

PLANE SHAPES (LINES AND TRIANGLES)

Subject

Mathematics

Prepared By

[Instructor Name]

Grade Level

4

Overview

This lesson plan covers teaching content for;

1. Identifying parallel and perpendicular lines
2. Identify the different types of triangles
3. understanding the characteristics of different triangles
4. Applying knowledge of triangles to a real world application.
5. Solve quantitative problems on lines and Triangles

Objectives

Students should be able to;

1. Identify parallel and perpendicular lines
2. Identify the different types of triangles
3. Solve quantitative problems on lines and Triangles
4. gain a deeper understanding of the characteristics of the following triangles: isosceles, equilateral, right, scalene, obtuse triangle and an acute triangle
5. apply the facts they learned about triangles when creating a paper airplane.
6. apply their knowledge of triangles to a real world application.

Activity Starter/Instruction

1. Pupils cannot draw parallel lines accurately.
2. When constructing a pair of parallel lines pupils should be careful when measuring the distance perpendicular to the first line
3. Explain to the students how to use set squares or other square corners (such as the edge of a sheet of paper or ruler) to make these measurements
4. vertical: straight up
5. square corner: the angle where a vertical line meets a horizontal line
6. perpendicular lines: two lines which are at right angles to each other
7. The students should know that a triangle is a figure with three sides and three vertices.
8. The students should know how to identify an acute, obtuse, and right angle.
9. The students should be able to follow multi-step directions.

Teacher Guide

Day 1/ Lesson 1: 15 Mins

1. This lesson focuses on the concept of parallel and perpendicular lines.
2. Ask pupils to draw two horizontal lines measuring 5 cm that are 3 cm apart along the whole length.
3. Guide the pupils to draw a parallelogram with AB parallel to CD and of 5 cm length with AD parallel to BC and of 4 cm length.
4. Show how arrows are used to denote parallel lines and give pupils more practice work if necessary.
5. Ask pupils to draw a vertical line and a horizontal line to touch each other at a point. The point at which they meet forms a perpendicular angle.
6. The lines are therefore called perpendicular lines.
7. Ask the pupils to draw rectangles PQRS with PQ = 6 cm and QR = 4 cm.
8. Guide the pupils to identify the perpendicular lines.

Materials Required

- Whiteboard
- Pencil
- Ruler
- Compass
- Protractor
- Blank sheet

Additional Resources

- https://za.pearson.com/content/dam/region-growth/africa/TeacherResourceMaterial/9781447978428_m0
- www.brighthubeducation.com/middle-school-math-lessons/angles/
- <http://www.cpalms.org/Public/PreviewResourceLesson>

Additional Notes

Guided Practice

Day 2/ Lesson 2: 15 Mins

1. Explain to the students that a triangle is a polygon with three sides and three angles
2. All 3 sides of the triangle are straight lines
3. Cut out lots of different types of triangles out of card, for use with the class.
4. Ask a pupil to use a protractor to measure the angles of a few triangles.
5. For each triangle they should add the three angles.
6. Discuss with the pupils what they have observed about the sum of the three angles of each triangle

Assessment Activity

Guided Practice

Day 3/ Lesson 3: 20 Mins

1. Important properties of triangles
2. The sum of all the angles in a triangle will always be 180 degrees
3. The sum of any two sides of a triangle will always be greater than the third side.
4. Any external angle of a triangle will always be equal to the sum of the two internal angles, which are not adjacent to it.
5. A right-angled triangle follows the Pythagoras theorem
6. Also, use a whiteboard, a protractor and a ruler to draw a triangle.
7. Explain the concept of triangles by drawing different types of triangles on the board
8. Show students how the sum of all internal angles in a triangle is equal to 180degrees. Use a protractor to measure the angles
9. Explain the different properties of triangles and have students identify or draw examples on the board.

Assessment Activity

1. Two sides of an equilateral triangle are 5mm long, find the length of the third side.
 2. One angle of a right-angled triangle is 35 degrees, what is the length of other two angles?
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Guided Practice

Day 4/ Lesson 4: 25 Mins

1. Triangles can be classified based on two different views: a. By side b. By Angle
2. Triangles can be classified by side in the following 3 categories:
3. Equilateral triable: if all the sides (and angles) of a triangle are equal, then it is called an equilateral triangle.
4. Isosceles Triangle: If any two sides of a triangle are equal to each other, then the triangle is an isosceles triangle. The two angles formed by the equal sides with the unequal side are also equal.
5. Scalene Triangle: For this type, no sides as well as no angles are equal to each other.
6. In the classification based on angles, there is the acute-angled triangle, the obtuse-angled triangle and the right-angled triangle
7. With these ideas, basic calculations on triangles can be formed.
8. For example, calculate the third angle of a triangle with 2angles of 120degree and 30 degrees.
9. Since total angles in a triangle =180deg
10. We have, $120 + 30 + ? = 180$; $150 + ? = 180$
Our unknown becomes $180 - 150 = 30$ degree

Assessment Activity

	3. Ask the students to draw an equilateral-obtuse triangle, have them explain their result.	
Summary	<p>Review and Closing</p> <ol style="list-style-type: none"> 1. The students will discuss the types of triangles and description of each. 2. Stress that triangles can be classified based upon angle and side measures. 3. The teacher will ask students to elaborate and explain where we find these triangles in our real world. 4. If students do not already bring it up, discuss all the triangles that were found in their paper airplane. 5. Discuss how the triangles in the airplane not only added to the planes shape, but also to its strength. 	Review and Closing