Max’s Magnificent Volume Adventures

Learning objective: To calculate the volume of cuboids and solve problems involving units of measure.

Read each question carefully. Show your working out clearly, as marks are awarded for your method. Remember to include the correct units (cm³ or m³) in your final answers.

Word bank: Volume · Cuboid · Length · Width · Height · Cubic centimetres · Formula · Capacity

1. Max is building a tower for his books. The base of the tower is a cuboid measuring 5cm in length, 4cm in width, and 3cm in height. What is the total volume of the cuboid? (2 marks)

2. A wooden storage crate has a length of 2m, a width of 3m, and a height of 2m. Calculate the volume of the crate in cubic metres (m³). (2 marks)

3. A small gift box has a volume of 48cm³. If the length is 6cm and the width is 4cm, what must the height of the box be? (3 marks)

4. Max has two boxes. Box A is 10cm x 2cm x 5cm. Box B is 8cm x 8cm x 2cm. Which box has the larger volume, and by how much? (3 marks)

5. A container costs £1.50 per 100cm³ of capacity. If a container measures 10cm x 10cm x 10cm, how much will it cost to fill? (3 marks)

Draw: Draw a cuboid with a length of 4cm and a width of 2cm. Label the dimensions and write the calculation required to find its volume if the height were 3cm.

Extension challenge: If you doubled every dimension (length, width, and height) of a 2cm x 2cm x 2cm cube, how many times larger would the new volume be compared to the original? Explain your reasoning.