# Maths 'Must Haves'

## Maths Must Haves KS1

<u>Year 1</u>
- Count in ones to 100, forwards and backwards
- Count in multiples of 2s, 5s and 10s to 100
- Identify one more and one less than any 2 digit number
- Read and write numbers to 100
- Recall doubles to 10+10 and the corresponding halves
- Begin to know addition and subtraction number bonds to 20
- Know ten more/less than any number to 100
- Know the place value for two digit numbers and be able to partition them

<u>Year 2</u>
- Count in steps of 2, 3, 5 and 10s from any number forwards and backwards
- Know and use addition and subtraction number bonds to 20
- Use known number bonds to support number bonds to 100
- Recall the multiplication facts for the 2, 5 and 10 times tables and associated division facts
- Compare and order numbers up to 100
- Recognise odd and even numbers
- Recognise and use the inverse for addition and subtraction

## Maths Must Haves KS2

<u>Year 3</u>
- Count from 0 in multiples of 4, 8, 50 and 100
- Find multiples of 10 or 100 more or less than a given number
- Recognise the place value of each digit in a three-digit number
- Read and write numbers up to 1000 in numerals and in words
- Compare and order numbers up to 1000
- Add and subtract ones, tens or hundreds from three-digit numbers mentally
- Add and subtract numbers with up to three digits, using the compact vertical method
- Recall and use multiplication and division facts for the 3, 4 and 8 times tables
- Multiply two-digit numbers by one-digit numbers using the grid method and then progressing to short multiplication
- To use a number line or chunking to perform division calculations
- Add and subtract fractions with the same denominator within one whole e.g. $\frac{5}{8} + \frac{1}{8}$
- Measure, compare, add and subtract lengths (m/cm/mm), mass (kg/g) and volume/capacity (l/ml)

## Year 4

- Count in multiples of 6, 7, 9, 25 and 1000
- Find 1000 more or less that a given number
- Count backwards through zero to include negative numbers
- Recognise the place value of each digit in a four-digit number
- Order and compare numbers beyond 1000
- Round any number to the nearest 10, 100 or 1000
- Add and subtract numbers with up to four digits, using the compact vertical method
- Recall multiplication and division facts for times tables up to 12 x 12
- Multiply two-digit and three-digit numbers by one-digit numbers using short multiplication
- Use short division (bus stop) to divide 2 or 3-digit numbers by a 1-digit number
- Recognise and write decimal equivalents of any number of tenths or hundredths
- Recognise and write the decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$
- Find the effect of dividing a one or two-digit number by 10 and 100 and identify the value of the digits in the answer
- Round one decimal place decimals to the nearest whole number
- Compare numbers with the same number of decimal places, up to two
- Convert between different units of measure e.g. km to m, hours to minutes

## Year 5

- Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
- Add and subtract whole numbers with more than four digits, using the compact vertical method
- Identify multiples and factors, including factor pairs and common factors
- Know and use the vocabulary of prime numbers.
- Multiply numbers up to 4 digits by a one or two-digit number using short multiplication and use long multiplication for two-digit numbers
- Divide numbers up to 4 digits by a one-digit number using the method of short division and interpret remainders based on the context *(incl. decimals)*
- Recognise and use square ($^2$) numbers and cube ($^3$) numbers
- Identify, name and write equivalent fractions of a given fraction
- Reduce fractions to their simplest form
- Recognise mixed numbers and improper fractions.
- Read and write decimal numbers as fractions
- Know percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25
- Convert between different units of metric measure e.g. mm to cm, cm to m, m to km, g to kg, ml to l
- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints

- Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
- Multiply multi-digit numbers up to four digits by a two-digit whole number using long multiplication
- Divide numbers up to four digits by a two-digit whole number using the formal written method of long division (or short division where appropriate), interpreting remainders according to the context
- Perform mental calculations with mixed operations and large numbers
- Identify common factors, common multiples and prime numbers
- Compare and order fractions
- Add and subtract fractions and mixed numbers, using the concept of equivalent fractions
- Multiply simple pairs of proper fractions e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$
- Divide proper fractions by whole numbers e.g. $1/3 \div 2 = 1/6$
- Multiply one-digit numbers with up to two decimal places by whole numbers
- Recall and use equivalences between simple fractions, decimals and percentages
- Convert between miles and kilometres
- Understand the difference between ratio and proportion.
- Work with simple algebraic equations.

# Key Maths Vocabulary

**Partition** – To split a number into smaller parts e.g. 18 = 10 + 8

**Inverse** – To do with the opposite operation e.g. subtraction is the inverse of addition

**Multiples** – A multiple is a number that is in a times table e.g. some of the multiples of 3 are 3, 6, 9 and 12

**Factors** – A factor of a number is a whole number that divides exactly into it e.g. the factors of 12 are 1, 2, 3, 4, 6 and 12

**Prime numbers** – A prime number is a number that can only divide by 1 and itself. Prime numbers only have two factors; the first four prime numbers are 2, 3, 5 and 7

**Square numbers** – You get a square number when you multiply any number by itself

**Cubed numbers** – You get a cubed number when you multiply any number by itself and by itself again e.g. 2 x 2 x 2 = 8, which is a cubed number

**Denominator** – The bottom part of a fraction, the top part is called the numerator

**Equivalent fractions** – Fractions that are worth the same as each other e.g. $\frac{1}{2}$ = 5/10

**Mixed numbers** – A mixed number is made up of a whole number and a fraction

**Improper fractions** – Where the numerator is bigger than the denominator

**Metric** – A measuring system that is based on tens, hundreds and thousands

**Imperial** – A system that used to be the main standard of measuring in the UK

**Ratio** – Compares one amount with another e.g. there are 3 red sweets to 2 green sweets – 3:2

**Proportion** – Compares a part of something with the whole thing e.g. there are 5 sweets and 3 of them are red – 3 in 5 or 3/5 are red