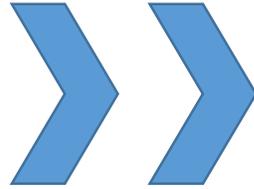# Stage 6 Term 1a: Number

What are we learning about?

In this term we will be starting to build on our number skills and working with even larger numbers, fractions and decimals. We will learn that there are negative numbers below 0. We will also learn that different numbers still have certain things in common. We will solve problems that involve money.

Why are we learning about it?

This will help us to solve problems with larger numbers, small numbers, negative numbers and fractions. We also need to be able to calculate with money everyday and look for the cheapest way to buy things.

What new KNOWLEDGE will I gain?

We will learn how to work with numbers in millions. You will learn about common factors, common multiples and common prime factors. You will also be able to solve more complicated multistage money problems. You will also learn how to +, -, x and ÷ with fractions and carry out calculations with decimals.

How does this build on the SKILLS I already have?

You have extended your understanding of the number system and place value to include decimals and make connections between number Relationships already. You have selected and used appropriate calculation strategies to solve increasingly complex problems.

What new SKILLS will I develop?

You will further extend your understanding of the number system and place value to include decimals, fractions, negative numbers and make connections between number relationships. You will also be able to select and use appropriate calculation strategies to solve increasingly complex problems.

How does this build on the KNOWLEDGE I already have?

We have learnt how to work with numbers up to 1 million and decimals to 3 decimal places. We have also learnt how to round numbers up to 1 million to the nearest 10, 100, 1000, 10000. You learnt before about factors, multiples, primes and prime factors. You were also able to calculate change in money problems.

Stage 6 Term 1b: Number and Algebra

What are we learning about?

In this term we will be starting to build on our number skills and learning how to generalise calculations if you do not know what the number is. We will also learn what the order of calculation is with numbers and letters.

Why are we learning about it?

This will help us to make problems easier to solve.
We use letters within formula everyday in a range of subjects and jobs.

What new KNOWLEDGE will I gain?

We will learn why it useful and possible to use letters instead of numbers.
We will learn what it means by the words expression, terms, variable and formulae.

How does this build on the SKILLS I already have?

We have the skills to work with numbers of every size so far. Now we will look at developing calculations with letters and how we can shorten calculations.

What new SKILLS will I develop?

You will start to develop algebraic skills, working with letters, and recognise why we use these skills in Maths, other subjects and in lots of jobs.
We will learn to recognise the order of calculations and look at patterns in numbers.

How does this build on the KNOWLEDGE I already have?

We have solved problems using the 4 rules add, subtract, multiply and divide. Now we will learn about the rules of calculations if there is more than one calculation.
We will learn to use letters/symbols in calculations and how to work backwards if we know what the answer is.

Stage 6 Term 2a: Statistics and Probability

What are we learning about?

In this term we will learn to read from some other types of graphs and charts. We will also look at how you carry out calculations that can be used to compare groups of data.

Why are we learning about it?

Statistics is the science and, arguably, also the art of **learning** from data. As a subject it is concerned with the collection, analysis, and interpretation of data, as well as the effective communication and presentation of results relying on data.

What new KNOWLEDGE will I gain?

We will learn how to calculate several averages and a measure of spread. Averages will include the mode, median and mean. You will also learn how to read from a pie chart, line graph, different types of bar charts and draw a line graph and bar charts. You will be able to answer questions and solve problems involving charts and graphs.

How does this build on the SKILLS I already have?

You are already able to use language and properties precisely to analyse statistics represented as a simple line graph.

What new SKILLS will I develop?

You will also be able use language and properties precisely to analyse statistics using more advanced graphs and charts and averages and range

How does this build on the KNOWLEDGE I already have?

You have learnt how to read from tables eg timetables and how to complete a table. You have also learnt how to read from a line graph and draw a line graph. You were able to answer questions and solve problems involving tables and graphs.

TOPIC: Stage 6 2b
Geometry & measures

What are we learning about?

We will be learning about the properties and parts of 2d shapes including a circle.
We will also learn how to work out the volume of cubes and cuboids.
We will learn more about how to solve problems when rectangles have the same area or perimeter.
We will also learn more about angle properties within shapes and calculating missing angles.

Why are we learning about it?

The study of **shapes and space** is called "Geometry". This word comes from the ancient Greek and means "measuring the Earth". ...
At school you start learning about simple **shapes**, like triangles, quadrilaterals and circles, and the way they relate to each other and the **space** in and around them.

What new KNOWLEDGE will I gain?

You will learn about the properties and parts of 2d shapes including a circle. You will be able to draw 2d shapes given 1 or 2 sides. We will learn how to calculate the area of a parallelogram and triangle.
You will also learn how to work out the volume of cubes and cuboids and calculate missing sides given the volume. You will learn more about how to solve problems when rectangles have the same area or perimeter. You will learn more about angle properties within shapes and calculating missing angles.

How does this build on the SKILLS I already have?

You have used language and properties to look at 2-D and 3-D shapes.
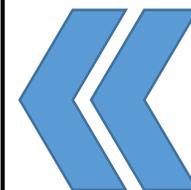You started to develop your mathematical knowledge, in part through solving simple problems.

What new SKILLS will I develop?

You will use language and properties precisely to analyse 2-D and 3-D shapes.
You will develop and use your mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems.

How does this build on the KNOWLEDGE I already have?

You learnt about the perimeter of rectangles and shapes made from rectangles. You also learnt about the area of rectangles and shapes made from rectangles. You were able to recognise several common 3D shapes from a 2d diagram and from a net. You started to learn about volume by counting cubes. You were able to calculate missing angles on a line and about a point.

TOPIC: Stage 6 3a
Ratio, rate and proportion

What are we learning about?

You will learn about what a ratio is and how to write a ratio. We will learn how ratios and fractions are similar and different. We will learn how to simplify and split an amount in a ratio.

You will learn how to calculate different costs of different quantities of things given the cost of several things.

You will also learn which is the best way to buy a quantity of items given various choices.

Why are we learning about it?

Ratios are used to compare values. They tell us how much of one thing there is compared to another. For example, **ratios** can be used to compare the number of girl puppies to boy puppies that were born. A **proportion** is simply a statement that two ratios are equal. **Ratios** allow us to measure and express quantities by making them easier to understand. Different objects use different metric measurements and it is important to be able to convert and compare between them.

What new KNOWLEDGE will I gain?

You will learn how to write a ratio an to simplify a ratio. You will learn how to write an equivalent ratio. If you are given the cost of say 3 items you will be able to work out the cost of 5 of the same items or 7 or 23 of the same items.

You will also be able to work out the cheapest way to purchase a quantity of items giving the cost of different quantities of the item.

You will also be able to order and solve problems relating to metric measures and time units.

How does this build on the SKILLS I already have?

You have selected and use appropriate calculation strategies to solve increasingly complex problems You developed and used your mathematical knowledge to solve problems and evaluating the outcomes, including multi-step problems. You were able to use language and properties precisely to 2-D shape.
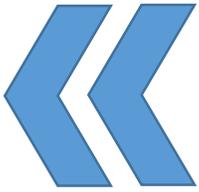
What new SKILLS will I develop?

You will extend their understanding of the number system; make connections between number relationships. You will extend and formalise your knowledge of ratio and proportion in working with measures. You will be able to recognise when the structure of a numerical problem requires additive, multiplicative or proportional reasoning.

How does this build on the KNOWLEDGE I already have?

You learnt how to estimate the weight, length or capacity of an object and recognise which metric unit of measurement would be the most appropriate. Once a measure is chosen you learnt how to convert between equivalent measures and be able to compare measures. You learnt to convert between 12hr an 24 hr clock.

What are we learning about?

You will learn about calculating factions of an amount and solving worded problems that involve fractions and percentages of an amount.

The main new topic involves transforming shapes on a grid by reflecting, translating, rotating and enlarging. Reflecting and translating will be on an axis.

You will be able to enlarge shapes with sloping lines. You will also start to learn about how to work out a scale factor between two shapes.

TOPIC: Stage 6 3b
Number and shape

Why are we learning about it?

Fractions and percentages are really important in everyday life and in many businesses. It is key to have a good understanding of these two areas. Transformations of shapes mean changing the position, orientation or size of a shape. This is used in everyday life to design buildings, clothes and many other objects that we see around us.

What new KNOWLEDGE will I gain?

You will learn how to calculate a fraction of an amount along with percentage of an amount to solve various multistage problems. You will learn how to reflect an object in an axes, rotate a shape by 90, 180 degrees clockwise or anticlockwise about a point on a grid. You will also learn how to translate an object a number of places across and up or down. You will also spend some time enlarging increasingly complicated shapes by a positive whole number scale factor. You will also be looking at using scale to draw and calculate distances.

How does this build on the SKILLS I already have?

You have selected and use appropriate calculation strategies to solve increasingly complex problems You developed and used your mathematical knowledge to solve problems and evaluating the outcomes, including multi-step problems. You were able to use language and properties precisely to 2-D shape.

What new SKILLS will I develop?

You will consolidate you numerical and mathematical capability and extend their understanding of the number system and place value to include fractions. You will extend knowledge of ratio and proportion in working with measures and geometry. You will be able to recognise when the structure of a numerical problem requires additive, multiplicative or proportional reasoning.
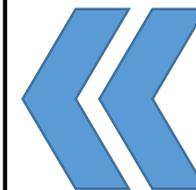
How does this build on the KNOWLEDGE I already have?

You have learnt how to calculate with fractions and to calculate with percentages. You also know how to reflect an object in a horizontal and vertical mirror line.