

LESSON NOTE FOR WEEK 2 AND 3

MATHEMATICS

CLASS: JS2

TOPIC: PLANE FIGURES

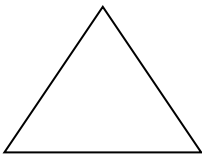
**Specific objectives:** by the end of the lesson students should be able to state the properties of the following

1. Different types of triangles
2. Different types of parallelogram
3. Circle

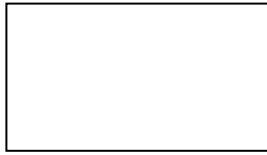
**INTRODUCTION:**

A plane shape is a geometrical form such that the straight line that joins any two points on it wholly lies on the surface. Examples of plane shapes are triangles, quadrilaterals, circle and other polygons.

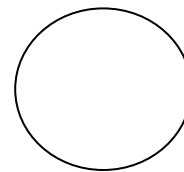
Triangle



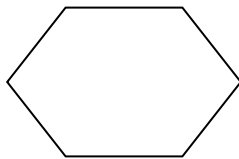
Parallelogram



Circle



Hexagon (one of the polygons)

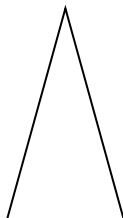


Properties of Plane Shapes

**Triangles:** A triangle is a figure or plane shape with three straight sides. There are different types triangles depending on the sizes of their sides and angles. The sum of its angles is 180

**Types of triangles:**

**Isosceles triangle:** This is a triangle in which two sides are equal in length and have two equal base angles.



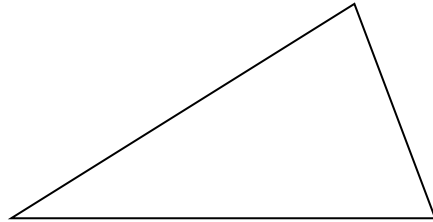
**Properties of isosceles triangle:**

1. Two sides are equal.
2. Two base angles are equal.
3. It has one line of symmetry.

**Scalene triangle:** A scalene triangle is a triangle in which none of its sides are equal and none of its angles are equal.

**Properties of scalene triangle:**

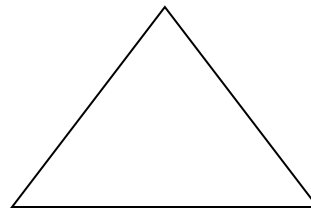
1. No two sides are equal.
2. No two angles are equal.
3. No line of symmetry.



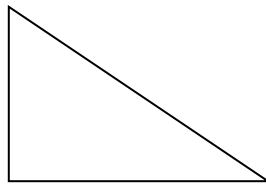
**Equilateral triangle:** This is a triangle with all sides equal and all angles equal. Each angle is  $60^\circ$ .

**Properties of equilateral triangle:**

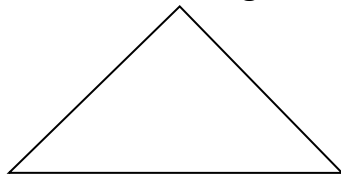
1. All sides are equal.
2. All angles are equal.
3. It has three lines of symmetry.



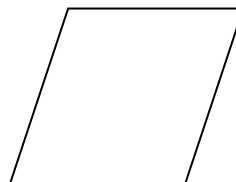
**Right angled triangle:** This is the triangle that has one of its angles equal  $90^\circ$ . It can be isosceles with base angles equal to  $45^\circ$  each. It can also be a scalene triangle.



**Obtuse angled triangle:** This is a triangle that has one of its angles greater than  $90^\circ$ . It can also be an isosceles triangle or a scalene triangle.



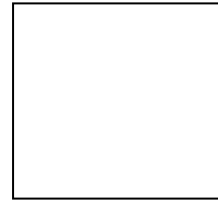
**QUADRILATERALS:** These are closed figures that are bounded by four straight lines. The sum of its angles is  $360^\circ$ . Examples are square, parallelogram, rectangle, rhombus, trapezium, kite e.t.c



**Square:** This is a quadrilateral with all sides equal and all angles equal (each  $90^\circ$ ).

**Properties of square:**

1. All sides are equal.
2. All angles are equal ( $90^\circ$ ).
3. It has two diagonals which bisect each other.
4. It has four lines of symmetry.
5. Opposite sides are parallel.



**Parallelogram:** This is a quadrilateral with opposite sides equal and parallel

**Properties of parallelogram:**

1. Opposite sides are equal.
2. Opposite sides are parallel.
3. Opposite angles are equal.
4. It has two diagonals which bisect each other and bisect the shape into two congruent triangles.



**Rectangle:** This is also a quadrilateral with opposite sides equal and parallel. It has all angles equal.

**Properties of rectangle:**

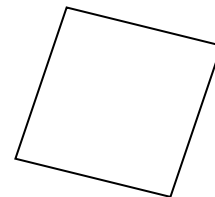
1. Opposite sides are equal and parallel.
2. All angles are equal ( $90^\circ$ ).
3. It two lines of symmetry.
4. It has two diagonals that bisect each other and bisect the shape into two congruent right angled triangles.
5. Diagonals are equal.



**Rhombus:** This is a parallelogram with all sides equal.

**Properties of a rhombus:**

1. All sides are equal.
2. Opposite sides are parallel.
3. It has two diagonals which bisect each other at right angles.



4. Opposite angles are equal.

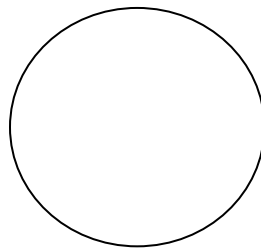
**Trapezium:** This is a quadrilateral that has only one pair of parallel sides. We can also have an isosceles trapezium where the base angles are equal.



**Circle:** This is a plane shape with curved sides.

**Properties of the circle:**

1. The curved boundary is called circumference.
2. The distance from the centre of the circle to any point on the circumference is called radius.
3. A line that passes through the centre of the circle touching any two points on the circumference is called diameter.
4. The diameter is also the line of symmetry which is multiple.
5. A line that touches two points on the circumference is called a chord.
6. Part of the circumference is called an arc.



**Exercises:**

1. Name a quadrilateral with only one pair of parallel sides.
2. Give one property of an isosceles trapezium.
3. Sketch a rhombus and a trapezium and list their qualities.
4. Which parallelogram has all sides equal?

**Assignment:**

1. Which triangle has all sides equal?
2. Name a right angled triangle with two sides equal?
3. What is the size of each angle of an equilateral triangle?
4. How many diagonals does a triangle have?
5. How diagonals does a quadrilateral have?