

Volume of cubes and cuboids

CURRICULUM ALIGNMENT

MEA.MSR.4a

determine and calculate units of measurement in fractional and/or decimal form to solve practical problems.

INTERACTIVES [Shape Measurer · display, explore](#)

WHAT THIS LESSON TEACHES

Volume is the amount of space a solid fills, measured in cubic units by counting the unit cubes that fill the shape.

→ A 3 cm cube holds 27 cm^3 .

→ A $5 \text{ cm} \times 3 \text{ cm} \times 2 \text{ cm}$ box holds 30 cm^3 .

MODEL THIS ON THE BOARD

FINDING THE VOLUME OF A CUBOID

- 1 Count the cubes along the length, breadth and height.
- 2 Multiply length $\times$ breadth $\times$ height to get the total number of unit cubes.
- 3 Write the answer with the unit cm^3 .

ANSWER KEY

b) 24

c) 72

Q1: 12 cm^3

Q2: 40 cm^3

Q3: 30 cm^3

Q4: 64 cm^3

a) Always : Length times breadth times height always gives the number of unit cubes.

b) Always : A cube is a cuboid with equal edges, so the volumes match.

c) Never : Volume = base area $\times$ height = $15 \times 4 = 60 \text{ cm}^3$.

d) Never : They can have different heights so the volumes are not always equal.

EXTENSION SHEET · STRETCH ANSWERS

S1: 46.464 m^3

S2: 48.951 m^3

S3: 22.2 m^3

S4: 1960 cm^3

S5: 792 cm^3