

Help Sheets for Properties of 2D and 3D Shapes



Outcomes

Early Stage:

- I enjoy investigating objects and shapes and can sort, describe and be creative with them. MTH 0-16a

1st Stage:

- I have explored simple 3D objects and 2D shapes and can identify, name and describe their features using appropriate vocabulary. MTH 1-16a
- I can explore and discuss how different shapes fit together and create a tiling pattern with them. MTH 1-16b

2nd Stage:

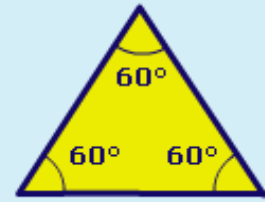
- Having explored a range of 3D objects and 2D shapes, I can use mathematical language to describe their properties, and through investigation can discuss where and why particular shapes are used in the environment. MTH 2-16a
- Through practical activities, I can show my understanding of the relationship between 3D objects and their nets. MTH 2-16b
- I can draw 2D shapes and make representations of 3D objects using an appropriate range of methods and efficient use of resources. MTH 2-16c

A Guide to 2D Shapes

Triangles

Equilateral triangle

- 3 equal sides
- 3 equal angles of 60°



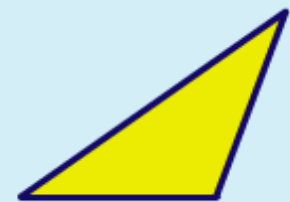
Isosceles triangle

- 2 equal sides
- 2 equal angles



Scalene triangle

- No equal sides
- No equal angles



Right-angled triangle

- One of its angles is a right angle (90°)

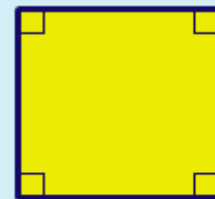


Quadrilaterals

Quadrilaterals have four sides. Here are some special quadrilaterals:

Square

- 4 equal sides
- 4 right angles



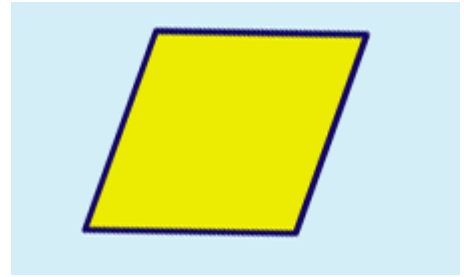
Rectangle

- 2 pairs of equal sides
- Opposite sides with 4 right angles
- A square can also be called a rectangle



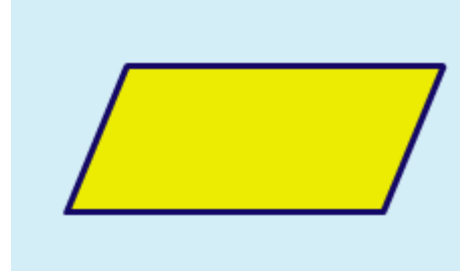
Rhombus

- 4 equal sides
- Opposite sides are parallel
- Opposite angles are equal
- This is not to be called a diamond



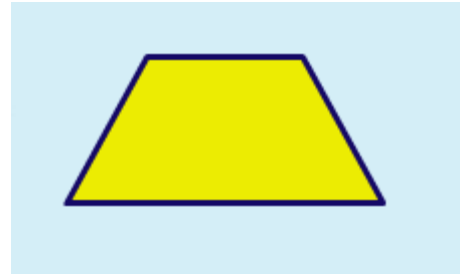
Parallelogram

- 2 pairs of equal sides
- Opposite sides are parallel
- Opposite angles are equal



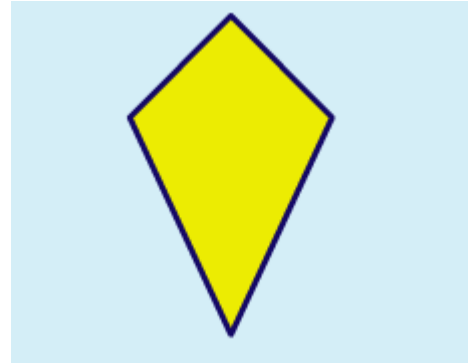
Trapezium

- One pair of parallel sides of different lengths

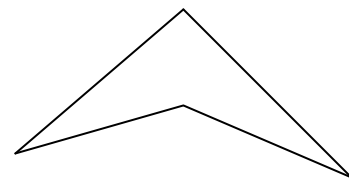


Kite and V Shaped Kite

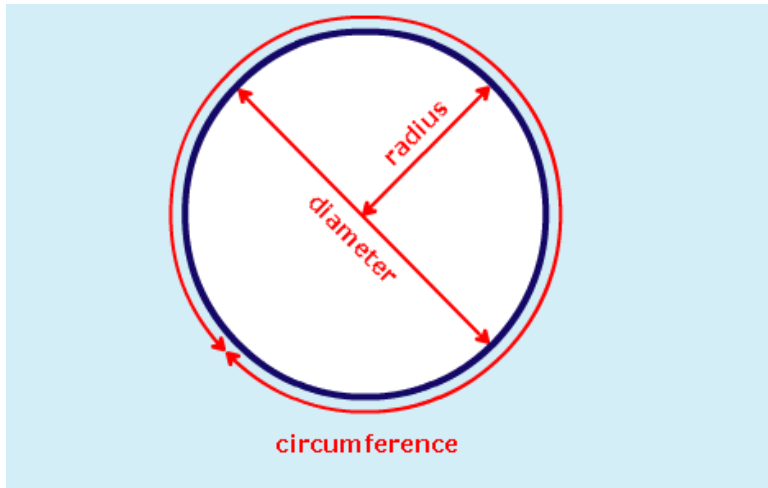
- 2 pairs of equal sides next to each other
- No parallel sides.



This is a picture of a v shaped kite



Circles



- The circumference is the distance all the way around a circle.
- The diameter is the distance right across the middle of the circle, passing through the centre.
- The radius is the distance halfway across the circle. The radius is always half the length of the diameter.

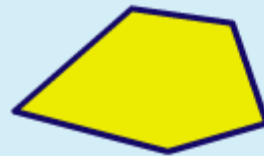
Polygons

Polygons are shapes with many straight sides. Regular polygons have equal angles and sides of equal length. Irregular polygons have sides of different lengths. Triangles and Quadrilaterals are also polygons.

Pentagons have 5 sides.



regular pentagon

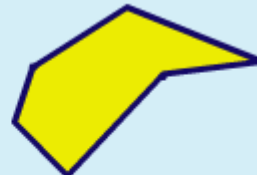


irregular pentagon

Hexagons have 6 sides.



regular hexagon



irregular hexagon

Heptagons have 7 sides.

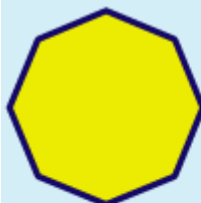


regular heptagon



irregular heptagon

Octagons have 8 sides.



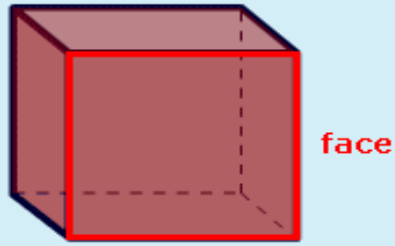
regular octagon



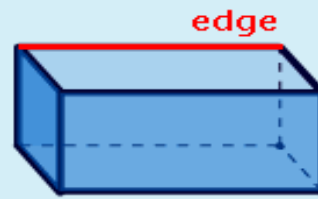
irregular octagon

Name of 3D Shapes

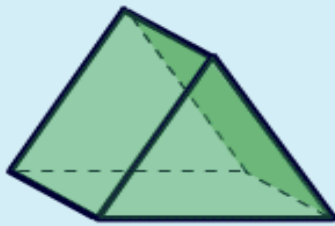
3D shapes have faces (sides), edges and vertices (corners). The exception is the sphere which has no edges or vertices.



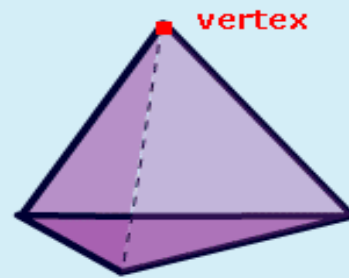
Cube



Cuboid



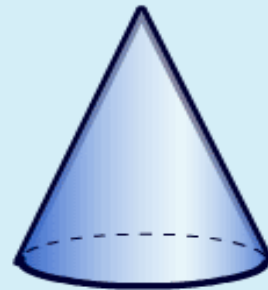
Triangular prism



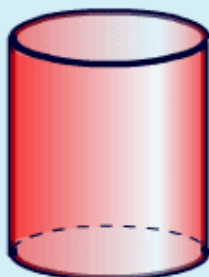
Triangular based pyramid



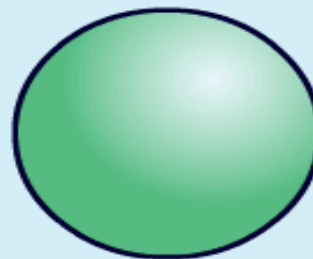
Square based pyramid



Cone



Cylinder



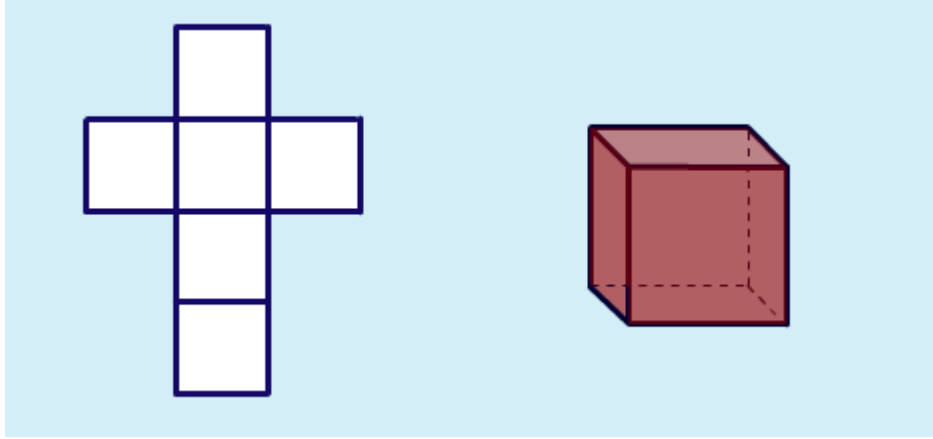
Sphere

Nets of Shapes

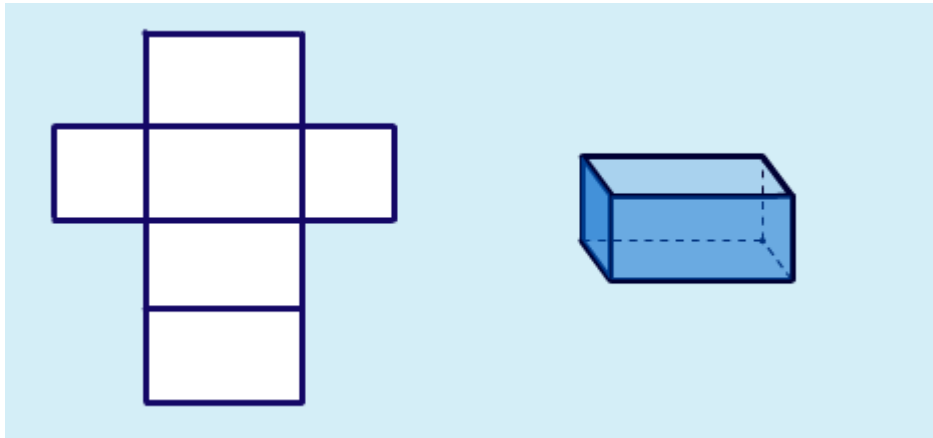
The net of a 3D shape is what it looks like if it is opened out flat. A net can be folded up to make a 3D shape. There may be several possible nets for one 3D shape.

Here are some examples.

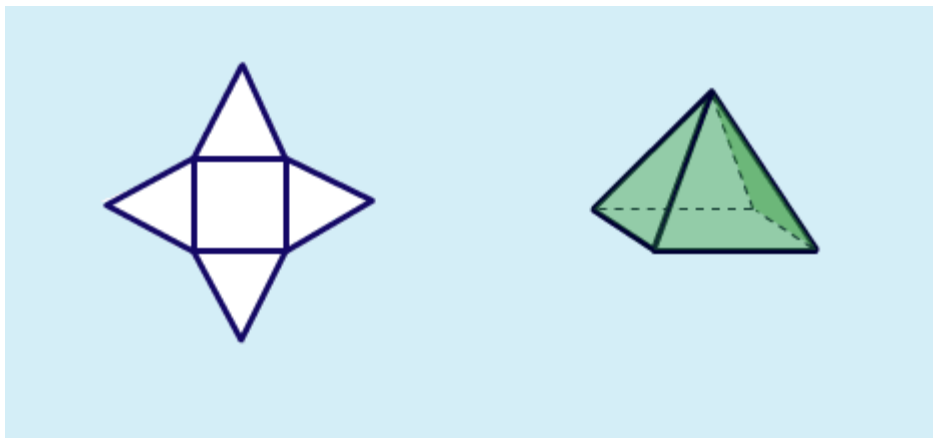
Net of a cube



Net of a cuboid



Net of a square-based pyramid



Net of a tetrahedron

