

GRADE 6 MATHEMATICS

VOLUME & CAPACITY

Complete printable worksheet pack

Volume of cuboids & cubes • capacity • unit conversions • missing dimensions • real-life reasoning

Worksheet 1: Volume of Cuboids & Cubes

Show your working. Check that all measurements use compatible units before calculating.

1. Find the volume of a cuboid measuring $12\text{ cm} \times 8\text{ cm} \times 5\text{ cm}$.
2. Find the volume of a cube with side length 7.5 cm .
3. A storage box is 18 m long, 6 m wide and 4 m high. Find its volume.
4. A cuboid has volume 540 cm^3 , length 12 cm and width 9 cm . Find its height.
5. A cube has volume $1,000\text{ cm}^3$. Find its side length.
6. A rectangular aquarium is 80 cm long, 40 cm wide and 50 cm high. Find its volume in cm^3 .
7. Which has greater volume: a cuboid $10\text{ cm} \times 8\text{ cm} \times 6\text{ cm}$ or a cube with side 8 cm ? By how much?
8. Challenge: A cuboid has volume $1,728\text{ cm}^3$. Its length is 18 cm and width is 8 cm . Find its height.

Answer Key — 1: Volume of Cuboids & Cubes

1. 480 cm^3 .
2. 421.875 cm^3 .
3. 432 m^3 .
4. 5 cm.
5. 10 cm.
6. $160,000 \text{ cm}^3$.
7. Cube; 32 cm^3 greater.
8. 12 cm.

Teacher note: Accept equivalent correct methods and clearly shown working.

Worksheet 2: Capacity & Unit Conversions

Show your working. Check that all measurements use compatible units before calculating.

1. Convert: (a) 4.5 L to mL (b) 6,750 mL to L and mL (c) 2.35 L to mL.
2. A bottle holds 750 mL. How many full bottles can be filled from 6 L?
3. A tank contains 18.5 L. How many millilitres is this?
4. A jug holds 2.4 L. How many 300 mL cups can be filled completely?
5. Convert: (a) 3,250 cm³ to L (b) 7 L to cm³. Use 1,000 cm³ = 1 L.
6. A container holds 12 L and currently contains 8.75 L. How much more is needed to fill it?
7. A water dispenser releases 250 mL each minute. How much water does it release in 18 minutes?
8. Challenge: A tank holds 25 L. Water is added at 1.5 L/min for 12 minutes. How much capacity remains?

Answer Key — 2: Capacity & Unit Conversions

1. 4,500 mL; 6 L 750 mL; 2,350 mL.
2. 8 bottles.
3. 18,500 mL.
4. 8 cups.
5. 3.25 L; 7,000 cm³.
6. 3.25 L.
7. 4,500 mL.
8. 7 L remains.

Teacher note: Accept equivalent correct methods and clearly shown working.

Worksheet 3: Volume, Capacity & Real Life

Show your working. Check that all measurements use compatible units before calculating.

1. A swimming pool is 25 m long, 10 m wide and 2 m deep. Find its volume in m^3 .
2. A cuboid tank measures $2.5 \text{ m} \times 1.6 \text{ m} \times 1.2 \text{ m}$. Find its volume.
3. A tank has capacity 4,800 L. It contains 3,275 L. How many litres are needed to fill it?
4. A box measures $40 \text{ cm} \times 25 \text{ cm} \times 30 \text{ cm}$. Find its volume in litres.
5. A shipping crate has volume 2.4 m^3 . If its base is $2 \text{ m} \times 1.5 \text{ m}$, find its height.
6. A water container holds 15 L. It is emptied using 600 mL bottles. How many full bottles can be filled?
7. A cube-shaped tank has side 2 m. What is its volume in m^3 and litres?
8. Challenge: A rectangular pond is $12 \text{ m} \times 8 \text{ m} \times 1.5 \text{ m}$. After filling, 20% of the water is removed. How many litres remain?

Answer Key — 3: Volume, Capacity & Real Life

1. 500 m³.
2. 4.8 m³.
3. 1,525 L.
4. 30 L.
5. 0.8 m.
6. 25 bottles.
7. 8 m³ = 8,000 L.
8. 115,200 L.

Teacher note: Accept equivalent correct methods and clearly shown working.

Worksheet 4: Missing Dimensions & Volume Reasoning

Show your working. Check that all measurements use compatible units before calculating.

1. A cuboid has volume 960 cm^3 , length 16 cm and height 5 cm. Find its width.
2. A cuboid has volume $1,500 \text{ cm}^3$, width 10 cm and height 15 cm. Find its length.
3. A cube has volume $4,096 \text{ cm}^3$. Find its side length.
4. A tank has base area 18 m^2 and volume 90 m^3 . Find its depth.
5. A rectangular box has volume $2,520 \text{ cm}^3$. Its length is 18 cm and width is 14 cm. Find its height.
6. A cuboid has dimensions 2.5 m, 1.8 m and 1.2 m. Another cuboid has dimensions 3 m, 1.5 m and 1 m. Which has greater volume and by how much?
7. A cube and a cuboid both have volume 216 cm^3 . The cube has side 6 cm. If the cuboid is 9 cm long and 4 cm wide, find its height.
8. Challenge: A rectangular tank has volume 3,600 L. Its length is 2.5 m and width is 1.2 m. Find its depth in metres.

Answer Key — 4: Missing Dimensions & Volume Reasoning

1. 12 cm.
2. 10 cm.
3. 16 cm.
4. 5 m.
5. 10 cm.
6. First: 5.4 m^3 ; second: 4.5 m^3 ; first by 0.9 m^3 .
7. 6 cm.
8. 1.2 m.

Teacher note: Accept equivalent correct methods and clearly shown working.

Worksheet 5: Volume, Capacity & Practical Applications

Show your working. Check that all measurements use compatible units before calculating.

1. A room is $6\text{ m} \times 4\text{ m} \times 3\text{ m}$. What is its volume of air?
2. A carton has internal dimensions $30\text{ cm} \times 20\text{ cm} \times 15\text{ cm}$. How many 500 cm^3 blocks could fit by volume alone?
3. A water tank is $1.5\text{ m} \times 1.2\text{ m} \times 1\text{ m}$. What is its capacity in litres?
4. A cube-shaped gift box has side 20 cm . Find its volume in cm^3 and litres.
5. A factory produces $2,400\text{ L}$ of liquid. It fills containers of 750 mL . How many full containers can be filled?
6. A truck compartment measures $5\text{ m} \times 2.4\text{ m} \times 2\text{ m}$. Find its volume in m^3 .
7. A tank is filled to 85% of its $2,000\text{ L}$ capacity. How many litres are in it?
8. Challenge: A tank is $3\text{ m} \times 2\text{ m} \times 1.5\text{ m}$. It is filled to 70% capacity. How many litres of water does it contain?

Answer Key — 5: Volume, Capacity & Practical Applications

1. 72 m^3 .
2. 18 blocks by volume alone.
3. 1,800 L.
4. $8,000 \text{ cm}^3 = 8 \text{ L}$.
5. 3,200 containers.
6. 24 m^3 .
7. 1,700 L.
8. 6,300 L.

Teacher note: Accept equivalent correct methods and clearly shown working.

Worksheet 6: Volume & Capacity Challenge

Show your working. Check that all measurements use compatible units before calculating.

1. A cuboid has volume $2,880 \text{ cm}^3$. Its length is 20 cm and width is 12 cm. Find its height.
2. A tank measures $4 \text{ m} \times 2.5 \text{ m} \times 1.8 \text{ m}$. It is filled to 75% capacity. How many litres of water are in it?
3. A cube has side 15 cm. How many such cubes would be needed to have a combined volume of $13,500 \text{ cm}^3$?
4. A water tank holds 6,500 L. It loses 125 L per day for 8 days and then receives 900 L. How much water remains if it starts full?
5. A box has volume $3,600 \text{ cm}^3$. Its base measures $30 \text{ cm} \times 12 \text{ cm}$. Find its height.
6. A rectangular pool is $18 \text{ m} \times 7 \text{ m} \times 1.5 \text{ m}$. A pump removes 315 L per minute. How long would it take to empty the pool?
7. A container holds 9 L. It is filled using 375 mL cups. How many full cups are needed?
8. Challenge: A manufacturer has 1.2 m^3 of material. Each product requires $15,000 \text{ cm}^3$. How many complete products can be made and how much material remains?

Answer Key — 6: Volume & Capacity Challenge

1. 12 cm.
2. 13,500 L.
3. 4 cubes.
4. 6,400 L.
5. 10 cm.
6. 12 hours.
7. 24 full cups.
8. 80 complete products; 0 m³ remains.

Teacher note: Accept equivalent correct methods and clearly shown working.