Properties of Shape
Knowledge Organiser

| Key Vocabulary | Regular and Irregular Polygons |  |
| :---: | :---: | :---: |
| angle | Regular | Irregular |
| right angle |  |  |
| acute |  | 2 |
| obtuse |  |  |
| reflex |  | $\rightarrow N$ |
| protractor |  |  |
| horizontal | A polygon is any two-dimensional shape formed with straight lines. <br> In a regular polygon, all the sides and angles are equal. <br> In an irregular polygon, the sides and angles are not equal. |  |
| vertical |  |  |  |
| parallel |  |  |  |
| perpendicular |  |  |  |
| polygon |  |  |  |
| regular | Representations |  |
| irregular | Cube models can be drawn as 2 D representations using different elevations. <br> Plan | A shape net is a $2 D$ 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. <br> Shape net of a tetrahedron. |
| two-dimensional |  |  |
| three-dimensional |  |  |
| flat face |  |  |
| curved surface |  |  |
| edge |  |  |
| curved edge |  |  |
| vertex |  |  |
| apex | Front Elevation |  |
| twinkl <br> visit twinkl.com | Side Elevation |  |

## Properties of 3D Shapes

| 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.

## Identifying Angles

## Acute Angles

Any angle that measures less than $90^{\circ}$ is called an acute angle.

## Obtuse Angles

Any angle that measures greater than $90^{\circ}$ and less than $180^{\circ}$ is called an obtuse angle.

## Reflex Angles

Any angle that measures greater than $180^{\circ}$ is called a reflex angle.



Angles on a straight line always total $180^{\circ}$.


Angles around a point always total $360^{\circ}$.

## Measuring and Drawing Angles

To measure angles, we use a protractor. Look carefully at how the numbers on the scale count from $0^{\circ}$ to $180^{\circ}$ in both directions.


Using Properties of Rectangles


