

1. Times Tables

12 x 1 = 12

12 x 2 = 24

12 x 3 = 36

12 x 4 = 48

12 x 5 = 60

12 x 6 = 72

12 x 7 = 84

12 x 8 = 96

12 x 9 = 108

12 x 10 = 120

12 x 11 = 132

12 x 12 = 144

2. Fractions, Decimals and Percentages

A **fraction** is a part of a whole. It is made up of a numerator and a denominator.

The **numerator** is the top number in a fraction. It tells us how many parts we have.

The **denominator** is the bottom number in a fraction. It shows how many parts an item has been split into.

A **decimal** is a part of a whole.

Decimals can be **terminating**, or **recurring**.

Terminating decimals have an end point e.g. 0.64

Recurring decimals do not have an end e.g. 0.33333... would be written as $0.\dot{3}$

Percent is a fraction out of a hundred.

E.g. 15% is $\frac{15}{100}$

% is the symbol used to represent percentages.

Equivalent means the same value. Some key equivalence are:

Tenth = $\frac{1}{10} = 0.1 = 10\%$

Hundredth = $\frac{1}{100} = 0.01 = 1\%$

Fifth = $\frac{1}{5} = 0.2 = 20\%$

Quarter = $\frac{1}{4} = 0.25 = 25\%$

Eighth = $\frac{1}{8} = 0.125 = 12.5\%$

4. Standard Form

The **index** of a number tells you how many times to multiply the number by itself.

The **base** is the number that is being powered.

Standard form is a way of writing really big and really small numbers in the form $x \times 10^n$ where x is between 1 and 10 e.g. 8,000 is written as 8×10^3

Scientific Notation is another word for Standard form. Standard form is used regularly in science to represent numbers e.g. the distance from Earth to sun is 1.5×10^8 km.

The diameter of a Hydrogen atom is 2.5×10^{-11} m

Ordinary Numbers are not written in standard form. e.g. 9.4×10^5 as an ordinary number is 940,000

5. Number Sense 1

One significant figure means have just one leading digit for a number. Leading zero's are not significant.

e.g. the first significant figure in 534 is 5. The first significant figure in 0.000534 is also 5

Estimate is a rough or approximate answer. When we estimate the answer to a calculation every number is rounded to 1 significant figure.

Continuous data is data that can be measured and is quantitative. It has an infinite number of possible values within a selected range e.g. temperature.

Discrete is data can be counted and is also quantitative. e.g. the number of students in a class. There is not an infinite number of possible value within a range.

Credit is money going into a bank account.
Debit is money going out of a bank account.

3. Percentages

A **multiplier** is used in percentages to increase / decrease an amount by multiplying it by a single number.

E.g. to increase an amount by 20% multiply it by the multiplier 1.2

Factors of a number are whole numbers that multiply to make that number.

E.g. 1,2,3 and 6 are factors of 6 because $1 \times 6 = 6$ and $2 \times 3 = 6$

Multiples of a number are found by multiplying that number by an integer.

E.g. **Multiples** of 5 are 5,10,15,20,25,30.....

Profit is when money is gained. Sam bought a car for £3000 and sold it for £4000. He made a £1000 profit ($4000 - 3000 = 1000$)

Loss is when money is lost. Sam bought a car for £3000 and sold it for £2000. He made a £1000 loss ($2000 - 3000 = -1000$)

Interest is the amount of money paid for a loan or an investment.

When we **increase** we add to a value. When we **decrease** a value we subtract. In percentages the **original** amount is the amount before it has been increased / decreased. This process is called reverse percentage.

6. Fractional Thinking

Metric units are units that use powers of ten.

Prefix	Meaning
Milli	$\frac{1}{1000}$

Prefix is a word at the front of another word that changes its meaning

Centi	$\frac{1}{100}$
Deci	$\frac{1}{10}$

Units of length

Millimetre (mm) - thickness of a credit card

Deca	10
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Centimetre (cm) - width a paper clip

Hecto	100
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Metre (m) - width of a school desk

Kilometre (km) - around the length of ten football pitches

Kilo	1000
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Units of weight

Gram (g) - about the weight one paper clip

Kilogram (kg) - weight of a bag of sugar

Units of capacity

Millilitre (ml) - tip of a teaspoon

Litre (L) - approximately two pints of milk