

Max's Magnificent Volume Challenge

Learning objective: To estimate and calculate the volume of cubes and cuboids by counting unit cubes or using the formula (length $\times$ width $\times$ height).

Read each question carefully. Max the monkey needs your help to organise his jungle supplies. Show your working out clearly.

Word bank: Volume · Cubic centimetres · cm^3 · Length · Width · Height · Estimate · Capacity

1. Max has a small wooden box for his fruit. It is 3cm long, 2cm wide, and 2cm high. How many 1cm^3 cubes can fit inside the box? What is the total volume? (2 marks)

2. Zara is painting a rectangular crate. The crate measures 5cm by 4cm by 3cm. Calculate the volume of the crate in cm^3 . (2 marks)

3. A storage container has a volume of 24cm^3 . If the length is 4cm and the width is 3cm, what must the height of the container be? (2 marks)

4. Kit has two stacks of blocks. Stack A is 4cm x 4cm x 4cm. Stack B is 6cm x 3cm x 2cm. Which stack has the larger volume? Explain your answer. (3 marks)

5. Max wants to buy a glass tank for his collection of shiny pebbles. The shop sells a tank for £12.50 that holds 100cm^3 of pebbles. If Max has £20.00, how much change will he get, and what is the volume of the tank? (2 marks)

Draw: Draw a cuboid that is 4cm long, 2cm wide, and 3cm high using isometric dot paper or square grid paper to show the individual unit cubes.



Extension challenge: If you doubled the length, width, and height of a 2cm x 2cm x 2cm cube, would the volume also double? Calculate the volume of both the original cube and the new larger cube to prove your answer.