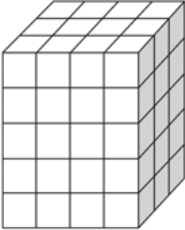
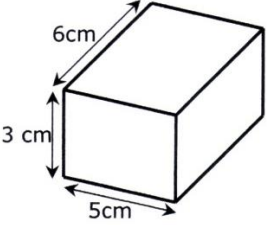
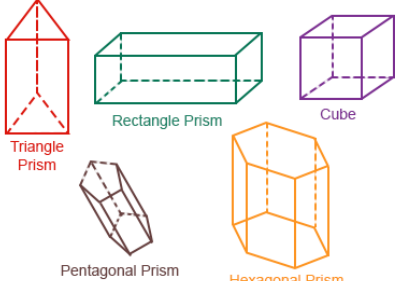
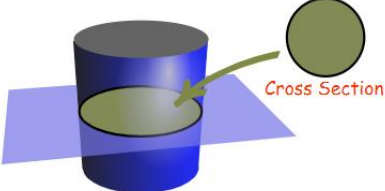
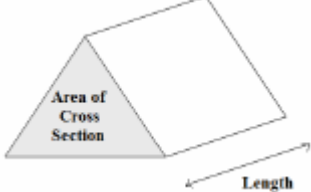
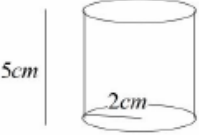
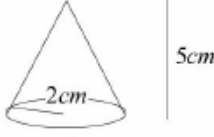
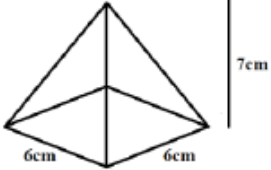
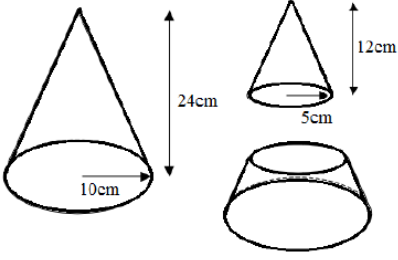


Topic: Volume

| Topic/Skill | Definition/Tips | Example |
|----------------------------|---|---|
| 1. Volume | Volume is a measure of the amount of space inside a solid shape. Units: mm^3, cm^3, m^3 etc. |  |
| 2. Volume of a Cube/Cuboid | $V = \text{Length} \times \text{Width} \times \text{Height}$ $V = L \times W \times H$ You can also use the Volume of a Prism formula for a cube/cuboid. |  <p style="text-align: center;"> $\text{volume} = 6 \times 5 \times 3$ $= 90 \text{ cm}^3$ </p> |
| 3. Prism | A prism is a 3D shape whose cross section is the same throughout. |  |
| 4. Cross Section | The cross section is the shape that continues all the way through the prism . |  |
| 5. Volume of a Prism | $V = \text{Area of Cross Section} \times \text{Length}$ $V = A \times L$ |  |
| 6. Volume of a Cylinder | $V = \pi r^2 h$ |  <p style="text-align: center;"> $V = \pi(4)(5)$ $= 62.8 \text{ cm}^3$ </p> |
| 7. Volume of a Cone | $V = \frac{1}{3} \pi r^2 h$ |  <p style="text-align: center;"> $V = \frac{1}{3} \pi(4)(5)$ $= 20.9 \text{ cm}^3$ </p> |

| | | |
|-------------------------------|---|---|
| <p>8. Volume of a Pyramid</p> | <p style="text-align: center;">$Volume = \frac{1}{3}Bh$</p> <p>where B = area of the base</p> |  <p style="text-align: center;">$V = \frac{1}{3} \times 6 \times 6 \times 7 = 84cm^3$</p> |
| <p>9. Volume of a Sphere</p> | <p style="text-align: center;">$V = \frac{4}{3}\pi r^3$</p> <p>Look out for hemispheres – just halve the volume of a sphere.</p> | <p>Find the volume of a sphere with diameter 10cm.</p> <p style="text-align: center;">$V = \frac{4}{3}\pi(5)^3 = \frac{500\pi}{3}cm^3$</p> |
| <p>10. Frustums</p> | <p>A frustum is a solid (usually a cone or pyramid) with the top removed.</p> <p>Find the volume of the whole shape, then take away the volume of the small cone/pyramid removed at the top.</p> |  <p style="text-align: center;">$V = \frac{1}{3}\pi(10)^2(24) - \frac{1}{3}\pi(5)^2(12)$ $= 700\pi cm^3$</p> |