

Max's Cube Number Construction Challenge

Learning objective: To recognise and calculate cube numbers up to 10 cubed and understand the relationship between a number and its cube.

Max the monkey is building a giant tower out of wooden blocks. He loves to create perfect cubes! A cube number is the result of multiplying a whole number by itself three times (e.g., $2 \times 2 \times 2 = 8$). Look at the list of numbers below and help Max sort them into his 'Cube Number' crate or his 'Not a Cube' basket. Then, complete the calculation challenges to help him finish his structure.

Word bank: 1 · 8 · 27 · 64 · 125 · 216 · 343 · 512 · 729 · 1000

1. Max has a pile of numbers: 4, 8, 16, 27, 50, 64. Identify which of these are cube numbers and write the multiplication calculation for each one. (3 marks)

2. Max wants to build a cube that is 5 blocks long, 5 blocks wide, and 5 blocks high. How many blocks does he need in total? Show your working out. (2 marks)

3. True or False: 100 is a cube number. Explain how you know using your knowledge of multiplication. (2 marks)

4. If Max has a cube made of 27 smaller blocks, what is the length of one side of the large cube? (1 mark)

5. Calculate the value of 6 cubed (6^3). (1 mark)

Draw: Draw a 3x3x3 cube made of smaller individual blocks. Label the height, width, and depth to show why this is called a 'cube number'.



Extension challenge: Max found a box of 1,000 blocks. If he uses all of them to build one giant cube, how many blocks long, wide, and high will his cube be? Write the number sentence to prove your answer.