**Number Structure**

***Prime numbers***: numbers with only two factors- 1 & the number itself. They are useful in that they cannot be given as answers to 2 or more times tables e.g. 9 x 2 cannot equal 19 because 19 is a prime. In general 0 & 1 are not considered prime numbers.

The **Sieve of Eratosthenes** (a mathematician over 2000 years ago) can be used to find the primes between 1 & 100. Eratosthenes’s sieve involved the following method:

1 2 3 4 5 6 7 8 9 10

11 12 13 14 15 16 17 18 19 20

21 22 23 24 25 26 27 28 29 30

31 32 33 34 35 36 37 38 39 40

41 42 43 44 45 46 47 48 49 50

51 52 53 54 55 56 57 58 59 60

60 61 62 63 64 65 67 68 69 70

71 72 73 74 75 76 77 78 79 80

81 82 83 84 85 86 87 88 89 90

91 92 93 94 95 96 97 98 99 100

1. Cross out all the multiples of 2 (except 2) with a / (Note that this also eliminates the multiples of 4 & 8.)
2. Cross out all the multiples of 3(except 3) with a \ (Note that all the numbers with x are multiples of 6.)
3. Cross out all the multiples of 5 (except 5) with a | (Note that the multiples of 10, being even, have already been crossed out.)
4. Cross out all the multiples of 7 (except 7) with a - (Note that all the numbers with a + are multiples of 5 & 7 e.g. 35 & 70.)
5. Put a triangle around the number 1 because it is a special case.

Any number which is not a prime number is called a ***composite number.*** Above, the composite (non prime) numbers have been sieved out, and only the prime numbers remain.