

Properties of Shape



Knowledge Organiser

Key Vocabulary

Regular and Irregular Polygons

Properties of 3D Shapes

- angle
- right angle
- acute
- obtuse
- reflex
- protractor
- horizontal
- vertical
- parallel
- perpendicular
- polygon
- regular
- irregular
- two-dimensional
- three-dimensional
- flat face
- curved surface
- edge
- curved edge
- vertex
- apex

Regular	Irregular
	

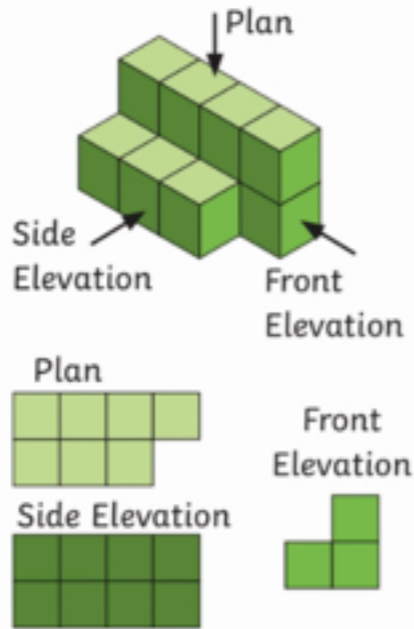
A polygon is any two-dimensional shape formed with straight lines.

In a regular polygon, all the sides and angles are equal.

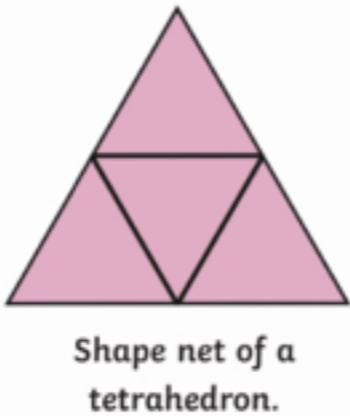
In an irregular polygon, the sides and angles are not equal.











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.



Name	Surfaces		Edges		Vertices	Picture
	Flat	Curved	Flat	Curved		
sphere	0	1	0	0	0	
cube	6	0	12	0	8	
cuboid	6	0	12	0	8	
cone	1	1	0	1	0	
cylinder	2	1	0	2	0	
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	

A cone has an apex. This is because a vertex is the point where two straight edges meet and a cone has no straight edges.

Perimeter and Area

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Key Vocabulary

Measure Perimeter

Calculate Perimeter

metre

kilometre

perimeter

length

width

rectangle

rectilinear

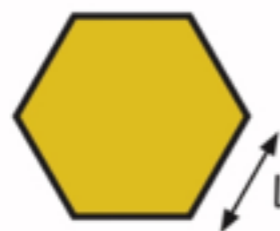
dimensions

Measure the perimeter of a rectangle:



Measure the length (l) and width (w).
Perimeter = $l + w + l + w$ or $(l + w) \times 2$

Measure the perimeter of regular shapes:



Measure the length (l) and count the number of sides (s) on the shape.

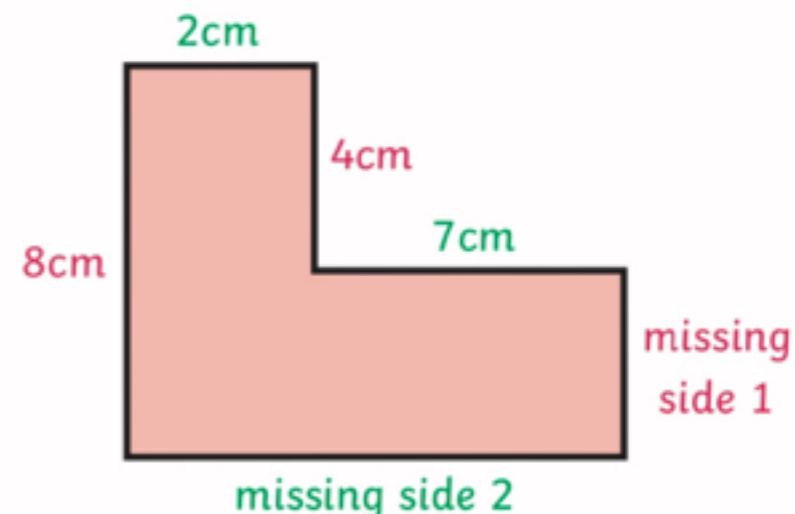
Perimeter = $l \times s$

Measure the perimeter of irregular shapes:



Measure the length of each side and add them together.

Calculate the missing sides of this rectilinear shape to find the perimeter:



* This shape is not drawn to the dimensions specified.

Missing side 1 + 4cm = 8cm,
so missing side 1 = 4cm.

Missing side 2 = 2cm + 7cm = 9cm

Perimeter = sum of all sides =
 $2\text{cm} + 4\text{cm} + 7\text{cm} + 4\text{cm} + 9\text{cm} + 8\text{cm} = 34\text{cm}$