Year Group	# YEAR 6 2023-2024 **Objectives highlighted in yellow are 'Ready to Progress criteria' – children need to be secure on these before moving on** **PROBLEM SOLVING AND REASONING MUST BE INCORPORATED INTO ALL TOPICS FOR ALL CHILDREN.**
Autumn 1	**Number –Place Value** Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit. Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000). **6NPV–1** read, write, order and compare numbers up to 10 000 000 and determine the value of each digit and compose and decompose numbers up to 10 million using standard and nonstandard partitioning **(6PV-2)** Reason about the location of any number up to 10 million, and compose and decompose numbers up to 10 million, using standard and non-standard partitioning.**(6NPV-3)** Solve number and practical problems that involve the above. Round any whole number to a required degree of accuracy **(6NPV-3)** Solve number and practical problems that involve the above. Divide powers of 10, from 1 hundredth, to 10 million, into 2, 4, 5 and 10 equal parts and read scales/ number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts**(6NPV-4)** Use negative numbers in context, and calculate intervals across zero. Solve number and practical problems that involve the above. **Number –Four operations** Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). **6AS/MD–1** Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Identify common factors, common multiples, square numbers, cube numbers and prime numbers. Multiply multi-digit numbers up to four digits by a 2-digit whole number using the formal written method of long multiplication. Divide numbers up to four digits by a 2-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. Divide numbers up to four digits by a 2-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. Solve problems involving addition, subtraction, multiplication and division Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. 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. Use a given additive calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships and place value understanding.**(6AS/MD-2)**

Autumn 2	**Number -Fractions** Use common factors to simplify fractions **(6F-1);** Use common multiples to express fractions in the same denomination **(6F-2)** Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy**(6F–3)** Order fractions, including fractions > 1. Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. Multiply simple pairs of proper fractions, writing its answer in its simplest form Divide proper fractions by whole numbers. Use division methods to find fractions of amounts **Number - Decimals** Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places Solve problems which require answers to be rounded to specified degrees of accuracy Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Multiply 1-digit numbers with up to 2 decimal places by whole numbers Use written division methods in cases where the answer has up to 2 decimal places Solve problems involving addition, subtraction, multiplication and division **Measurement – Converting Units** Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate. 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 3 decimal places. Convert between miles and kilometres
Spring 1	**Number –Percentages** Use common factors to simplify fractions; use common multiples to express fractions in the same denomination Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts Compare and order fractions, including fractions >1 Solve problems involving the calculation of percentages and the use of percentages for comparison **Ratio** Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts 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 Solve problems involving ratio relationships. **6AS/MD–3** **Number - Algebra** Use simple formulae Generate and describe linear number sequences Express missing number problems algebraically Find pairs of numbers that satisfy an equation with two unknowns Solve problems with 2 unknowns **6AS/MD–4**

	Enumerate possibilities of combinations of two variables.
Spring 2	**Measurement – Perimeter, Area and Volume** 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 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 **Geometry – Shape** Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles Draw given angles, and measure them in degrees (°) (Y5) Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles (Y5) 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
Summer 1	**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 **Statistics** Interpret and construct pie charts and line graphs calculate Interpret the mean as an average Use pie charts and line graphs to solve problems **Geometry – Shape** Draw 2-D shapes using given dimensions and angles – 6G-1 Recognise, describe and build simple 3-D shapes, including making nets- 6G-1
Summer 2	**Themed projects, consolidation and problem solving**
Continuous objectives	**The continuous objectives are woven into the teaching continually during the year. Children are given continual and regular opportunities to apply their knowledge to problem solving and reasoning.** Solve number and practical problems that involve number and place value •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 •use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy •solve problems which require answers to be rounded to specified degrees of accuracy •solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts •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 •solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. •solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate

Key Basic skills to be taught continuously through the year	**Count forward and backwards in steps of powers of 10 for any given number up to 10 000 000** **Count forwards and backwards with positive and negative whole number including zero and calculate intervals across zero** **Read, write, order and compare numbers up to 10 000 000 and determine the place value of each digit** **Partition numbers into place value columns** **Partition numbers in different ways** **Round any whole number to a required degree of accuracy** **Use rounding to support estimation and calculation** **Use knowledge of place value to derive new addition and subtraction facts** **Recognise and use square and cube numbers** **Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.** **Establish whether a number up to 100 is prime and recall prime numbers up to 19** **Double any number between 1 and 1000 and find all corresponding halves** **Add and subtract mentally with jottings with increasingly large numbers to aid fluency** **E.g. HthTthTHTU ± TthTHTU TthTHTU ± THTU HTU.t ± TU.t** **Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 giving answers up to 3 decimal places** **Perform mental calculations including with mixed operations** **Count up and down in tenths, hundredths and thousandths in decimals and fractions including bridging zero for example on a number line** **Use their knowledge of the order of operations to carry out calculations involving the four operations** **Use factors to simplify fractions** **Compare and order decimals and fractions including fractions >1** **Calculate simple percentages of amounts** **Recognise mixed numbers and improper fractions and convert from one form to another and write mathematical statements > 1 as a mixed number** **Derive decimal complements to 1 working with decimals up to 3 decimal Places** **Recall and derive equivalences between fractions, decimals and percentages** **Convert between money and measures including time**