

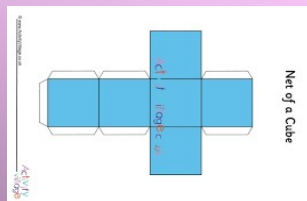
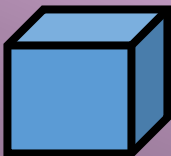
YEAR 8 HIGHER

TOPIC 3 - 2D and 3D shapes

What do I need to know;

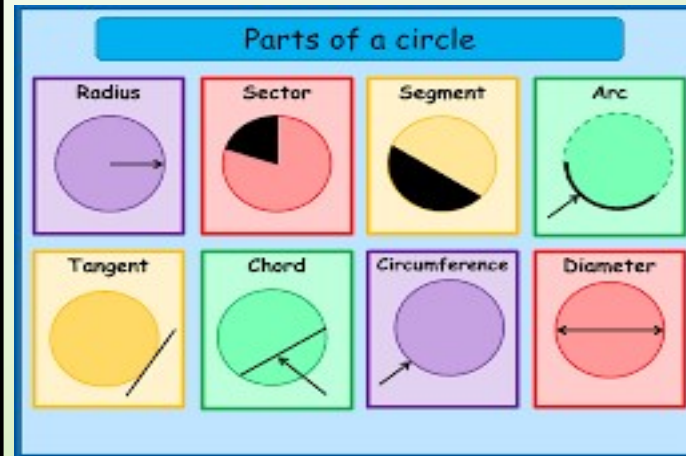
1. sketch nets and use 2D representation of 3D shapes.
2. Calculate the surface area and volume of prisms.
3. Be able to calculate the circumference, the area and name the parts of a circle.
4. Calculate the radius or diameter when you know the circumference or area.
5. Calculate the surface area and volume of a cylinder.
6. Use Pythagoras' theorem in right-angled triangles.

Nets what a 3D shape looks like when opened out flat




CIRCLES; Area = πr^2

Circumference = $2\pi r$



Volume of Cylinder



$$\pi r^2 h$$

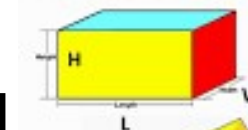
$$3.142 \times 3^2 \times 8$$

$$= 3.142 \times 9 \times 8$$

$$= 226.1956$$

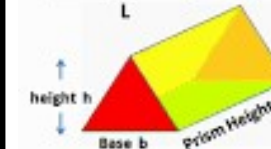
Volume of prisms = area of cross section x length

Volume of Prisms - FORMULAS



$$V = L \times W \times H$$
 or

$$V = LWH$$

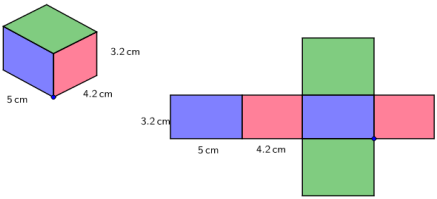


$$V = \frac{1}{2} \times b \times h \times H$$
 or

$$V = \frac{1}{2}bhH$$

Surface Area ; - calculate the area of each side and add

length = 5 width = 4.2 height = 3.2
☒ Show/Hide net
☒ Show/Hide surface area



Surface Area = (2 x length x width) + (2 x length x height) + (2 x width x height)
 Surface Area = (2 x 5 x 4.2) + (2 x 5 x 3.2) + (2 x 4.2 x 3.2)
 Surface Area = 42 + 32 + 26.88
 Surface Area = 100.88 cm²

Pythagoras Theorem; - Finding a side when you have two other sides in a right angled triangle

$a^2 + b^2 = c^2$

$3^2 + 4^2 = 25$

3

