

Learning Objectives

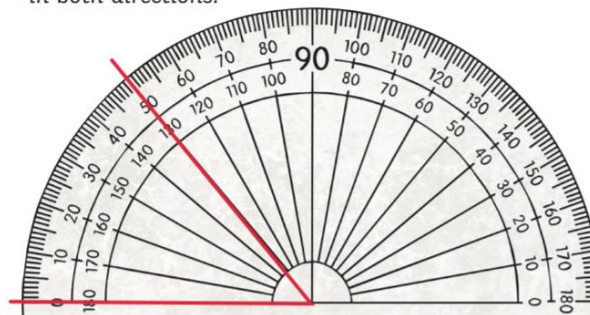
- ❖ To identify 3-D shapes, including cubes and other cuboids, from 2-D representations
- ❖ To know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- ❖ To draw given angles, and measure them in degrees (°)
- ❖ To identify: angles at a point and one whole turn (total 360), angles at a point on a straight line and 1/2 a turn (total 180) and other multiples of 90
- ❖ How to use the properties of rectangles to deduce related facts and find missing lengths and angles
- ❖ To distinguish between regular and irregular polygons based on reasoning about equal sides and angles.
- ❖ To identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.

Name	Surfaces		Edges		Vertices	Picture
	Flat	Curved	Flat	Curved		
cube	6	0	12	0	8	
cuboid	6	0	12	0	8	
square-based pyramid	5	0	8	0	5	
tetrahedron	4	0	6	0	4	
triangular prism	5	0	9	0	6	
pentagonal prism	7	0	15	0	10	
hexagonal prism	8	0	18	0	12	
octagonal prism	10	0	24	0	16	
octahedron	8	0	12	0	6	

Regular	Irregular
  	  
  	  

Measuring and Drawing Angles

To measure angles, we use a protractor. Look carefully at how the numbers on the scale count from 0° to 180° in both directions.



Key Vocabulary

Quarter turn
 Half turn
 Three-quarter turn
 Angle
 Right-angle
 Acute
 Obtuse
 Horizontal
 Vertical
 Diagonal
 Parallel
 Perpendicular
 Polygon
 Two-dimensional
 Three-dimensional
 Flat face
 Curved surface
 Edge
 Curved edge
 Vertex
 Vertices
 Apex
 Reflex
 Protractor

Identifying Angles

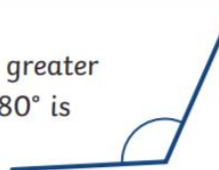
Acute Angles

Any angle that measures less than 90° is called an **acute** angle.



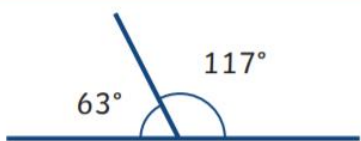
Obtuse Angles

Any angle that measures greater than 90° and less than 180° is called an **obtuse** angle.

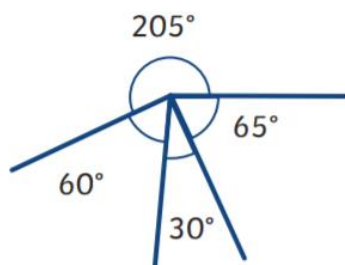


Reflex Angles

Any angle that measures greater than 180° is called a **reflex** angle.

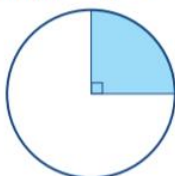


Angles on a straight line always total 180° .

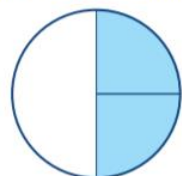


Angles around a point always total 360° .

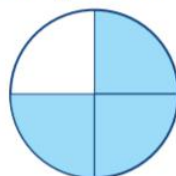
Multiples of 90° can be used as descriptions of a turn.



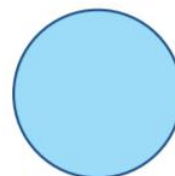
$\frac{1}{4}$ turn - 90°



$\frac{1}{2}$ turn - 180°



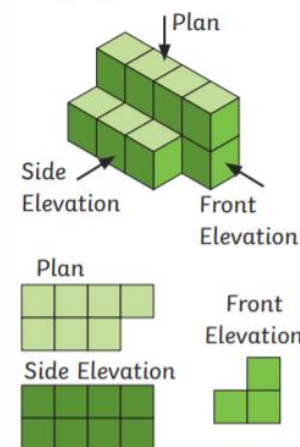
$\frac{3}{4}$ turn - 270°



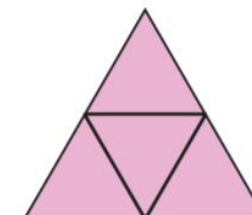
1 turn - 360°

Representations

Cube models can be drawn as 2D representations using different elevations.



A shape net is a 2D drawing of an unfolded 3D shape. When you are drawing or reasoning about shape nets, think carefully about where the edges of the faces meet.



Shape net of a tetrahedron.

What I Should Already Know:

- How to compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- How to identify acute and obtuse angles and compare and order angles up to two right angles by size
- How to identify lines of symmetry in 2-D shapes presented in different orientations
- How to complete a simple symmetric figure with respect to a specific line of symmetry.
- How to describe positions on a 2-D grid as coordinates in the first quadrant
- How to describe movements between positions as translations of a given unit to the left/right and up/down
- How to plot specified points and draw sides to complete a given polygon