

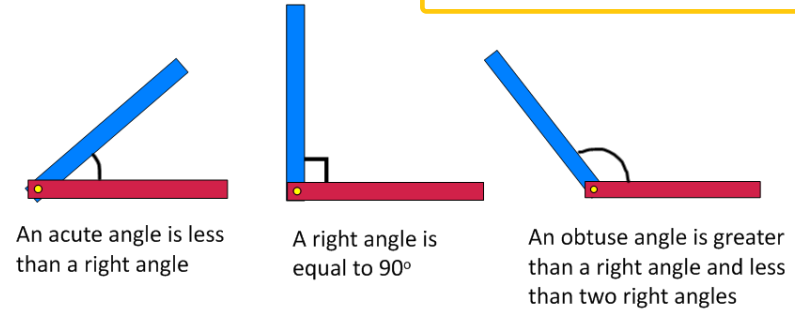
Year 4 Unit 11: Shape and symmetry (3 weeks)

Video: Using an angle maker

Video: What is a right-angle checker?

Angles in two ways
 Angles can be thought about in two different ways. Angles can be thought of as objects like the corner of a book or a vertex of a triangle. A measure of how pointy something is. Angles can also be thought of as a measure of turn where movement is an important part of its meaning.

- Before you start...**
- How confident are your pupils at identifying angles as a turn?
 - What language do your pupils use when describing turns?
 - How confident are your pupils at identifying acute, right and obtuse angles?
 - What shapes and their respective properties, including lines of symmetry, are pupils confident with?



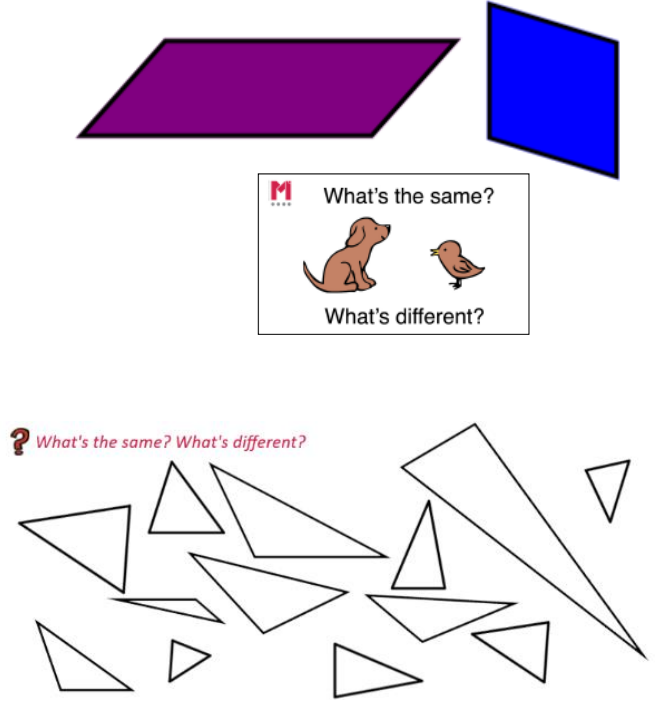
Developing understanding of angles
 L1 Compare and order angles
 L2 Identify right-angles
 L3 Identify acute and obtuse angles
 L4 Investigate angles within 2-D shapes

Pupils discuss their understanding of angles by looking at a range of angles in both shapes and represented as line segments and then comparing and ordering them by size. Right-angles are identified before looking at a selection of angles and deciding whether they are acute or obtuse. They then create different angles and shapes with acute and obtuse angles. In lesson 4, pupils apply their understanding of angles to angles within shapes, investigating a series of statements, justifying whether they are always, sometimes or never true.

? What questions will you ask your pupils to support them in making the connection between angles as a measure of turns and angles as a property of shape?
 ? How does the concept of angles develop and / or link to other concepts learners will encounter in the future?
 How do your choices now prepare learners for this?

Lessons 5 is a consolidation lesson. It may benefit learners to spend more time using and understanding geometric terminology.

Perspective on angles
 This article from Nrich provides an interesting perspective on measuring angles and provides some activities to challenge ...



Video: Symmetry – what is it?

Lessons 10, 14 and 15 are consolidation lessons but you may wish to consolidate at different points in the unit.

Reasoning about symmetry
 L11 Identify lines of symmetry in 2-D shapes
 L12 Complete symmetrical figures (patterns)
 L13 Investigate problems involving symmetry

Pupils investigate lines of symmetry within 2-D shapes before looking at which letters of the alphabet could be symmetrical. Pupils then move on to recreate the alphabet so that each letter has a line of symmetry and every letter is different. In lesson 13, pupils apply their understanding of lines of symmetry to create symmetrical patterns in a grid.

? What opportunities will you plan for all learners to communicate their mathematical ideas about 2-D and 3-D shapes?
 ? What opportunities will you provide for learners to reflect on the types of thinking they have done and the choices they have made, so that they can deploy these actions again in future?

Developing understanding of 2-D shapes
 L6 Compare and classify 2-D shapes
 L7 Compare and classify quadrilaterals
 L8 Compare and classify right-angled and equilateral triangles
 L9 Compare and classify isosceles and scalene triangles

Pupils categorise shapes according to their properties before playing 'Guess my Shape' to reinforce this learning. In lesson 7, pupils are introduced to parallelograms and rhombi before moving on to explore trapezia, using geoboards to create and describe different quadrilaterals. Pupils then move on to different classifications of triangles in Lesson 8 and 9, discussing and categorising these using geoboards to create a range of triangles.

? What are typical examples of line segments which are parallel, perpendicular, horizontal and vertical? Unusual examples? Non-examples?