

Max's Magnificent Volume Investigation

Learning objective: To calculate the volume of cubes and cuboids using the formula: length $\times$ width $\times$ height.

Help Max the monkey solve his storage puzzles! Use the formula Volume = length $\times$ width $\times$ height to calculate the space inside these containers. Remember to include the correct unit of measurement (cm^3) in your answers. Show your working out clearly in the space provided.

Word bank: Volume · Cuboid · Length · Width · Height · Centimetres cubed · Formula · Capacity

1. The Banana Box: Max has a box that is 5cm long, 4cm wide, and 3cm high. Calculate the volume of this box. Show your calculation. (2 marks)

2. The Puzzle Cube: Max has a perfectly square cube with edges measuring 6cm each. What is the total volume of this cube? (2 marks)

3. The Jungle Trunk: A large storage trunk has a volume of 120cm^3 . If the base area (length $\times$ width) is 30cm^2 , what is the height of the trunk? (3 marks)

4. Max finds a mystery box with a volume of 200cm^3 . If the height is 5cm and the width is 4cm, what must the length be? (3 marks)

5. Reasoning: If you double the length of a cuboid but keep the width and height the same, what happens to the total volume? Explain your answer. (2 marks)

Extension challenge: Design your own cuboid storage container on squared paper. Write down the dimensions you chose and calculate its volume in cm^3 .