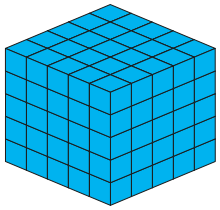
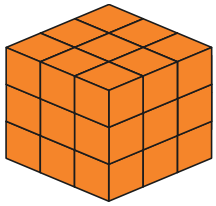
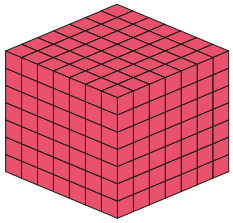
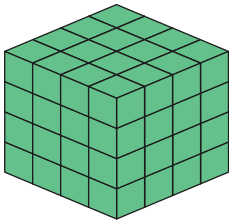
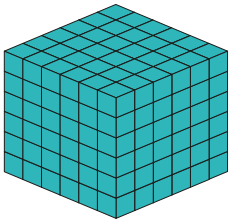
1) Complete the table by writing the cube numbers shown by each representation. In the blank boxes, use the <, > and = symbols to compare the numbers.

$2 \times 2 \times 2$				6^3
		4^3		$1 \times 1 \times 1$
8^3				5^3
$9 \times 9 \times 9$		4^3		
		$9 \times 9 \times 9$		10^3

1) Look at this Carroll diagram:

	Odd	Even
Cube Number	111, 216	512, 16
Not a Cube Number	27, 343, 18	36, 12, 64

a) Ben and Sophia have been asked to sort a group of numbers into the correct places in the Carroll diagram. Circle any numbers which they have put in the wrong place and show where these numbers should be placed.

b) Ben and Sophia must decide whether this statement is true or false.

Cubes of even numbers are always even and cubes of odd numbers are always odd.

Explain whether you think the statement is true or false. Then, prove it by adding 5 more cube numbers to the Carroll diagram in the correct places.

2) Is this statement always, sometimes or never true?
The last digit of a cube number is the same as the last digit of its cube.

1) Read the statements carefully to help you work out which cube number is represented by each of the letters.

A	B	C	D	E

All of these numbers are cube numbers.

The greatest number here is 6^3.

A multiplied by itself equals B.

The digit sum of E is equal to A.

The 2 greatest cube numbers are next to each other.

3 of these cube numbers are even.

3^3 lies between the only 2 numbers containing a 6 digit.

2) Investigate what is the smallest cube number that is the sum of 3 different cube numbers.

3) Investigate if there are there any other cube numbers, less than 10^3, which are the sum of 3 different cube numbers.