Year 6 Maths Curriculum

Week	Term 1	Term 2	Term 3
1	**Number and Place Value** Read, write, order and compare numbers up to 1 000 000 and determine the value of each digit Round any whole number to a required degree of accuracy Use negative numbers in context, and calculate intervals across zero Solve number and practical problems that involve all of the above. *Pupils use the whole number system, including saying, reading and writing numbers accurately.*	**Number and Place Value** Read, write, order and compare numbers up to **10 000 000** and determine the value of each digit Round any whole number to a required degree of accuracy Use negative numbers in context, and calculate intervals across zero Solve number and practical problems that involve all of the above. *Pupils use the whole number system, including saying, reading and writing numbers accurately.*	**Number and Place Value** Read, write, order and compare numbers up to **10 000 000** and determine the value of each digit Round any whole number to a required degree of accuracy Use negative numbers in context, and calculate intervals across zero Solve number and practical problems that involve all of the above. *Pupils use the whole number system, including saying, reading and writing numbers accurately.*
2	**Addition** Perform mental calculations, including with large numbers *They undertake mental calculations with increasingly large numbers and more complex calculations.* Solve problems involving addition. *Pupils practise addition, for larger numbers, using the formal written methods of columnar addition (see Mathematics Appendix 1).* Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	**Addition and Subtraction** Perform mental calculations, including with mixed operations and large numbers *They undertake mental calculations with increasingly large numbers and more complex calculations.* Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why *Pupils practise addition and subtraction, for larger numbers, using the formal written methods of columnar addition and subtraction (see Mathematics Appendix 1).*	**Addition and Subtraction** Perform mental calculations, including with mixed operations and large numbers *They undertake mental calculations with increasingly large numbers and more complex calculations.* Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why *Pupils practise addition and subtraction, for larger numbers, using the formal written methods of columnar addition and subtraction (see Mathematics Appendix 1).*
3	**Subtraction** Perform mental calculations, including with large numbers *They undertake mental calculations with increasingly large numbers and more complex calculations.* Solve problems involving subtraction. Use estimation to check answers to calculations and determine, in the context of a	**Geometry – Position and Direction** Describe positions on the full coordinate grid (all four quadrants) Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. *Pupils draw and label a pair of axes in all four quadrants with equal scaling. This extends their knowledge of one quadrant to all*	**Multiplication and Division** Perform mental calculations, including with large numbers *They undertake mental calculations with increasingly large numbers and more complex calculations.* Multiply multi-digit numbers up to **4 digits** by a two-digit whole number using the formal written method of long multiplication Continue with the grid method *Pupils practise multiplication for*

	problem, an appropriate degree of accuracy. *Pupils practise subtraction, for larger numbers, using the formal written methods of columnar subtraction (see Mathematics Appendix 1).*	four quadrants, including the use of negative numbers. *Pupils draw and label rectangles (including squares), parallelograms and rhombuses, specified by coordinates in the four quadrants, predicting missing coordinates using the properties of shapes. These might be expressed algebraically for example, translating vertex (a, b) to (a – 2, b + 3); (a, b) and (a + d, b + d) being opposite vertices of a square of side d.*	*larger numbers, using the formal written methods of short and long multiplication (see Mathematics Appendix 1).* Divide numbers up to 4 digits by a **two-digit** number using the formal written method of short division where appropriate, interpreting remainders according to the context *Pupils practise division for larger numbers, using the formal written methods of short and long division (see Mathematics Appendix 1).*
4	**Multiplication** Perform mental calculations, including with large numbers *They undertake mental calculations with increasingly large numbers and more complex calculations.* *Pupils continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency.* Identify common factors, common multiples and prime numbers *Common factors can be related to finding equivalent fractions.* Multiply multi-digit numbers up **to 3 digits** by a two-digit whole number using the formal written method of long multiplication Continue with the grid method *Pupils practise multiplication for larger numbers, using the formal written methods of short and long multiplication (see Mathematics Appendix 1).*	**Multiplication** Perform mental calculations, including with large numbers *They undertake mental calculations with increasingly large numbers and more complex calculations.* *Pupils continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency.* Identify common factors, common multiples and prime numbers *Common factors can be related to finding equivalent fractions.* Multiply multi-digit numbers up to **4 digits** by a two-digit whole number using the formal written method of long multiplication Continue with the grid method *Pupils practise multiplication for larger numbers, using the formal written methods of short and long multiplication (see Mathematics Appendix 1).*	**Measure** Recognise that shapes with the same areas can have different perimeters and vice versa Recognise when it is possible to use formulae for area and volume of shapes Calculate the area of parallelograms and triangles *They relate the area of rectangles to parallelograms and triangles, for example, by dissection, and calculate their areas, understanding and using the formulae (in words or symbols) to do this.* Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].
5	**Division** Perform mental calculations, including with large numbers *They undertake mental calculations with increasingly large numbers and more complex calculations.* Divide numbers up to **3 digits** by a two-digit whole number	**Division** Perform mental calculations, including with large numbers *They undertake mental calculations with increasingly large numbers and more complex calculations.* Divide numbers up to **4 digits** by a two-digit whole number	**Ratio and Proportion** Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. *Pupils solve problems involving unequal quantities, for example, 'for every egg you need three spoonfuls of flour', '3/5 of the class*

	using the formal written method of long division, alongside the number line and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Divide numbers up to 4 digits by a **one-digit** number using the formal written method of short division where appropriate, interpreting remainders according to the context *Pupils practise division for larger numbers, using the formal written methods of short and long division (see Mathematics Appendix 1).* *Pupils round answers to a specified degree of accuracy, for example, to the nearest 10, 20, 50 etc., but not to a specified number of significant figures*	using the formal written method of long division, alongside the number line and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Divide numbers up to 4 digits by a **two-digit** number using the formal written method of short division where appropriate, interpreting remainders according to the context *Pupils practise division for larger numbers, using the formal written methods of short and long division (see Mathematics Appendix 1).* *Pupils round answers to a specified degree of accuracy, for example, to the nearest 10, 20, 50 etc., but not to a specified number of significant figures*	*are boys'. These problems are the foundation for later formal approaches to ratio and proportion*
6	**Problem Solving** Perform mental calculations, including with mixed operations and large numbers *Pupils continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency.* Use their knowledge of the order of operations to carry out calculations involving the four operations *Pupils practise addition, subtraction, multiplication and division for larger numbers, using the formal written methods of columnar addition and subtraction, short and long multiplication, and short and long division (see Mathematics Appendix 1).* *Pupils explore the order of operations using brackets; for example, 2 + 1 x 3 = 5 and (2 + 1) x 3 = 9.* Solve problems which require answers to be rounded to specified degrees of accuracy *Pupils also develop their skills of rounding and estimating as a means of predicting and checking*	**Geometry – Properties of Shape** Find unknown angles in any triangles, quadrilaterals, and regular polygons Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. *Pupils describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements. These relationships might be expressed algebraically for example, $d = 2 \times r$; $a = 180 - (b + c)$.*	**Problem Solving** Perform mental calculations, including with mixed operations and large numbers *Pupils continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency.* Use their knowledge of the order of operations to carry out calculations involving the four operations *Pupils practise addition, subtraction, multiplication and division for larger numbers, using the formal written methods of columnar addition and subtraction, short and long multiplication, and short and long division (see Mathematics Appendix 1).* *Pupils explore the order of operations using brackets; for example, 2 + 1 x 3 = 5 and (2 + 1) x 3 = 9.* Solve problems which require answers to be rounded to specified degrees of accuracy *Pupils also develop their skills of rounding and estimating as a means of predicting and checking*

	the order of magnitude of their answers to decimal calculations. This includes rounding answers to a specified degree of accuracy and checking the reasonableness of their answers.		*the order of magnitude of their answers to decimal calculations. This includes rounding answers to a specified degree of accuracy and checking the reasonableness of their answers.*
7 8	**Fractions, Decimals and Percentages** Use common factors to simplify fractions; use common multiples to express fractions in the same denomination *They practise calculations with simple fractions and decimal fraction equivalents to aid fluency, including listing equivalent fractions to identify fractions with common denominators.* Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions *Pupils should practise, use and understand the addition and subtraction of fractions with different denominators by identifying equivalent fractions with the same denominator. They should start with fractions where the denominator of one fraction is a multiple of the other (for example, ½ + 1/8 =5/8) and progress to varied and increasingly complex problems.* Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8] *Pupils can explore and make conjectures about converting a simple fraction to a decimal fraction (for example, 3 ÷ 8 = 0.375). For simple fractions with recurring decimal equivalents, pupils learn about rounding the decimal to three decimal places, or other appropriate approximations depending on the context.*	**Fractions, Decimals and Percentages** Compare and order fractions, including fractions > 1 *They practise calculations with simple fractions and decimal fraction equivalents to aid fluency, including listing equivalent fractions to identify fractions with common denominators.* Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example ¼ x ½ = 1/8) Divide proper fractions by whole numbers [e.g, 1/3 /2 = 1/6] *Pupils use their understanding of the relationship between unit fractions and division to work backwards by multiplying a quantity that represents a unit fraction to find the whole quantity (for example, if ¼ of a length is 36cm, then the whole length is 36 × 4 = 144cm).* Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8] *Pupils can explore and make conjectures about converting a simple fraction to a decimal fraction (for example, 3 ÷ 8 = 0.375). For simple fractions with recurring decimal equivalents, pupils learn about rounding the decimal to three decimal places, or other appropriate approximations depending on the context.*	**Fractions, Decimals and Percentages** Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions *Pupils should practise, use and understand the addition and subtraction of fractions with different denominators by identifying equivalent fractions with the same denominator. They should start with fractions where the denominator of one fraction is a multiple of the other (for example, ½ + 1/8 =5/8) and progress to varied and increasingly complex problems.* Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example ¼ x ½ = 1/8) Divide proper fractions by whole numbers [for example, 1/3 / 2 = 1/6 *Pupils use their understanding of the relationship between unit fractions and division to work backwards by multiplying a quantity that represents a unit fraction to find the whole quantity (for example, if ¼ of a length is 36cm, then the whole length is 36 × 4 = 144cm).* Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8] *Pupils can explore and make conjectures about converting a simple fraction to a decimal fraction (for example, 3 ÷ 8 = 0.375). For simple fractions with recurring decimal equivalents, pupils learn about rounding the decimal to three decimal places, or other appropriate approximations depending on the context.*

	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. *Pupils should use a variety of images to support their understanding of multiplication with fractions. This follows earlier work about fractions as operators (fractions of), as numbers, and as equal parts of objects, for example as parts of a rectangle.*	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
9	**Fractions, Decimals and Percentages – Money & Measure** Multiply one-digit numbers with **one decimal** place by whole numbers Use written division methods in cases where the answer has up to **one decimal place** *Pupils multiply and divide numbers with up one decimal place by one-digit and two-digit whole numbers. Pupils multiply decimals by whole numbers, starting with the simplest cases, such as 0.4 × 2 = 0.8, and in practical contexts, such as measures and money.* *Pupils are introduced to the division of decimal numbers by one-digit whole number, initially, in practical contexts involving measures and money. They recognise division calculations as the inverse of multiplication.*	**Fractions, Decimals and Percentages – Money & Measure** Multiply one-digit numbers with up to **two decimal** places by whole numbers Use written division methods in cases where the answer has up to **two decimal places** *Pupils multiply and divide numbers with up to two decimal places by one-digit and two-digit whole numbers. Pupils multiply decimals by whole numbers, starting with the simplest cases, such as 0.4 × 2 = 0.8, and in practical contexts, such as measures and money.* *Pupils are introduced to the division of decimal numbers by one-digit whole number, initially, in practical contexts involving measures and money. They recognise division calculations as the inverse of multiplication.*	**Statistics** Interpret and construct pie charts and line graphs and use these to solve problems Calculate and interpret the mean as an average. *Pupils connect their work on angles, fractions and percentages to the interpretation of pie charts.* *Pupils link percentages or 360° to calculating angles of pie charts.* *Pupils both encounter and draw graphs relating two variables, arising from their own enquiry and in other subjects.* *They should connect conversion from kilometres to miles in measurement to its graphical representation.* *Pupils know when it is appropriate to find the mean of a data set.* *Pupils connect conversion (for example, from kilometres to miles) to a graphical representation as preparation for understanding linear/proportional graphs.*
10	**Measure** Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate Use, read, write and convert between standard units,	**Ratio and Proportion** Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts *Pupils recognise proportionality in contexts when the relations between quantities are in the same*	

	converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places Convert between miles and kilometres *Pupils connect conversion (for example, from kilometres to miles) to a graphical representation as preparation for understanding linear/proportional graphs.* *They know approximate conversions and are able to tell if an answer is sensible.* *Using the number line, pupils use, add and subtract positive and negative integers for measures such as temperature.* *Pupils could be introduced to compound units for speed, such as miles per hour, and apply their knowledge in science or other subjects as appropriate.*	*ratio (for example, similar shapes and recipes).* Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison Solve problems involving similar shapes where the scale factor is known or can be found *Pupils should consolidate their understanding of ratio when comparing quantities, sizes and scale drawings by solving a variety of problems. They might use the notation a:b to record their work.* Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. *Pupils solve problems involving unequal quantities, for example, 'for every egg you need three spoonfuls of flour', '3/5 of the class are boys'. These problems are the foundation for later formal approaches to ratio and proportion.*	
11	**Geometry – Properties of Shape** Draw 2-D shapes using given dimensions and angles Recognise, describe and build simple 3-D shapes, including making nets Compare and classify geometric shapes based on their properties and sizes *Pupils draw shapes and nets accurately, using measuring tools and conventional markings and labels for lines and angles.* *Pupils describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements. These relationships might be expressed algebraically for example, $d = 2 \times r$; $a = 180 - (b + c)$.*	**Statistics** Interpret and construct pie charts and line graphs and use these to solve problems Calculate and interpret the mean as an average. *Pupils connect their work on angles, fractions and percentages to the interpretation of pie charts.* *Pupils link percentages or 360° to calculating angles of pie charts.* *Pupils both encounter and draw graphs relating two variables, arising from their own enquiry and in other subjects.* *They should connect conversion from kilometres to miles in measurement to its graphical representation.* *Pupils know when it is appropriate to find the mean of a data set.*	

		Pupils connect conversion (for example, from kilometres to miles) to a graphical representation as preparation for understanding linear/proportional graphs.	
12	**Algebra** Use simple formulae to: Generate and describe linear number sequences Express missing number problems algebraically Find pairs of numbers that satisfy an equation with two unknowns Enumerate possibilities of combinations of two variables. *Pupils should be introduced to the use of symbols and letters to represent variables and unknowns in mathematical situations that they already understand, such as:* ☐ *missing numbers, lengths, coordinates and angles* ☐ *formulae in mathematics and science* ☐ *equivalent expressions (for example, a + b = b + a)* ☐ *generalisations of number patterns* ☐ *number puzzles (for example, what two numbers can add up to).*	**Algebra** Use simple formulae to: Generate and describe linear number sequences Express missing number problems algebraically Find pairs of numbers that satisfy an equation with two unknowns Enumerate possibilities of combinations of two variables. *Pupils should be introduced to the use of symbols and letters to represent variables and unknowns in mathematical situations that they already understand, such as:* ☐ *missing numbers, lengths, coordinates and angles* ☐ *formulae in mathematics and science* ☐ *equivalent expressions (for example, a + b = b + a)* ☐ *generalisations of number patterns* ☐ *number puzzles (for example, what two numbers can add up to).*	
13	Assessment/Catch up week	Assessment/Catch up week	Assessment/Catch up week