Shape Prior Assessment Questions 1 and 2
Objective: I can draw shapes with accurate measurements and sized angles.

NC SH 1: draw 2-D shapes using given dimensions and angles.

Teacher Input Ideas:

For the children to fully meet this objective of creating shapes with accurate sized angles, the children must develop their confidence with using a protractor accurately to measure and draw angles. If there are many children that made errors in Q9 of the prior learning assessment, you may want to look at this skill first of using a protractor to measure angles accurately, before using a protractor to draw angles. Additionally, the children also need to know the properties of 2D shapes and the names to help them to produce accurate drawings, so ensure that the children have this understanding, such as in Questions 7 and 8 of the prior learning assessment.

Recap with the children different shape names and the properties of 2D shapes by encouraging the children to make their own quadrilaterals and triangles outside with metre sticks, skipping ropes or straws. Encourage the children to identify the shape names, discuss the size of the angles, any parallel and perpendicular sides, any lines of symmetry, etc.

Once the children show confidence with the shape names and properties, encourage the children to think about how we can draw these shapes with accuracy. What tools will we need to make sure that we have equal length sides and angles? How can we create these shapes? What do we know about these shapes to help us?

Provide the children with equipment such as protractors and rulers and model with the children how to draw an accurate parallelogram. Discuss the length of the sides first. Ask the children what they know about parallelograms. Ask the children to draw a line 7.5 cm long (or could say 75mm and see if the children can convert this). Now I want to draw my next line at an angle that is not a right angle. Encourage the children to identify that a parallelogram has 2 acute angles and 2 obtuse angles. Model creating one acute angle at the angle of 60 degrees. Discuss how to place the protractor on the line and model ensuring that the correct scale is being used. Discuss the importance of starting from zero, just like a ruler, and then mark where the 60 mark is. Remove the protractor and ask the children to check if it looks a realistic size. For example, I know that it is an acute angle and I know that it is larger than 45 degrees and less than 90. Discuss with the children what length line they could use here. Suggest 4.5 cm. Model to the children drawing the next line and using the protractor to create the obtuse angle. You may want to discuss here that you know the angle will be 120 as all the angles in a parallelogram equal 360 (60+ 60 = 120 360 – 120 = 240 and divide by 2 for the 2 obtuse angles) Some children may be encouraged to work this out, some children at this stage may need the amounts given to them. Model checking the angle with a protractor. Then model drawing the top length at 7.5 cm again as it must be equal to the side parallel to it. Then measure the remaining acute and obtuse angle.

Practice Activities

Purple Practice: most suited for children who made errors in Question 1 & 2 and in Question 9 of the prior learning assessment and would benefit from securing the use of a protractor accurately before applying this skill to creating shapes.

The activity provides the opportunity for the children to use a protractor and to create an angle with the line provided. The children are required to create angles of different sizes and use the intervals accurately on the protractor to measure angles to the nearest degree. The children can then suggest shapes that can be created from the angle they have drawn.

Green Practice: most suited for children who made errors in Question 1 & 2 and of the prior learning assessment and are ready to draw 2D shapes accurately.

The children have been given lines and space provided to draw the shapes asked for. The children have also been given measurements for the size of the lengths and angles for the children to create accurate drawings of the shapes. Encourage the children to use the protractor accurately and apply their knowledge of shape and properties to create an accurate drawing.

Yellow Practice most suited for children who demonstrated some accuracy in Q1 and 2 of the prior learning assessment.

For this activity, the children are provided with descriptions of the shapes for the children to create. The children are given little support with starting the shape. The children are also asked to create regular polygons ensuring that all angles and lengths are of equal size.

Mastery This mastery is most suited for children who also understand how to find the area of parallelograms. The children are provided with the opportunity to apply a variety of skills such as using the formula for area to work out possible length and height combinations, measuring length accurately and suggesting appropriate acute and obtuse angles.

Ensure the children understand that the formula for a parallelogram uses the height measurements, therefore they need to measure this accurately rather than the length of all sides.

Answers: The children's answers will need checking with a protractor and ruler to ensure accurate measurements have been used. Children may want to check these with other children too

Use a protractor to accurately draw the angle for each question.

1) 30°

2) 85°

3) 135°

4) 165°

5) 17°

6) 72°

7) 108°

8) 154°

BRICKWORK
Mathematics

Look at the measurements in each question and create the shape asked for.

1)Draw a trapezium with 2 acute 65° angles. The 2 sides which are not parallel should be 5cm in length.

2)Draw a scalene triangle with one angle of 80° and the side to be the length of 3cm

BRICKWORK
Mathematics

Look at the measurements in each question and create the shape asked for.

3) Draw an equilateral triangle with angles of 60° and each side 7.5cm in length.

4) Draw a trapezium with an angle of 103°. Measure the 4th length and write it in mm.
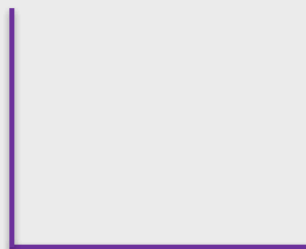
Look at the measurements in each question and create the shape asked for.

5)Draw an isosceles triangle with 2 angles of 29°. Each of these sides should also be the same length as each other.

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6)Draw an parallelogram with the acute angles of 43° and obtuse angles of 137°.

_____

BRICKWORK
mathematics

Look at the information provided on each block. Draw the shapes asked using the measurements provided.

Draw a parallelogram with one pair of parallel sides 6.7cm in length.

The acute angles should be 47 °.

The obtuse angles should be 133 °.

Draw a rhombus.

Each side should be 5.4 cm in length.

The acute angles should be 82 °.
The obtuse angles 98 °.

Draw a regular pentagon.

Each side should be 10 cm in length.

Each angle should be 108 °.

Draw an equilateral triangle.

Each side should be 9.3cm.

Draw a regular hexagon.

Each side should be 8.5 cm in length.
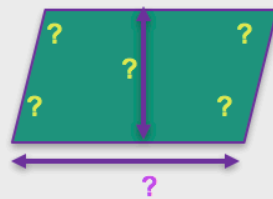
Each angle should be 120 degrees.

Draw a regular octagon.

Each side should be 4.5cm in length.

Each angle should be 135 °.

BRICKWORK
Mathematics

A parallelogram has the area of 24 cm^2.

Draw 2 possibilities of what the parallelogram may look like and possible measurements for the length and height. Use a ruler and a protractor to draw the shapes accurately to scale.

Area = 24 cm2