Y7 Maths Knowledge Organiser Topic 1: Types of numbers

What must I be able to do?	Key vocabulary	
☐ Understand and use the following types of numbers: ☐ Factors and multiples ➢ Sparx M322, M823, Q945 ☐ Prime numbers up to 100 ➢ Sparx M322 ☐ Square numbers up to 15^2 ☐ Cube numbers up to 6^3 ☐ Square roots ☐ Trianglular numbers	**Factor**	A number that divides exactly into another number, e.g. 5 divides into 20 without remainder, so 5 is a factor of 20.
	Multiple	Numbers that appear in times tables are multiples. e.g. multiples of 3 are all in the 3 times table.
	Prime	A number that can only be divided by itself and 1. They have exactly 2 factors. e.g. 5 only has two factors (i.e. 5 = 1 x 5) so 5 is prime.
	Square	The value when a number is multiplied by itself, eg 6 x 6 = 36 so 36 is a square number. We can write $6^2 = 36$
	Cube	The value when a number is multiplied by itself twice e.g. 2 x 2 x 2 = $2^3 = 8$
	Square Root	A square root of a number is a value that, when multiplied by itself, gives the number e.g. the square root of 25 is 5 because 5 x 5 = 25.

Factors

Factors of a number always occur in pairs. Each pair multiply together to make the number in question

e.g. Factors of 20

1 x 20 = 20 2 x 10 = 20 4 x 5 = 20

So factors of 20 are, 1, 2, 4, 5, 10, 20

Square and cube numbers

The result of multiplying a number by itself.

Square numbers	Cube numbers
1 x 1 = 1^2 = 1	1 x 1 x 1 = 1^3 = 1
2 x 2 = 2^2 = 4	2 x 2 x 2 = 2^3 = 8
3 x 3 = 3^2 = 9	3 x 3 x 3 = 3^3 = 27
4 x 4 = 4^2 = 16	4 x 4 x 4 = 4^3 = 64
5 x 5 = 5^2 = 25	5 x 5 x 5 = 5^3 = 125
6 x 6 = 6^2 = 36	6 x 6 x 6 = 6^3 = 216
7 x 7 = 7^2 = 49	
8 x 8 = 8^2 = 64	
9 x 9 = 9^2 = 81	
10 x 10 = 10^2 = 100	
11 x 11 = 11^2 = 121	
12 x 12 = 12^2 = 144	
13 x 13 = 13^2 = 169	
14 x 14 = 14^2 = 196	15 x 15 = 15^2 = 225

Each square number can be represented as a square

Multiples

You get a multiple of a number when you multiply it by another positive integer

e.g The first five multiples of 6 are 6, 12, 18, 24, 30

Prime Numbers

A prime number has exactly 2 factors, 1 and the number itself. There is only one even prime number which is the number 2.

All the prime numbers smaller than 100 are:

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97

Square roots

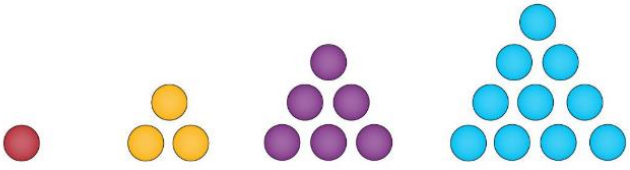
Sqaure rooting a number is the opposite of squaring. A square root symbol looks like an odd tick

As 6 x 6 = 36, that means that the square root of 36 is 6.

$\sqrt{36} = 6$ The square root of any square number is an integer

Triangular Numbers

Triangular numbers can be represented as triangles.



Each number increases by 1 more than last time so the next few are (+5) 15, (+6) 21, (+7) 28, (+8) 36, (+9) 45 and (+10) 55