

BASIC PROPERTIES OF PLANE FIGURES

Subject

Mathematics

Prepared By

[Instructor Name]

Grade Level

5

Overview

This lesson plan covers teaching content for;

1. Properties of plane shapes.

Objectives

Students should be able to;

1. Identify circles, squares, rectangles, and triangles.
2. Locate examples of circles, squares, rectangles, and triangles in the world around them.
3. Compare various types of shapes.

Activity Starter/Instruction

1. Plane shapes in mathematics are any closed, flat, 2-dimensional shapes.
2. The triangle, rectangle, diamond, star, pentagon, and square are all polygons.
3. Another type of plane shape is known as a quadrilateral, or a 2-dimensional shape with 4 straight sides that is closed and has no open sides.
- 4.

Quadrilateral	Properties
Rectangle	4 right angles and opposite sides equal.
Square	4 right angles and 4 equal sides.
Parallelogram	Two pairs of parallel sides and opposite equal sides.
Rhombus	Parallelogram with 4

Teacher Guide

Day 1/ Lesson 1: 20mins

1. **Square:** A square has four sides, but not just any four sides. A square's four sides are all the same length. A square with one-inch sides is smaller than a square with three-inch sides because one is less than three. A square also has four corners.
2. Divide the children into small groups and ask them to look around their classroom and find squares in everyday objects. Instruct each group to measure one square object with a ruler and describe it to the rest of the class. Add up how many square objects the class found.
3. **Rectangle:** A rectangle is similar to a square, but instead of having four equal sides, a rectangle has two equal sides of one length and two equal sides of a different length. A rectangle is like a stretched square.
4. Give each of the children a piece of clay and ask them to make two squares of about the same size out of the clay.
5. Then ask them to take one clay square and stretch it into a rectangle. Ask the class what they have discovered about the differences between a square and a rectangle. Both figures have four corners, but no longer four equal sides for the rectangle.

Materials Required

- Clay
- Piece of string
- Construction paper
- Scissors
- White board
- Marker
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Additional Resources

- <https://www.math-salamanders.com/geometry-cheat-sheet.html>
- <https://www.geogebra.org/m/s72fPMPR>
- https://www.hand2mind.com/pdf/hos/hos-cce-online/e78864_HOS_CCE_Grade%204/e78864_CCE_4
- <https://studyres.com/doc/893765/properties-of-plane-figures>
- <https://blog.discoveryeducation.com/blog/2016/03/20/resources-for-teaching-properties-of-shapes/>
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Additional Notes

	equal sides.
Trapezoid	Two sides are parallel
Kite	Two pairs of adjacent sides of the same length,

5. Ask students if they can think of quadrilaterals around their home. For example, a photo, a square tile on the kitchen floor, or a place mat on tables.

Guided Practice

Day 3/ Lesson 3: 20mins

1. Continue shape review by telling students to create a graphic organizer from a flap book.
2. Let students use construction paper instead of copy paper because it is thicker and more durable.
3. Pre-fold construction paper down the middle of its length (hot dog style). Also pre-cut from one outer edge up to the fold to create 5 equal flaps.
4. Have students label the front of the flaps with circle, square, triangle, rectangle and trapezoid.
5. Inside the flap, they will have to illustrate the shape and write each ones defining attributes.
6. You can again point out to your class that a square is actually a special rectangle with equal sides.

6. **Triangle:** Give each child four small sticks about the same length and tell them to make a square. Then tell them to remove one of the sides.
7. Discuss why it will never be a square now. Tell them to close up the three remaining sides and ask what they see. Discuss how they know it's a triangle.
8. Now tell the children to break one side in half, remove that half and make a triangle out of the remaining three pieces. Discuss how this triangle is different from the previous one.
9. **Circle:** Give each child a piece of string. Ask them to make circles with the string on their desks. Discuss how many sides and corners a circle has: none.
10. Let each child pick a piece of construction paper. Fold it in half and show them how to trim the edges; open it up and it's a circle.

Guided Practice

Day 2/ Lesson 2: 15 Mins

1. The principal geometric plane shapes are:
2. **The Circle:** It is a shape that can be made by tracing a curve that is always the same distance from a point that we call the center. The distance around a circle is called the *circumference* of the circle.
3. **The Triangle:** It is a shape that is formed by 3 straight lines that are called sides. There are different ways of classifying triangles, according to their sides or angle.
4. According to their angles:
 - Right triangle: the largest of the 3 angles is a right angle.
 - Acute Triangle: The largest of the 3 angles is an acute angle (less than 90 degrees)
 - Obtuse Triangle: The largest of the 3 angles is an obtuse angle (more than 90 degrees)
5. According to their sides:
 - Equilateral Triangle: All 3 sides are the same length

		<ul style="list-style-type: none"> • Isosceles Triangle: It has 2 (or more) sides that are of equal length. (An equilateral triangle is also isosceles) • Scalene Triangle: No 2 sides are of equal measure. <p>6. The Rectangle: It is a shape that has 4 sides. The distinguishing characteristic of a rectangle is that all 4 angles measure 90 degree.</p> <p>7. The Rhombus: It is a shape formed by 4 straight lines. Its 4 sides measure the same length, but, unlike the rectangle, any of all 4 angles measure 90 degree.</p> <p>8. The Square: It is a rectangle, but also a rhombus. It has characteristics of both. All 4 angles are right angles and all 4 sides are equal in length.</p> <p>9. The Trapezoid: It also has 4 sides. It has two sides that are parallel but the other two are not.</p>
Summary	Assessment Activity	Assessment Activity
1. Draw different plane shapes on the board and ask students question like, which of the shape has parallel lines.	1. Tell the class to take home their circle, find unneeded items that are circles and glue them on the construction paper. The next day post the artistic circles on the bulletin board.	Assess if students can; 1. Identify the properties of different plane shapes correctly.