



Spring Vale Primary School – Mathematics Medium Term Plan

Year 6 – Autumn Term

Unit:	National Curriculum:	Small Steps:
<p>Number: Place Value</p>	<p>Pupils should be taught to:</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>Pupils should be taught to:</p> <ul style="list-style-type: none"> • 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 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 • perform mental calculations, including with mixed operations and large numbers. • identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the four operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why 	<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

	<ul style="list-style-type: none"> • solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. 	<ul style="list-style-type: none"> • Order of operations • Mental calculations and estimation • Reason from known facts
Number: Fractions	<p>Pupils should be taught to:</p> <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 • 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. • divide proper fractions by whole numbers (e.g. $1/3 \div 2 = 1/6$) • associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $3/8$) • 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 • 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 • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. 	<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 any two fractions • Add mixed numbers • Subtract mixed numbers • Multi-step problems
Geometry: Properties of Shape	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • draw 2-D shapes using given dimensions and angles • recognise, describe and build simple 3-D shapes, including making nets 	<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
		<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

	<ul style="list-style-type: none"> • 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 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"> • Angles in a triangle – missing angles • Angles in quadrilaterals • Angles in polygons • Circles • Draw shapes accurately • Nets of 3D shapes
<p>Measurement: Converting Units</p>	<p>Pupils should be taught to:</p> <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 three decimal places • convert between miles and kilometres 	<ul style="list-style-type: none"> • Metric measures • Convert metric measures • Calculate with metric measures • Miles and kilometres • Imperial measures



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Year 6 – Spring Term

Unit:	National Curriculum:	Small Steps:
<p>Number: Decimals</p>	<p>Pupils should be taught to:</p> <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 • 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. $1/4 \times 1/2 = 1/8$) • divide proper fractions by whole numbers (e.g. $1/3 \div 2 = 1/6$) 	<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 1000 • Divide by 10, 100 and 1000 • Multiply decimals by integers • Divide decimals by integers • Multiply and divide decimals in context
<p>Number: Fractions, Decimals and Percentages</p>	<ul style="list-style-type: none"> • associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $3/8$) • 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 • 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 • solve problems which require answers to be rounded to specified degrees of accuracy • 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>Algebra</p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • express missing number problems algebraically • use simple formulae expressed in words • generate and describe linear number sequences • find pairs of numbers that satisfy number sentences involving two unknowns • enumerate all 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
<p>Ratio</p>	<p>Pupils should be taught to:</p> <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 the calculation of percentages (e.g. of measures) 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. 	<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
<p>Measurement: Area, Perimeter and Volume</p>	<p>Pupils should be taught to:</p> <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 three decimal places • convert between miles and kilometres • recognise that shapes with the same areas can have different perimeters and vice versa 	<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

	<ul style="list-style-type: none"> • 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 centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3. 	
Statistics	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average. 	<ul style="list-style-type: none"> • Line graphs • Dual bar charts • Read and interpret pie charts • Pie charts with percentages • Draw pie charts • The mean
Geometry: Position and direction	<p>Pupils should be taught to:</p> <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



Spring Vale Primary School – Mathematics Medium Term Plan

Year 6 – Summer Term

**Assessment - SATs Testing

Unit:	National Curriculum:	Small Steps:
Problem Solving	<ul style="list-style-type: none">• 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, levels of accuracy• solve problems which require answers to be rounded to specified degrees of accuracy• solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate	