

A Question about Cubes for Year 6 Maths Fans from Nick!

Imagine lots of cubes of different sizes. For any cube of course, each of the sides are the same length but each cube has sides of a different length.

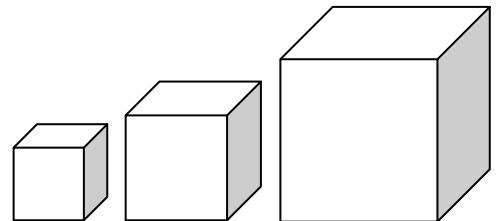
To calculate the volume you multiply the length x width x height. This is easy for a cube because the three numbers are the same.

Eg: What is the volume and the total surface area of a cube which has 3cm long sides?

$$\text{Volume} = 3 \times 3 \times 3 = 27 \text{ cm}^3$$

$$\text{Area of one face} = 3 \times 3 = 9 \text{ cm}^2$$

$$\text{Total surface area for all 6 faces} = 9 \times 6 = 54 \text{ cm}^2$$



Copy and complete this table:

Length of one side (cm)	Total surface area (cm ²)	Volume of cube (cm ³)
1		1
2	24	
3		27
4		
5		125
6		
7	294	

Q: For the cubes with sides less than or equal to 5cm, what do you notice about the size of the number you get for the area compared to the volume for each cube? Which is smaller, the number for the area or the number for the volume?

Q: What do you notice about the size of the numbers you get for the area and volume of the cube with a side length of 6cm?

Q: What do you notice about the size of the numbers you get for the area and volume of the cube with a side length of 7cm or greater?

Science Question: heat escapes from the surface of an object. Imagine two very hot blocks of metal, one is large, one is small. Which would cool down faster? The large one or the small one?

Science Question: Why is it helpful to a polar bear to be so large?

Science Question: why do elephants (which are very large) have such large flappy ears?