



Mathematics Long Term Plan

Goldcrest 2023-2024

Autumn

	National Curriculum Objectives	Small Steps
<p>Number: Place Value</p> <p>2 weeks</p>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Numbers to 1,000,000 • Numbers to 10,000,000 • Read and write numbers to 10,000,000 • Powers of 10 • Number line to 10,000,000 • Compare and order any integers • Round any integer • Negative numbers
<p>Number: Addition, Subtraction, Multiplication and Division</p> <p>5 weeks</p>	<ul style="list-style-type: none"> • Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why. • Multiply multi-digit number up to 4 digits by a 2-digit number using the formal written method of long multiplication. • Divide numbers up to 4 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. • Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to the context. • Perform mental calculations, including with mixed operations and large numbers. • Identify common factors, common multiples and prime numbers. 	<ul style="list-style-type: none"> • Add and subtract integers • Common factors • Common multiples • Rules of divisibility • Primes to 100 • Square and cube numbers • Multiply up to a 4-digit number by a 2-digit number • Solve problems with multiplication • Short division • Division using factors • Introduction to long division • Long division with remainders • Solve problems with division • Solve multi-step problems • Order of operations • Mental calculations and estimation • Reason from known facts

	<ul style="list-style-type: none"> • Use their knowledge of the order of operations to carry out calculations involving the four operations. • 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. 	
Number: Fractions A 2 weeks	<ul style="list-style-type: none"> • Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. • Compare and order fractions, including fractions > 1 • Generate and describe linear number sequences (with fractions) • Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions. 	<ul style="list-style-type: none"> • Equivalent fractions and simplifying • Equivalent fractions on a number line • Compare and order (denominator) • Compare and order (numerator) • Add and subtract simple fractions • Add and subtract and two fractions • Add mixed numbers • Subtract mixed numbers • Multi-step problems
Number: Fractions B 2 weeks	<ul style="list-style-type: none"> • Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example $14 \times 12 = 18$] • Divide proper fractions by whole numbers [for example $13 \div 2 = 16$] • Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example 38] • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. 	<ul style="list-style-type: none"> • Multiply fractions by integers • Multiply fractions by fractions • Divide a fraction by an integer • Divide any fraction by an integer • Mixed questions with fractions • Fraction of an amount • Fraction of an amount - find the whole
Measurement: Converting Units 1 week	<ul style="list-style-type: none"> • 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, 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 3dp. 	<ul style="list-style-type: none"> • Metric measures • Convert metric measures • Calculate with metric measures • Miles and kilometres • Imperial measures

	<ul style="list-style-type: none">• Convert between miles and kilometres.	
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Spring

	National Curriculum Objectives	Small Steps
Number: Ratio 2 weeks	<ul style="list-style-type: none"> 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 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. 	<ul style="list-style-type: none"> Add or multiply? Use ratio language Introduction to the ratio symbol Ratio and fractions Scale drawing Use scale factors Similar shapes Ratio problems Proportion problems Recipes
Number: Algebra 2 weeks	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 1-step function machines 2-step function machines Form expressions Substitution Formulae Form equations Solve 1-step equations Solve 2-step equations Find pairs of values Solve problems with two unknowns
Number: Decimals 2 weeks	<ul style="list-style-type: none"> Identify the value of each digit in numbers given to 3 decimal places and multiply numbers by 10, 100 and 1,000 giving answers up to 3 decimal places. Multiply one-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 which require answers to be rounded to specified degrees of accuracy. 	<ul style="list-style-type: none"> Place value within 1 Place value – integers and decimals Round decimals Add and subtract decimals Multiply by 10, 100 and 1,000 Divide by 10, 100 and 1,000 Multiply decimals by integers Divide decimals by integers Multiply and divide decimals in context
Number: Fractions, Decimals and Percentages 2 weeks	<ul style="list-style-type: none"> Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison. Recall and use equivalences between simple fractions, decimals and percentages including in different contexts. 	<ul style="list-style-type: none"> Decimal and fraction equivalents Fractions as division Understand percentages Fractions to percentages Equivalent fractions, decimals and percentages Order fractions, decimals and percentages Percentage of an amount – one step Percentage of an amount – multi-step Percentages – missing values

<p>Measurement: Area, Perimeter and Volume</p> <p>2 weeks</p>	<ul style="list-style-type: none"> • 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 cm^3, m^3 and extending to other units (mm^3, km^3) 	<ul style="list-style-type: none"> • Shapes – same area • Area and perimeter • Area of a triangle – counting squares • Area of a right-angled triangle • Area of any triangle • Area of a parallelogram • Volume – counting cubes • Volume of a cuboid
<p>Statistics</p> <p>2 weeks</p>	<ul style="list-style-type: none"> • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. • Interpret and construct pie charts and line graphs and use these to solve problems. • Calculate the mean as an average. 	<ul style="list-style-type: none"> • Line graphs • Dual bar graphs • Read and interpret pie charts • Pie charts with percentages • Draw pie charts • The mean

Summer

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Geometry: Shape 3 weeks	<ul style="list-style-type: none"> • Draw 2-D shapes using given dimensions and angles. • Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons. • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. 	<ul style="list-style-type: none"> • Measure and classify angles • Calculate angles • Vertically opposite angles • Angles in a triangle • Angles in a triangle – special cases • Angles in a triangle – missing angles • Angles in quadrilaterals • Angles in polygons • Circles • Draw shapes accurately • Nets of 3-D shapes
Geometry: Position and Direction 1 week	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The first quadrant • Read and plot points in four quadrants • Solve problems with coordinates • Translations • Reflections
Themed Projects, consolidation and problem solving 8 weeks		