YEAR 6 MATHS PROGRESSION IN SKILLS (N.C. COVERAGE) AND KNOWLEDGE STATUTORY REQUIREMENTS

AUTUMN	SPRING	SUMMER
AUTUMN 1: ***NUMBER – 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 to calculate intervals across zero ***NUMBER – ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION*** ➢ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why ➢ Identify common factors, common multiples and prime numbers ➢ Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) ➢ Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication ➢ 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 ➢ Use their knowledge of the order of operations to carry out calculations involving the four operations ➢ Perform mental calculations, including with mixed operations and large numbers ***NUMBER - FRACTIONS***	**SPRING TERM:** ***RATIO AND PROPORTION*** ➢ Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples ➢ Solve problems involving similar shapes where the scale factor is known or can be found ***ALGEBRA*** ➢ Generate and describe linear number sequences ➢ Express missing number problems algebraically ➢ Use simple formulae ➢ Find pairs of numbers that satisfy an equation with two unknowns ➢ Enumerate possibilities of combinations of two variables ***NUMBER – FRACTIONS (including decimals and percentages)*** ➢ 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 ➢ Solve problems which require answers to be rounded to specified degrees of accuracy ➢ Multiply a number with up to two decimal places by whole numbers ➢ Use written division with answers of up to two decimal places ➢ Associate a fraction with division and calculate decimal fraction equivalents [for example, 0375] for a simple fraction [for example, 3/8] ➢ Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts	**SUMMER TERM:** ***STATISTICS*** ➢ Interpret and construct pie charts and line graphs and use these to solve problems ➢ Calculate and interpret the mean as an average ***GEOMETRY – PROPERTIES OF SHAPES*** ➢ Draw 2D shapes using given dimensions and angles ➢ Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles ➢ Compare and classify geometric shapes based on their properties and sizes and 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, describe and build simple 3D shapes, including making nets ***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 **PROBLEM SOLVING** ➢ Solve number and practical problems that involve all of the above

➢ Use common factors to simplify fractions; use common multiples to express fractions in the same denominator ➢ Compare and order fractions, including fractions > 1 ➢ Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions ➢ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams ➢ Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 x 1/2 = 1/8] ➢ Divide proper fractions by whole numbers (for example, 1/3 ÷ 2 = 1/ 6) ➢ Use written division methods in cases where the answer has up to two decimal places ***MEASURE – IMPERIAL AND METRIC*** ➢ Use, read, write and convert between standard units, 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 ➢ Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate ➢ Convert between miles and kilometres	➢ Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison ***MEASURE – PERMETER, AREA AND VOLUME*** ➢ Recognise that shapes with the same areas can have different perimeters and vice versa ➢ Calculate the area of parallelograms and triangles ➢ Recognise when it is possible to use formulae for area and volume of shapes ➢ Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3]	

YEAR 6 MATHS PROGRESSION IN SKILLS (N.C. COVERAGE) AND KNOWLEDGE STATUTORY REQUIREMENTS

Year 6 Maths Skills

Addition and Subtraction	Number and Place Value	Fractions (Inc Decimals and %)	Algebra	Measurement	Geometry: Properties of shapes	Statistics
MENTAL CALCULATION perform mental calculations, including with mixed operations and large numbers **INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS** use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. **PROBLEM SOLVING -** solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why - Solve problems involving addition, subtraction, multiplication and division	**COUNTING** use negative numbers in context, and calculate intervals across zero **COMPARING NUMBERS** read, write, order and compare numbers up to 10 000 000 and determine the value of each digit *(appears also in Reading and Writing Numbers)* **READING AND WRITING NUMBERS** read, write, order and compare numbers up to 10 000 000 and determine the value of each digit *(appears also in Understanding Place Value)* **UNDERSTANDING PLACE VALUE** -read, write, order and compare numbers up to 10 000 000 and determine the value of each digit *(appears also*	**COMPARING FRACTIONS** compare and order fractions, including fractions >1 **COMPARING DECIMALS** identify the value of each digit in numbers given to three decimal places **ROUNDING INCLUDING DECIMALS** solve problems which require answers to be rounded to specified degrees of accuracy **EQUIVALENCE (inc fractions, decimals and %)** -use common factors to simplify fractions; use common multiples to express fractions in the same denomination	**EQUATIONS** -express missing number problems algebraically - find pairs of numbers that satisfy number sentences involving two unknowns - enumerate all possibilities of combinations of two variables **FORMULAE** -use simple formulae -recognise when it is possible to use formulae for area and volume of shapes *(copied from Measurement)* **SEQUENCES** generate and describe linear number sequences	**COMPARING AND ESTIMATING** calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3), and extending to other units such as mm3 and km3. **MEASURING and CALCULATING** solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate *(appears also in Converting)* -recognise that shapes with the same areas can have different perimeters and vice versa -calculate the area of	**IDENTIFYING SHAPES AND THIER PROPERTIES** - recognise, describe and build simple 3-D shapes, including making nets *(appears also in Drawing and Constructing)* - illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius **DRAWING AND CONSTRUCTING** - draw 2-D shapes using given dimensions and angles - recognise, describe and build simple 3-D shapes, including making nets *(appears also in Identifying Shapes and Their Properties)* **COMPARING AND CLASSIFYING** - compare and classify geometric shapes	**INTERPRETING, CONSTRUCTING AND PRESENTING DATA** interpret and construct pie charts and line graphs and use these to solve problems **SOLVING PROBLEMS** calculate and interpret the mean as an average

	in Reading and Writing Numbers) - identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1 000 where the answers are up to three decimal places *(copied from Fractions)* **ROUNDING** -round any whole number to a required degree of accuracy -solve problems which require answers to be rounded to specified degrees of accuracy *(copied from Fractions)* **PROBLEM SOLVING** solve number and practical problems that involve all of the above	- associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8) - recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. **ADDITION AND SUBTRACTION OF FRACTIONS** - add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions **MULTIPLICATION AND DIVISION OF FRACTIONS** -multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. 1/4 × 1/2 = 1/8)		parallelograms and triangles - calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [e.g. mm3 and km3]. - recognise when it is possible to use formulae for area and volume of shapes **CONVERTING** - use, read, write and convert between standard units, 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 - solve problems involving the calculation and conversion of units of measure, using decimal notation up to	based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons **ANGLES** - recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles Geometry: Position and Direction **POSITION, DIRECTION AND MOVEMENT** -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.	

		-multiply one-digit numbers with up to two decimal places by whole numbers -divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6) MULTIPLICATION AND DIVISION OF DECIMALS - multiply one-digit numbers with up to two decimal places by whole numbers - multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places - identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places - associate a fraction with division and calculate decimal fraction equivalents		three decimal places where appropriate (appears also in Measuring and Calculating) - convert between miles and kilometres		

		(e.g. 0.375) for a simple fraction (e.g. 3/8) **-use written division methods in cases where the answer has up to two decimal places**				