

Key Vocabulary	
Volume	Amount of space occupied by an object
Prism	A solid 3d shape with 2 identical parallel polygon bases
Radius	From the centre of a circle to a point of the circumference
Diameter	A straight line going through the middle of a circle and touching both sides of the circumference
Circumference	Perimeter of the circle
Pi π	Ratio of a circles circumference to it's diameter. $\pi = 3.14$
Right angle	A 90° angle
Acute angle	An angle between 0° - 89°
Obtuse angle	An angle between 91° and 179°
Reflex angle	An angle larger than 180°

Key facts / Diagrams

Alternating Angle

Corresponding Angle

Shape	Cross-sectional shape	Volume
 Cylinder	 Area = πr^2	V = area of circle x height = $\pi r^2 \times H$
 Triangular prism	 Area = $\frac{1}{2}bh$	V = area triangle x height = $\frac{1}{2}bh \times H$
 Rectangular prism	 Area = $L \times W$	V = area of rectangle x height = $L \times W \times H$
 Cube	 Area = L^2	V = area of a square x height = $L^2 \times L$ = L^3

- Common misconceptions**
- Some pupils will work out $(\pi \times \text{radius})^2$ when finding the area of a circle
 - Some pupils may use the sloping height when finding cross-sectional areas that are parallelograms, triangles or trapezia
 - Some pupils may think that the area of a triangle = base \times height
 - Some pupils may think that you multiply all the numbers to find the volume of a prism
 - Some pupils may confuse the concepts of surface area and volume

Worked examples

Volume of cylinders

Volume = $\pi r^2 h$

= $\pi \times 3^2 \times 5$

= $\pi \times 9 \times 5$

= **141.37 cm³**

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

or

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

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

V = $\frac{1}{2} \times 6 \times 4 \times 10$

V = **120 m³** ✓