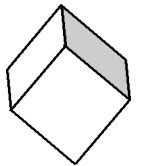
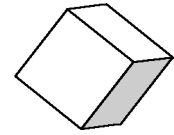


# Cubic Crazy



Suppose all of the surface area of the large cubes you have been given is painted blue. How many small cubes would have 3 faces painted, 2 faces painted, 1 face painted, no faces painted?

Record your results in the following table.

Size Of cube	Number of faces painted				Total number of small cubes needed
	3	2	1	0	
2x2x2	8	0	0	0	8
3x3x3		12			
4x4x4			24		
5x5x5				27	
6x6x6					216

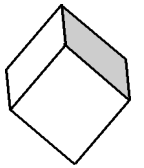
Without using any cubes can you complete the table for a 10x10x10 cube? Show your workings below.

10x10x10					
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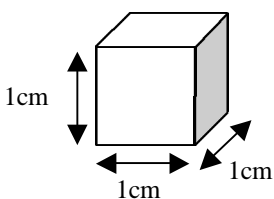
Can you explain why there are always 8 small cubes with 3 painted faces no matter how big your large cube is?

What do you notice about the number of small cubes with 2 painted faces as the large cube increases in size?

Is there a relationship between the number of faces on any cube and the number of small cubes with one painted face? Show your working and describe what you find.



Each small cube represents 1 Cubic Centimetre in volume. Using this information complete the following table to show the volume of each of the large cubes.



Size of cube	Volume
2x2x2	
3x3x3	
4x4x4	
5x5x5	
6x6x6	
10x10x10	

Describe how you worked out the volume of the cubes?