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| **Maths at Bowerham** | | | | | | |
| Units of Maths (provisional – these may be subject to change) | | | | | | |
|  | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| Week 1 | Number and Place Value and Decimals | Division | Place Value, Negative Numbers and Number Sequences | Ratio and Proportion  Statistics | Place Value | Calculation |
| Week 2 | Fractions |
| Week 3 | Algebra and Sequences | Fractions, Decimals and Percentages | Coordinates and Geometry | Geometry (2D and 3D Shape) | Ratio and Proportion | Algebra |
| Week 4 | Addition and Subtraction | Geometry and Area | Perimeter, Area and Volume | Statistics | Measurement |
| Week 5 | Multiplication | Statistics | Calculation | Algebra | Geometry | Geometry |
| Week 6 | Assess and Review | Fractions | Assess and Review | Assess and Review |
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| **Topic** | **End of Year Expectation** |
| Number and Place Value | * Count forwards or backwards in steps of integers, decimals, powers of 10 * Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit * Identify the value of each digit to three decimal places * Order and compare numbers including integers, decimals and negative numbers * Find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more/less than a given number * Round any whole number to a required degree of accuracy * Round decimals with two decimal places to the nearest whole number and to one decimal place * Round decimals with three decimal places to the nearest whole number e.g. 327.702 rounds to 328 * Round decimals with three decimal places to the nearest tenth e.g. 327.702 rounds to 327.7 * Round decimals with three decimal places to the nearest hundredth e.g. 327.702 rounds to 327.70 * Round decimals with three decimal places to the nearest whole number or one or two decimal places * Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places * Use negative numbers in context, and calculate intervals across zero * Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal * Solve number and practical problems that involve all of the above |
| Addition and Subtraction | * Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method) * Select a mental strategy appropriate for the numbers in the calculation * Recall and use addition and subtraction facts for 1 (with decimals to two decimal places) * Perform mental calculations including with mixed operations and large numbers and decimals * Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction) * Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy * Use knowledge of the order of operations to carry out calculations * Solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why * Solve problems involving all four operations, including those with missing numbers |
| Multiplication and Division | * Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method) * Identify common factors, common multiples and prime numbers * Use partitioning to double or halve any number * Perform mental calculations, including with mixed operations and large numbers * Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication * Multiply one-digit numbers with up to two decimal places by whole numbers * Divide numbers up to 4 digits by a two-digit whole number using the formal written methods of short or long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context * Use written division methods in cases where the answer has up to two decimal places * Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy * Use knowledge of the order of operations to carry out calculations * Solve problems involving all four operations, including those with missing numbers |
| Number – Fractions | * Compare and order fractions, including fractions > 1 (including on a number line) * Use common factors to simplify fractions; use common multiples to express fractions in the same denomination * Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts * Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375 and 𝟑/𝟖 ) * Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions * Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. 𝟏 /𝟒 x 𝟏/ 𝟐 = 𝟏/ 𝟖 ) * Divide proper fractions by whole numbers (e.g. 𝟏 /𝟑 ÷ 2 = 𝟏 /𝟔 ) * Find simple percentages of amounts * Solve problems involving fractions * Solve problems which require answers to be rounded to specified degrees of accuracy * Solve problems involving the calculation of percentages (e.g. of measures and such as 15% of 260) and the use of percentages for comparison |
| Ration and Proportion | * Solve problems involving the relative sizes of two quantities where missing values can be found using integer multiplication / 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 |
| 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 * Enumerate possibilities of combinations of two variables |
| Geometry – Property of Shapes | * Compare/classify geometric shapes based on the properties and sizes * Draw 2-D shapes using given dimensions and angles * 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 3-D shapes, including making nets * Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles * Find unknown angles in any triangles, quadrilaterals, regular polygons |
| 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 | * Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes) * Interpret and construct pie charts and line graphs and use these to solve problems * Solve comparison, sum and difference problems using information presented in all types of graph * Calculate and interpret the mean as an average |
| Measurement | * Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places * Convert between standard units of length, mass, volume and time using decimal notation to three decimal places * Convert between miles and kilometres * 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 (e.g. mm3 and km3 ) * Calculate differences in temperature, including those that involved a positive and negative temperature * Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate |
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