Power Maths Strengthen Activities

MISCONCEPTION

Children may not realise that to be regular, a polygon must meet both of the following criteria: same size angles and same side lengths.

STRENGTHENING UNDERSTANDING

1. Using q1 on Practice Book p87, measure the sides and angles with a ruler and protractor and then correctly label them. Ask: *Which of these shapes are irregular? Why? So, which of these shapes are regular? Why?* Establish that regular shapes need to have all the same size angles **and** the same length sides. Ensure children understand that an equilateral triangle and a square are regular.
2. Now use an assortment of 2D shapes (including regular and irregular shapes) and sort them using two overlapping sorting circles (Venn diagram) with the headings 'All angles equal' and 'All sides equal'.
3. Encourage the children to justify their choices and explain where the regular shapes can be found.

ASSESSMENT CHECKPOINT

Can children explain how you can tell if a shape is irregular in the Reflect section on Practice Book, p88.

RESOURCES

Practice book, ruler, protractor, 2D shapes

MISCONCEPTION

Children may sometimes not recognise perpendicular lines when they are not oriented horizontally or vertically. They may not recognise that two lines can be perpendicular even if they do not touch or cross.

STRENGTHENING UNDERSTANDING

1. Prepare some pairs of lines (some perpendicular and some not perpendicular, some that touch, some that cross and some that do not touch). Be sure to include pairs of lines with different orientations.
2. Tear the corner of a piece of paper to create a right angle finder. Ask children to use this to help them to find pairs of perpendicular lines.
3. Ask: *Do all perpendicular lines have to touch or cross?* Establish that as long as the lines are at right angles to each other, they are perpendicular regardless of whether they touch or not.

ASSESSMENT CHECKPOINT

Can children use their right angle finders or a protractor to draw in the perpendicular lines in Q2 on Practice Book p81?

RESOURCES

Prepared pairs of lines, right angle finders (corners of a sheet of paper), Practice book

MISCONCEPTION

Children may think that parallel lines must be exactly the same length. They may fail to recognise that there can be more than two lines parallel to one another.

STRENGTHENING UNDERSTANDING

1. Show some pictures of real-life objects that show parallel and not parallel lines. Include some pairs of lines with different lengths, and some with more than two lines which are parallel (e.g. an aerial view of a football pitch, train tracks, windows, fences, bicycle frames, houses).
2. Ask children to use a ruler to find parallel lines by measuring the perpendicular distance between the two lines and checking if this is constant along the whole length of a line. Ask: *Do all parallel lines have to be the same length?* Establish that if the lines are equidistant apart along the whole length of the shorter line, these lines will still be parallel.
3. Now ask: *Can a line only have one other line that is parallel to it?* Show a picture of a gate or radiator that show more than one pair of parallel lines. Ask children to reason and justify their thinking. Encourage children to notice that multiple lines can be parallel.

ASSESSMENT CHECKPOINT

In Q3 on Practice Book p79, can children show more than one parallel line? Can they show parallel lines that are of different lengths?

RESOURCES

Pictures of parallel and unparallel lines, rulers