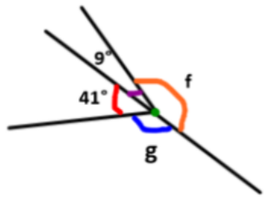
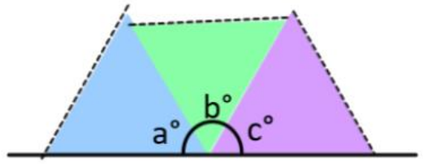
Year 6 Unit 5: Missing angles and lengths (1 week)

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 secure are pupils in naming a range of triangles and quadrilaterals?*

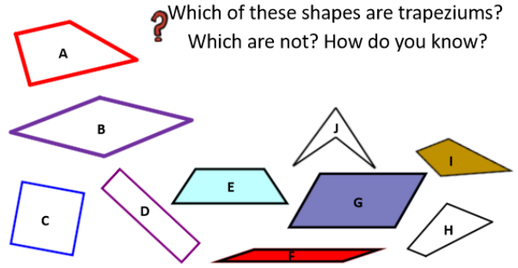


Throughout this unit, it is important that pupils are exposed to a range of polygons in different sizes and orientations, including non-standard and non-examples. This ensures a focus on the properties of shape as opposed to attaching a shape name to one particular type. Consider how you will expose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



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. We have also provided a Subject Knowledge Enhancement Workshop to develop this which could be run by your Maths lead.



Developing angle facts

L1 Recognise angle properties in different formats

Pupils learn different angle facts: angles about a point sum to 360, angles on a straight line sum to 180 and angles that are vertically opposite are equal. Opportunities for pupils to explore and reason should be provided, and these facts can be applied to learning throughout the unit. The Independent Task involves pupils using tape to create different angles for them to then investigate. Throughout the lesson pupils should be encouraged to express relationships using bar models and algebraic notation.

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

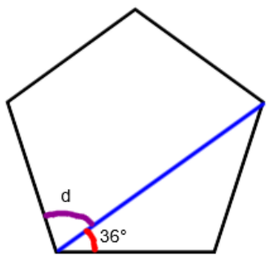
Exploring triangles and quadrilaterals

L2 Compare and classify triangles
L3 Compare and classify quadrilaterals

Through comparing and classifying, pupils consolidate their understanding of the critical features of different types of triangles and quadrilaterals, with a focus on similarities and differences. You may wish to use the beginning of each lesson to assess understanding of these polygons, addressing misconceptions before moving on. In lesson 4, the Develop Learning focuses on the property of the internal angles of quadrilaterals, including exploration of diagonals within these shapes. Take time for pupils to fully explore and generalise this property.

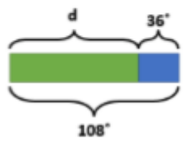
? *What key terminology do you wish for pupils to use in these lessons and how will you ensure this happens?*
? *How will you encourage pupils to identify similarity and difference and articulate this?*

There are no planned consolidation lessons for this unit. Consider how development of angle and shape knowledge can be consolidated in different areas of the curriculum and how Do Now and Maths Meeting tasks can be used to secure properties of angles and shapes.



$36° + d = 108°$

$108° - 36° = d$



Interesting angles

This NRICH article provides an interesting insight into measuring and thinking about angles.

Finding missing angles

L4 Find missing angles and lengths
L5 Calculate missing angles in polygons

Pupils draw on their understanding of properties of angle and shape to calculate missing angles and lengths in a variety of ways They represent problems using bar models, drawing on their understanding of algebraic notation from earlier in the year. Lesson 4 provides an opportunity for pupils to apply their knowledge of internal angles of triangles and quadrilaterals. Lesson 5 introduces internal angles of other regular polygons through the understanding of angles within triangles. It is not expected that pupils will generalise about the relationship between sides of polygon and sum of internal angles, however this may be a point for pattern seeking and discussion. Both lessons provide opportunities to consolidate addition and subtraction strategies in a different context.

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