Year 6 Maths Assessment: Mastering Volume

Learning objective: To calculate the volume of cubes and cuboids using standard units, and to solve problems involving volume.

Read each question carefully. Show your working out in the space provided. Remember to include the correct units of measurement in your final answers. You have 30 minutes to complete this assessment.

Max the monkey is busy organising his collection of wooden building blocks. He needs to pack them into storage crates to keep his workshop tidy. Each wooden block is a cube measuring 1cm by 1cm by 1cm.

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

1. Max has a small box that is 4cm long, 3cm wide, and 2cm high. What is the volume of this box in cubic centimetres (cm³)? (2 marks)

2. A larger crate has a volume of 60cm³. If the base of the crate is 5cm long and 3cm wide, what is the height of the crate? (3 marks)

3. Max wants to buy a new storage shelf. The shelf space is 10cm long, 10cm wide, and 10cm high. Calculate the total volume of the shelf space. How many 1cm³ blocks can fit inside? (3 marks)

4. If Max replaces his 1cm³ blocks with larger blocks that have a volume of 8cm³ each, how many of these larger blocks would fit into a container with a total volume of 72cm³? (4 marks)

5. Max is selling sets of blocks. A set of 20 blocks costs £5.00. He wants to sell 100 blocks. If the price remains proportional, how much will 100 blocks cost? (3 marks)

6. Max is designing a special display case. He needs the case to hold exactly 120cm³ of blocks. Write a plan explaining two different sets of dimensions (length, width, and height) that would result in a volume of 120cm³. Explain your reasoning using the volume formula. (5 marks)

7. True or False: A cuboid with dimensions 2cm x 6cm x 2cm has the same volume as a cube with a side length of 3cm. Show your calculations. (5 marks)

Draw: Draw a cuboid with a length of 5cm, a width of 2cm, and a height of 3cm. Label the dimensions clearly on your diagram.

Extension challenge: Total: /25