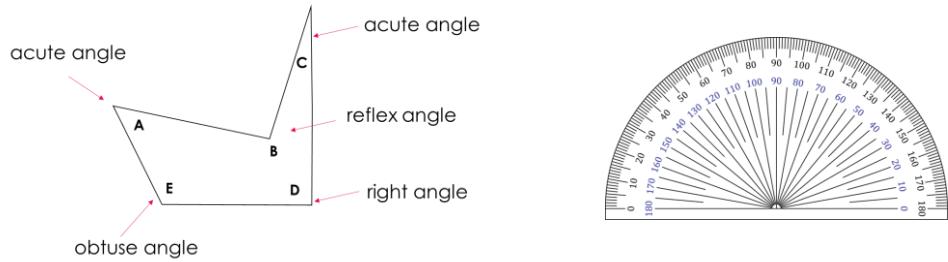


Year 6 Unit 7: Geometry- Angles and properties of shapes (2 weeks)

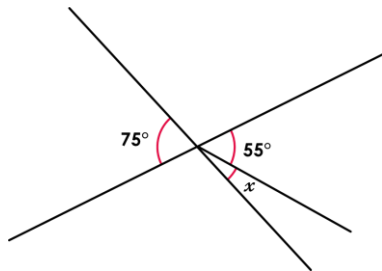
Interesting angles
This NRICH [article](#) provides an interesting insight into measuring and thinking about angles.

The language of geometry
The variety of technical vocabulary for geometry means that this can be complicated for pupils. Ensure your knowledge is secure by using the MM vocabulary list and making use of the Unit Tutorial.

- Before you start...**
- How familiar are pupils with degrees as a measure of rotation?
 - What prior experiences of angles and angle facts have pupils had?
 - How confident are pupils in using rulers and protractors and reading the different scales?



Lesson 3 is a planned consolidation lesson. Before proceeding to Lesson 4, consider using this lesson to ensure pupils are confident with the angle facts taught in Year 5 e.g., angles at a point and one whole turn sum to 360° , and angles on a straight line (half a turn) sum to 180° . Lesson 4 introduces some new content, so you may wish to split it into two separate lessons.



Throughout this unit, it is important that pupils are exposed to a range of polygons in different sizes and orientations, including non-standard and non-examples. This ensures a focus on the properties of shape as opposed to attaching a shape name to one particular type. Consider how you will expose pupils to a range of quadrilaterals to develop this.

Developing angle facts

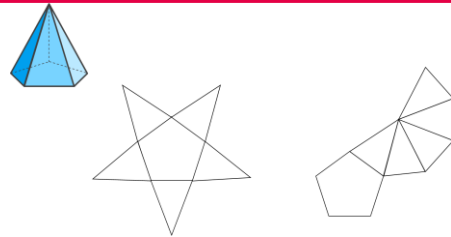
- L1 Categorise, estimate and measure angles
- L2 Use a protractor to draw angles accurately
- L4 Calculate unknown angles using known angle facts
- L5 Solve problems involving angles

Pupils identify, describe, and classify angles (acute, obtuse, reflex, and right angles). They apply their knowledge of angle types to make sensible estimates about the size of angles and learn how to use a protractor correctly to measure angles accurately. Lesson 2 provides an opportunity for pupils to revisit how to use a protractor accurately to draw angles. They apply their understanding by using both a protractor and a ruler to construct full-sized 2D shapes from diagrams that are not drawn to scale. In Lesson 4 pupils use pictorial representations to explore angles on a straight line and at a point, exploring the relationship between these facts. They use algebra and bar models to represent these problems and calculate unknown angles. Pupils draw on their learning from Lessons 1–4 to make informed choices when solving problems involving angles. They interpret the given information to decide whether to measure, calculate, or construct, and articulate their reasoning for selecting a particular approach.

? What difficulty points may pupils encounter and how will you mitigate these?

Pentagon-based pyramid

- five triangular **faces**
- one pentagonal **face**

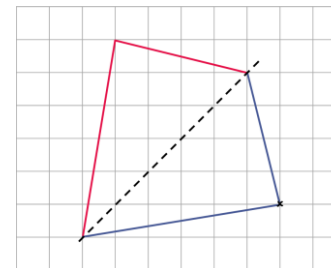


Exploring 2-D shapes

- L6 Compare and classify 2-D shapes
- L7 Draw 2-D shapes

Through comparing and classifying, pupils consolidate their understanding of the critical features of 2-D shapes, with a focus on similarities and differences. In Lesson 7, pupils begin by completing symmetrical shapes using a given mirror line. They progress to completing shapes using given dimensions, without the aid of a mirror line.

- ? What key terminology do you wish for pupils to use in these lessons and how will you ensure this happens?
- ? How will you encourage pupils to identify similarity and difference and articulate this?



	Pair(s) of parallel sides	No parallel sides
Quadrilateral		
Non-quadrilateral		

Exploring 3-D shapes

- L9 Compare and classify 3-D shapes
- L9 Recognise, describe and build 3-D shapes from nets

Pupils compare and classify a range of 3-D shapes, applying their understanding of the properties of 2-D shapes. This allows opportunities to generalise about the properties of categories of 3-D shapes such as prisms. Throughout this lesson pupils should be exposed to a range of concrete and pictorial 3-D shapes. They then explore nets and discuss the 2-D shapes required to build a net. Alongside encouraging pupils to visualise folding nets, pupils should have opportunities to practically experience this.

? What representations and examples will you provide to support pupils in identifying 3-D shapes based on their properties?

Describing circles

- L8 Illustrate and name parts of a circle

Pupils learn the names of different parts of the circle and this knowledge should be regularly revisited in Maths Meetings. Ensure exposure to examples and non-examples of key parts such as the radius and diameter to deepen understanding. Pupils then solve problems involving the relationship between radius and diameter.

? How will you ensure all pupils have multiple opportunities to use the key language introduced in this lesson?

