Class 5 Maths Assessment: Exploring Cube Numbers

Learning objective: To recognise and use cube numbers and the notation for cubed (^{3}), and to calculate cube numbers up to 10^3.

Read each question carefully. Max the monkey is here to help you think through the puzzles! Show all your working out to gain full marks. You have 25 minutes to complete this assessment.

Max the monkey is building a giant tower out of wooden blocks. He has discovered that when he makes a shape where the length, width, and height are all the same, he is creating a cube! Max calls these 'special numbers' because they represent the total number of blocks needed to build a perfect cube.

Word bank: Cube number · Product · Multiply · Base · Exponent · Volume · Three-dimensional

1. Max builds a cube with a side length of 2. Write the calculation for 2 cubed (2^3) and solve it. (2 marks)

2. List the first five cube numbers starting from 1^3. (2 marks)

3. True or False: 27 is a cube number. Explain your reasoning using a calculation. (3 marks)

4. Max has 64 blocks. Can he build a perfect cube with these blocks? Show your working out. (4 marks)

5. Calculate the value of $5^3 + 2^3$. (4 marks)

6. Max wants to buy special display cases for his cube collection. Each small case costs £3. If Max has 4 cubed (4^3) cubes to display, how much will it cost in total to buy cases for all of them? (5 marks)

7. Compare a square number and a cube number. How are they different in how they are calculated? (5 marks)

Draw: Draw a 3x3x3 cube. Label the length, width, and height with the number 3. Write the total number of blocks inside the cube.

Extension challenge: Total: /25