)

Some shapes have length, breadth and thickness. Such figures are called **three-dimensional figures** or **3D figures** or **solid shapes**.

The geometrical shapes of some solid objects are as follows:

Transactional Tip(s)   **Duration: 15 min**

Guided Learning:
- Using the definition on TB: Pg. 7, introduce the term 3D.
- Referring to the chart on TB: Pg. 8, explain solid shapes and their geometrical figures. Also refer to the chart of Solid Figures.
- Question learners about the shapes of objects like a notebook, a water bottle, a brick.
- Ask learners to select a few objects in the classroom and identify their geometrical shapes.
- Have learners solve WB: Pg. 3, Q. 17.

Class Pulse Check   **Duration: 1 min**

1) Give an example each of flat figures made with straight lines and curved lines.
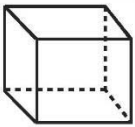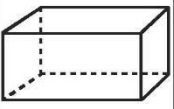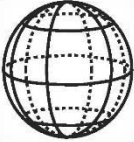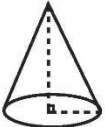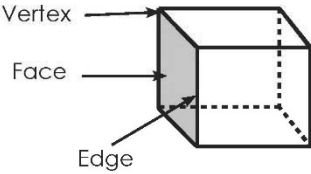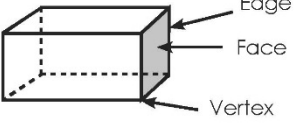
Important Words **Duration:** –
- Today: vertex, face, edge, cube, cuboid

Solid objects					
Geometrical shapes	Cube	Cuboid	Cylinder	Sphere	Cone

Let us now see the geometrical features of these objects.

Object	Geometrical figures	Geometrical features
	Cube (Vertex, Face, Edge)	• It has 6 square faces, 12 edges and 8 vertices. • All the edges of a cube are equal in length.
	Cuboid (Edge, Face, Vertex)	• It has 6 rectangular faces, 12 edges and 8 vertices. • The opposite faces of a cuboid are of the same size. • The opposite edges of a cuboid are equal in length.

Transactional Tip(s) **Duration: 12 min**

Direct Instruction:
- Bring a die to class.
- Using the die explain the terms - face, edge, vertex and vertices.
- Read the definitions from the TB and explain using the chart of Solid Figures.
- Explain the properties of a cuboid and a cylinder.

Class Pulse Check **Duration: 1 min**
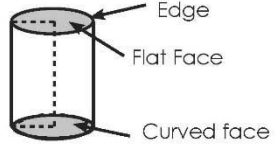1) How many faces does a cylinder have?

Important Words   **Duration: 1 min**
- Last class: three-dimensional, solid shapes, geometrical, vertex, face, edge, cube, cuboid
- Today: cylinder, sphere, cone, curved face

Transactional Tip(s)   **Duration: 27 min**

Interactive Discussion (12 min):
- Show the various solid figures using the chart of Solid Figures.
- Explain the features of a sphere and a cone.
- Ask learners to give two examples of spherical and conical shapes.

Practising (15 min):
- Define 'base' as the bottom face of a solid shape.
- Have learners solve TB: Pgs. 9, 10, Example 4 ; WB: Pg. 3, Q. 18.
- Draw/name a ball, globe, birthday cap, marble, orange, eye ball, ice cream cone and a funnel and have learners identify the 2D shapes of their bases.
- Ask learners to mention their features.

Object	Geometrical figures	Geometrical features
	Cylinder — Edge, Flat Face, Curved face	• It has 2 circular flat faces and 1 curved face. • It has 2 circular edges but no corners. • The 2 flat faces are of the same size.
	Sphere — Curved face	• It has a curved face. • It has no edges and no corners.
	Cone — Corner, Curved face, Flat Face, Edge	• It has 1 flat circular face, 1 curved face and 1 corner. • It has a circular edge.

Let us find the geometrical shapes of a few solid objects.

Example 4: Draw the geometrical shapes that form the base of these objects. Name the shapes that are formed.

Class Pulse Check   **Duration: 2 min**
1) Which shape has a circular edge?
2) Can you name a geometrical shape with no edges and no corners?

Important Words   **Duration: 1 min**
- Last class: cylinder, sphere, cone, curved face
- Today: –

Solution: The shapes formed are:

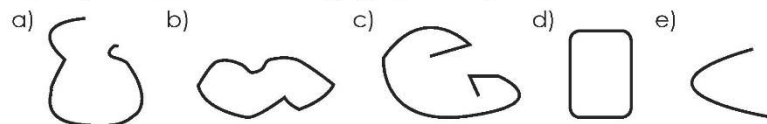| Object					
Shape of the base	○	▭	◣	○	▢
	Circle	Rectangle	Triangle	Circle	Square

Drill Time

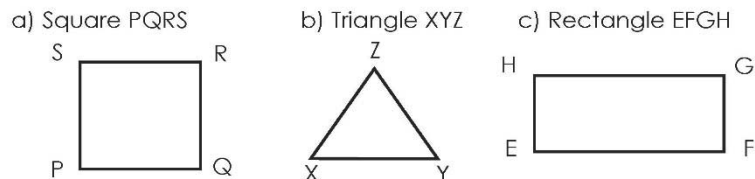**Concept 1.1: Identify the Geometrical Features of Objects**

1) **Draw the following:**

   a) Line   b) Line segment   c) Ray

   d) Horizontal lines   e) Vertical lines

2) **Identify whether the following figures are open or closed.**

   a)   b)   c)   d)   e)

3) **Name the sides of the following:**

   a) Square PQRS   b) Triangle XYZ   c) Rectangle EFGH

10

Transactional Tip(s)   **Duration: 28 min**

Activity Method (10 min):
- Divide the blackboard into four sections.
- Write the headings as solid shape, face, edge and corner in each section.
- Ask learners one by one, to name the shapes learnt and fill in the respective columns according to the shape.

Practicing (18 min):
- Revise the concept of shapes by having learners solve TB: Pg. 10, 'Drill Time', Q. 1-3.
- Ask learners to solve WB: Pg. 2, Q. 10-13.

Class Pulse Check   **Duration: 1 min**

1) Share one example each of a 1D, 2D and 3D shape.

📝 C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	Draw a closed figure using a vertical, a horizontal and a slant line. (Ans. Learner's response)	Periods 2, 3 - lines, open figures and closed figures	
2	How many corners and sides are there in a triangle? (Ans. 3 corners, 3 sides)	Periods 2, 3 - lines, open figures and closed figures	
3	Draw a figure using a curved line. (Ans. Learner's response)	Period 4 - drawing figures using lines	
4	How many dimensions are there to a duster? What are they? (Ans. 3 - length, breadth and height)	Periods 3, 5, 6 - basic flat and solid figures	
5	You should pack three maths textbooks in a box. What is the shape of the base you will get after packaging? (Ans. rectangle)	Period 6 - flat figures as outlines of the surfaces of solid figures	

Post-lesson Reflection
TB completed Yes ☐ No ☐   WB completed Yes ☐ No ☐
Enthusiastic participation 😃 ☐ 🙂 ☐ 😐 ☐
Concept clarity in the classroom 😃 ☐ 🙂 ☐ 😐 ☐
Concept clarity through the workbook 😃 ☐ 🙂 ☐ 😐 ☐

	Handhold Learners	Challenge Learners
Names		
Exam Revision Strategy	Reteach ☐ Revise ☐	Practise ☐
App Report	Number _____	Signature _____