

Firle CE School – Long and medium term maths planning 2016-17 year 5 and 6

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number Place Value			Number Addition, subtraction, multiplication and division				Number Fractions		Number Decimals		Number Percentages
Spring	Number Properties		Number Fractions		Statistics	Number Addition, subtraction, multiplication and division		Geometry		Number Ratio	Number Algebra	Measure
Summer	Number Fractions/ decimals/ percentages		Number Addition, subtraction, multiplication and division		SATs	Geometry			Measure		Statistics	

Medium term planning

Term 1 Place Value and addition, subtraction, multiplication and division		
Year 5 objectives	Year 6 objectives	Assessment – performance descriptors
Number- Place Value Counting Count on and back from any given number in powers of 10 e.g 10s, 100s 1000s etc. Count on from any given number in	Number – place value Counting To order numbers to 10 000 000 To order negative numbers To calculate intervals across zero. Comparing numbers	Year 5 <ul style="list-style-type: none"> Understand place value up to 1000000 Count forwards or backwards in steps of powers of 10 for any given number up to 1000000 Understand negative numbers in context Round numbers up to 100000

<p>decimal steps e.g 2.3, 2.6, 2.9, ? Count backwards extending beyond zero into negative numbers</p> <p>Comparing numbers Compare numbers to at least 1000000 including decimals.</p> <p>Reading and writing numbers Read and write (in words and figures) numbers up to 1 000 000 Read Roman numerals to 1000 (M) and recognise years written in Roman numerals</p> <p>Place value Partition decimal numbers Recognise the value of each digit in a decimal number.</p> <p>Rounding Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 Round decimal numbers to the nearest whole unit, tenth and hundredth</p>	<p>To compare numbers up to 10 000 000 (including decimals to 3 decimal places)</p> <p>Reading and writing numbers Read and write numbers to 10 000 000</p> <p>Place Value To know what each digit in a number represents (to 3 decimal places) To multiple and divide numbers by 10,100 and 1000</p> <p>Rounding Round numbers to a required degree of accuracy</p>	<p>Year 6</p> <ul style="list-style-type: none"> • Understand place value; recognise the value of each digit up to 10000000 and be able to read and write them; round, order and compare • Use negative numbers in context and calculate intervals across zero • Round any whole number to a required degree of accuracy • Solve number and practical problems that involve all of the above
<p>Number – addition, subtraction, multiplication and division</p> <p>Mental calculations sums and differences of decimals, e.g. $6.5 + 2.7$, $7.8 - 1.3$ doubles and halves of decimals, e.g. half of 5.6, double 3.4 Count up to find differences e.g. $40870 + \square = 50000$, $7.2 + \square = 8$. Tackle mental additions and subtractions of 3 and 4 digit numbers by using a variety of methods e.g. compensation, partitioning, comparison, rounding.</p> <p>Written methods Use standard written methods for</p>	<p>Number – addition, subtraction, multiplication and division</p> <p>Mental Calculations To recall and use all multiplication tables To undertake mental calculations, including mixed operations and large numbers</p> <p>Written methods To use formal written methods of columnar addition and subtraction. Multiply numbers up to 4 digits by a 2 digit whole number using formal written method. Divide numbers up to 4 digit by a 2 digit whole number using a formal written</p>	<p>Year 5</p> <ul style="list-style-type: none"> • Use column methods for addition and subtraction using numbers with than 4 digits • Estimate answers and use inverse and rounding to check accuracy of calculations • Add and subtract mentally using increasingly large numbers • Solve multi-step problems in different contexts, including decimals, deciding which methods to use and explain reasoning. • Multiply and divide numbers up to 4 digits using written calculations. Interpret remainder in a context • Multiply and divide numbers mentally drawing upon known facts • Multiply and divide whole numbers and decimals by 10, 100 and 1000 <p>Year 6</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 appropriate

<p>addition and subtraction Compare informal and formal methods of calculation (to see the explicit links between them e.g. columnar, expanded methods, a range of mental strategies) Explain the strategies used in written calculations</p> <p>Inverse operations, estimating and checking answers Use rounding to work out approximate answers, considering levels of accuracy.</p> <p>Solving Problems Solve multi-step problems involving addition and subtraction. Explain which methods to use to solve problems and why.</p> <p>Multiplication and division facts Rapid recall of multiplication facts up to 12x12 Use multiplication facts to derive corresponding division facts eg $4 \times 3 = 12$ so $12 \div 3 = 4$ Apply multiplication facts to pairs of multiples of 10 and 100 eg 2×3 20×30 200×300</p> <p>Mental calculations Devise mental strategies to address harder calculations such as $72 \div 3$ Use and apply knowledge of factors to work out harder calculations Multiply and divide numbers, including decimals, by 10, 100 and 1000</p> <p>Written methods To use formal written methods to multiply and divide Use division with remainders and put them in their correct context Use short division as a method for</p>	<p>method including: short and long division methods</p> <p>To interpret remainders as: whole number remainders fractions by rounding interpreting remainders according to the context</p> <p>Inverse operations, estimating and checking answers Use rounding to work out approximate answers, considering levels of accuracy</p> <p>Order of operations use their knowledge of the order of operations to carry out calculations involving the four operations.</p> <p>Solving Problems Solve multi-step problems involving the 4 operations. Explain which methods to use to solve problems and why.</p>	<ul style="list-style-type: none"> • Solve multi-step problems in different contexts, including decimals, deciding which methods to use and explain reasoning • Perform mental calculations, including with mixed operations and large numbers • Use estimation to check answers to calculations and determine, in the context of a problem an appropriate degree of accuracy
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dividing by a single digit number		
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Term 2 – fractions, decimals and percentages

Year 5 objectives	Year 6 objectives	Assessment – performance descriptors
<p>Number – fractions, decimals and percentages</p> <p>Recognising fractions Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>Comparing fractions compare fractions by converting to a common denominator.</p> <p>Comparing decimals read, write, order and compare numbers with up to three decimal places</p> <p>Rounding decimals Round decimals with two decimal places to the nearest whole number and to one decimal place.</p> <p>Equivalence Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths Read and write decimal numbers as fractions. Recognise 1000ths and relate to 100ths and 10ths Recognise the per cent symbol (%) and understand that per cent relates to “number of parts per hundred”,</p>	<p>Number – fractions, decimals and percentages</p> <p>Comparing fractions Compare and order fractions, including fractions >1</p> <p>Comparing decimals Identify the value of each digit in numbers given to three decimal places</p> <p>Rounding solve problems which require answers to be rounded to specified degrees of accuracy</p> <p>Equivalence use common factors to simplify fractions use common multiples to express fractions in the same denomination 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.</p> <p>Multiplying and dividing 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</p>	<p>Year 5</p> <ul style="list-style-type: none"> Identify, name and write equivalent fractions including decimals of a given fraction, represented visually, including tenths and hundredths Round, order and compare decimals to 3.d.p. Recognise % symbol and explain as a fraction with denominator 100 Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25 <p>Year 6</p> <ul style="list-style-type: none"> Simplify, compare, and order fractions, including fractions > 1 Use all 4 operations to solve problems involving fractions and decimals (including mixed numbers) Calculate decimal fraction equivalents e.g. 3/8 = 0.375 To recall and use equivalences between fractions, decimals and percentages Multiply one-digit numbers with up to two decimal places by whole numbers

<p>Write percentages as a fraction with denominator 100 as a decimal fraction</p> <p>Solving problems solve problems involving numbers up to three decimal places solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25.</p>	<p>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. use written division methods in cases where the answer has up to two decimal places</p> <p>Solve Problems involving Fractions Using equivalence between fractions, decimals and percentages in different contexts Develop skills of rounding and estimating to predict magnitude of answers of decimal calculations Rounding answers to a specified degree of accuracy</p>	
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Term 3 – Number properties, fractions and statistics

Year 5 objectives	Year 6 objectives	Assessment – performance descriptors
<p>Number – properties Use multiplication facts to find factors of two-digit numbers and to multiply multiples of 10 and 100 Understand the terms and use the vocabulary of factor, multiple and product</p>	<p>Number – properties Identify common factors, common multiples and prime numbers Estimate and calculate the volumes of cubes and cuboids using cm^3, m^3 and other units To recognise common factors (and how this is linked to equivalent fractions)</p>	<p>Year 5</p> <ul style="list-style-type: none"> To know, use and understand the properties of numbers including – multiples, factors, prime numbers, prime factors and composite numbers Recognise and use square and cube numbers and associated notation Solve problems with all 4 operations involving using knowledge of cube, squares, multiples, scaling and simple rates <p>Year 6</p> <ul style="list-style-type: none"> Identify common factors, common multiples and prime numbers <div style="background-color: yellow; padding: 5px; margin-top: 10px;"> <p>Working at the expected standard in year 6 Test Recognise and use multiples, factors, prime numbers less than 20 and square numbers up to 144</p> </div>

<p>Number – fractions</p> <p>Adding and subtracting fractions Add and subtract fractions with the same denominator and multiples of the same number. Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $2/5 + 4/5 = 6/5 = 11/5$)</p> <p>Multiplying and dividing fractions Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p>	<p>Number – fractions</p> <p>Adding and subtracting fractions Add and subtract fractions with different denominators and mixed numbers (using the concept of equivalent fractions)</p> <p>Multiplying and dividing fractions Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $1/4 \times 1/2 = 1/8$) Multiply one-digit numbers with up to two decimal places by whole numbers divide proper fractions by whole numbers (e.g. $1/3 \div 2 = 1/6$)</p>	<p>Year 5</p> <ul style="list-style-type: none"> • Add and subtract fraction with dominators that are multiples of the same number • Convert mixed number and improper fractions • Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams <p>Year 6</p> <ul style="list-style-type: none"> • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • Multiply (proper fractions) and divide (by whole numbers) and write answers in simplest form <p>Working at the expected standard in year 6 TA The pupil can calculate using fractions, decimals or percentages (e.g. knowing that 7 divided by 21 is the same as $7/21$ and that this is equal to $1/3$; 15% of 60; $112 + 34$; 79 of 108; 0.8×70).</p> <p>Working at the expected standard in year 6 Test Recognise and use equivalent fractions (e.g. $300/900 = 1/3$; $45 = 8 \times 10 = 80/100$) Recognise and use the equivalences between simple fractions, decimals and percentages (e.g. $0.3 = 3/10 = 30\%$) and becoming more confident with calculating other decimal fraction equivalents Find simple fractions and percentages of whole numbers and quantities (e.g. 23 of 90; 20×15; 30% of £60) Add and subtract fractions with the same denominator, using mixed numbers where appropriate for the context (e.g. $115 - 25 = 65 - 25 = 45$) Add and subtract fractions with the same denominator and denominators that are multiples of the same number (e.g. $14 + 58 = 78$) and becoming more confident with more complex fraction calculations.</p>
<p>Statistics</p> <p>Complete. read and interpret tables including timetables. Predict missing facts in tables using patterns within the data To plot points on a line graph, interpret information and present data in line graphs. solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</p>	<p>Statistics</p> <p>To construct a simple pie chart using angles To interpret a pie chart using angles, fractions and percentages To construct a line graph To interpret a line graph To interpret a conversion graph between two variables such kilometres and miles To find a mean of a data set To interpret the mean of a data set To know when to find the mean of a data set</p>	<p>Year 5</p> <ul style="list-style-type: none"> • Solve comparison, sum and difference problems using information presented in a line graph • Complete, read and interpret information in tables, including timetables <p>Year 6</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 <p>Working at the expected standard in year 6 Test Complete, read and interpret information presented in tables and bar charts (e.g. find the difference between two bars showing temperatures, where one is 20°C and the other is 13°C, on a scale labelled in multiples of 5) Interpret line graphs (e.g. begin to find the difference between two temperatures on a line graph, where one is 20°C and the other is 13°C, on a scale labelled in multiples of 5) and simple</p>

		<p>pie charts (e.g. a pie chart cut into eight pieces for favourite fruit using whole numbers for each section)</p> <p>Calculate the mean as an average for simple sets of discrete data (e.g. find the mean mass of three parcels weighing 5 kg, 3 kg and 10 kg)</p>
<p>Number – addition, subtraction, multiplication and division</p> <p>Written methods</p> <p>Use standard written methods for addition and subtraction</p> <p>To use formal written methods to multiply and divide</p> <p>Use division with remainders and put them in their correct context</p> <p>Use short division as a method for dividing by a single digit number</p>	<p>Number – addition, subtraction, multiplication and division</p> <p>Written methods</p> <p>To use formal written methods of columnar addition and subtraction.</p> <p>Multiply numbers up to 4 digits by a 2 digit whole number using formal written method.</p> <p>Divide numbers up to 4 digit by a 2 digit whole number using a formal written method including:</p> <p style="padding-left: 40px;">short and long division methods</p> <p>To interpret remainders as:</p> <p style="padding-left: 40px;">whole number remainders</p> <p style="padding-left: 40px;">fractions</p> <p style="padding-left: 40px;">by rounding</p> <p style="padding-left: 40px;">interpreting remainders according to the context</p>	<p>Year 5</p> <ul style="list-style-type: none"> • Use column methods for addition and subtraction using numbers with than 4 digits • Multiply and divide numbers up to 4 digits using written calculations. Interpret remainder in a context <p>Year 6</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 appropriate <p>Working at the expected standard in year 6 Test</p> <p>Add and subtract whole numbers with up to two significant figures (e.g. $95 + 36$, $5700 - 2900$)</p> <p>Add and subtract whole numbers with more than four digits, using formal written methods where appropriate</p> <p>Use their understanding of place value to multiply and divide whole numbers and decimals with up to two decimal places by 10 or 100 (e.g. $1532 \div 100 = 15.32$, $6.3 \times 100 = 630$)</p> <p>Multiply and divide whole numbers mentally drawing upon multiplication facts up to 12×12 and place value (e.g. 60×70) and begin to use these facts to work with larger numbers</p> <p>Multiply numbers with up to two digits by a two digit number using the formal long multiplication method and becoming more confident with multiplication with larger numbers;</p> <p>Multiply and divide numbers with up to four digits by a single digit number using the formal short division method and become more confident with division using larger numbers including the long division method.</p>

Term 4 – geometry		
Year 5 objectives	Year 6 objectives	Assessment – performance descriptors
<p>Geometry – shapes and angles Identifying shapes and their properties identify 3-D shapes, including cubes and other cuboids, from 2-D representations Drawing and constructing draw given angles, and measure them in degrees (o) Comparing and classifying use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles Angles Recognise the different types of angles – acute $<90^\circ$, obtuse $>90^\circ$ and $<180^\circ$, right angle 90° Estimate, order and compare and order angles Use a protractor to measure angles accurately Calculate the size of an unknown angle from known facts without using a protractor- angles in a triangle $=180^\circ$, angles in a full circle $=360^\circ$, angles in a straight line $=180^\circ$, the 4 angles of a quadrilateral make a full turn, 360</p>	<p>Geometry – shapes and angles Identifying shapes and their properties Use conventional markings and labels for lines and angles To visualise and describe 3D shapes To use nets to construct 3D shapes. To illustrate and name parts of a circle. Drawing and constructing To draw 2D shapes accurately using straight lines and angles Compare and classify To sort and classify geometric shapes based on: their properties sizes unknown angles in any triangle, quadrilateral and regular polygons To explore and identify the properties of a circle and express these algebraically To find unknown angles in any triangles, quadrilaterals, and regular polygons Angles To identify angle sums on triangles, quadrilaterals and regular pentagons To recognise angles around a point To recognise angles on a straight line To recognise vertically opposite angles To find missing angles using properties of shapes Solve problems involving shapes</p>	<p>Year 5</p> <ul style="list-style-type: none"> Identify 3d shapes from 2d representations Estimate, compare, draw and measure angles to the nearest degree Recognise angles in relation to whole and fractions of whole turns. (a quarter, three quarters etc.) Use reasoning to derive unknown information (missing lengths and angles) to solve problems involving 2d shapes Solve problems involving the translation and reflection of shapes <p>Year 6</p> <ul style="list-style-type: none"> 2D/3D Shapes draw accurately <ul style="list-style-type: none"> understand and apply the properties of circles Angles <ul style="list-style-type: none"> use the properties to solve problems Co-ordinates <ul style="list-style-type: none"> use all four quadrants solve problems involving coordinates. <div style="border: 1px solid black; background-color: yellow; padding: 5px; margin-top: 10px;"> <p>Working at the expected standard in year 6 TA The pupil can use mathematical reasoning to find missing angles (e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles). Working at the expected standard in year 6 Test Compare and classify 3–D and 2–D shapes based on their properties (e.g. for 2–D shapes: parallel sides, length of sides, type and size of angles, reflective symmetry, regular / irregular polygons; for 3–D shapes: faces, vertices and edges) Recognise and describe simple 3–D shapes, including using nets and other 2–D representations</p> </div>

	<p>To show how relationships can be expressed algebraically to find unknowns</p> $d = 2 \times r$ $a = 180 - (b+c)$	
Number - ratio	<p>Number – ratio and proportion</p> <p>To find one part of a given ratio solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</p> <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 • Know how 2 quantities are linked by using integer multiplication or division facts • Calculating angles in pie charts • Use proportion to find similar shapes using a scale factor or finding a scale factor <p>Solve problems involving unequal sharing and grouping</p>	<p>Year 6</p> <ul style="list-style-type: none"> • Solve problems using ratio using multiplication and division facts • Solve problems involving proportion, using knowledge of fractions and multiples • Solve problems involving similar shapes where the scale factor is known or can be found <div style="border: 1px solid black; background-color: yellow; padding: 5px;"> <p>Working at the expected standard in year 6 Test Use simple ratio to compare quantities (e.g. Every pupil is given 3 pencils and a pen. 36 pencils were given out. How many pens were needed?) and estimate the distance from a map using a simple scale (e.g. where 1 cm represents 100 m)</p> </div>
Algebra	<p>Algebra Sequences</p> <p>To find patterns in numbers To make number patterns which follow a given rule (term-to-term rule) To describe and continue number sequences To find the nth term of a linear sequence in algebraic terms (position-to-term) To find sequences from diagrams and patterns.</p>	<p>Year 6</p> <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. <div style="border: 1px solid black; background-color: yellow; padding: 5px;"> <p>Working at the expected standard in year 6 TA The pupil can substitute values into a simple formula to solve problems (e.g. perimeter of a rectangle or area of a triangle).</p> </div>

	<p>Simplifying Expressions</p> <p>To use letters to represent unknown variables in familiar contexts such as: missing numbers lengths of shapes coordinates missing angles in diagrams, lines or shapes</p> <p>To simplify expressions by collecting like terms using addition and subtraction</p> <p>To simplify expressions using conventions of multiplication</p> <p>To find equivalent expressions</p> <p>Solving Equations (including formulae)</p> <p>Express missing number problems algebraically</p> <p>Substitute known values into simple formulae</p> <p>To solve simple linear equations</p>	<p>Working at the expected standard in year 6 Test</p> <p>Use simple formulae expressed in words (e.g. time needed to cook a chicken: allow 20 minutes plus 40 minutes per kilogram)</p> <p>Find possible values in missing number problems involving one or two unknowns (algebra) (e.g. Ben thinks of two numbers: the sum of the two numbers is 10: multiplied together they make 24: what are Ben's numbers? $a + b = 10, ab = 24$)</p>
<p>Measure</p> <p>Comparing and estimating</p> <p>calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes</p> <p>estimate volume (e.g. using 1 cm³ blocks to build cubes and cuboids) and capacity (e.g. using water)</p> <p>Measuring and calculating</p> <p>use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.</p> <p>measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p>	<p>Measure</p> <p>Comparing and estimating</p> <p>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.</p> <p>Measuring and calculating</p> <p>solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</p> <p>recognise that shapes with the same areas can have different perimeters and vice versa</p> <p>To calculate the area of a parallelogram by dissecting a rectangle using the formulae (in words or symbols)</p>	<p>Year 5</p> <ul style="list-style-type: none"> • Convert between units of measure and use approximate imperial equivalents • Calculate perimeter and area • Estimate volume and capacity <p>Solve problems with all 4 operations involving different measures, scaling and decimal notation</p> <p>Year 6</p> <ul style="list-style-type: none"> • Solve problems using all units <ul style="list-style-type: none"> ➢ use, read, write, convert and calculate using all four operations ➢ 3 decimal points • Volume and capacity <ul style="list-style-type: none"> ➢ estimate calculate and compare using formulae • Perimeters and areas <ul style="list-style-type: none"> ➢ calculate, compare and estimate complex shapes <p>Working at the expected standard in year 6 TA</p> <p>The pupil can calculate with measures (e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm).</p>

<p>to calculate areas of squares and rectangles. To calculate areas of irregular shapes. Telling the time To solve problems involving converting units of time. Use timetables to solve problems. Conversion know the equivalence between the different metric units 1000g=1kg 1000ml=1L 1000mm=1m understand the meaning of prefixes (kilo-, milli-, centi-) convert cm and mm to m and m to Km in length convert g to Kg and Kg to g convert L to ml and ml to L know the approximate metric equivalents of imperial units use imperial units to solve problems relating to length, weight and volume/capacity.</p>	<p>To calculate the area of a triangle by dissecting a rectangle using the formulae (in words or symbols) To estimate and compare volumes of cubes and cuboids using standard units (cm³ and m³, extending to mm³ and km³) To recognise where it is possible to use formulae when calculating areas and volumes of shapes. To read negative numbers in the context of temperature To add and subtract positive and negative integers in the context of temperature, with the use of a number line 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 To convert between standard units and from smaller units of measure to a larger unit of measure for: Length (mm, cm, m, km) Mass (ml, l) Volume (g, kg) Time (sec, min, hrs, 12/24 hr clock, days, weeks, months, years) To convert between miles and kms Solving Problems To use graphical representations to convert between two units of measure (miles and kilometres) solve problems involving the calculation and conversion of units of measure, using</p>	<p>Working at the expected standard in year 6 Test Read, write and convert time between analogue (including clock faces using Roman numerals) and digital 12 and 24– hour clocks, using a.m. and p.m. where necessary Calculate the duration of an event using appropriate units of time (e.g. A film starts at 6:45p.m. and finishes at 8:05p.m. How long did it last?) Convert between ‘adjacent’ metric units of measure for length, capacity and mass (e.g. 1.2 kg = 1200 g; how many 200 ml cups can be filled from a 2 litre bottle?; write 605 cm in metres) Find the perimeter of compound shapes when all side lengths are known or can be easily determined (e.g. a simple shape made from two identical rectangles joined together to make an L-shape with given dimensions of the rectangle) Calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes by counting squares.</p>
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	decimal notation up to three decimal places where appropriate	
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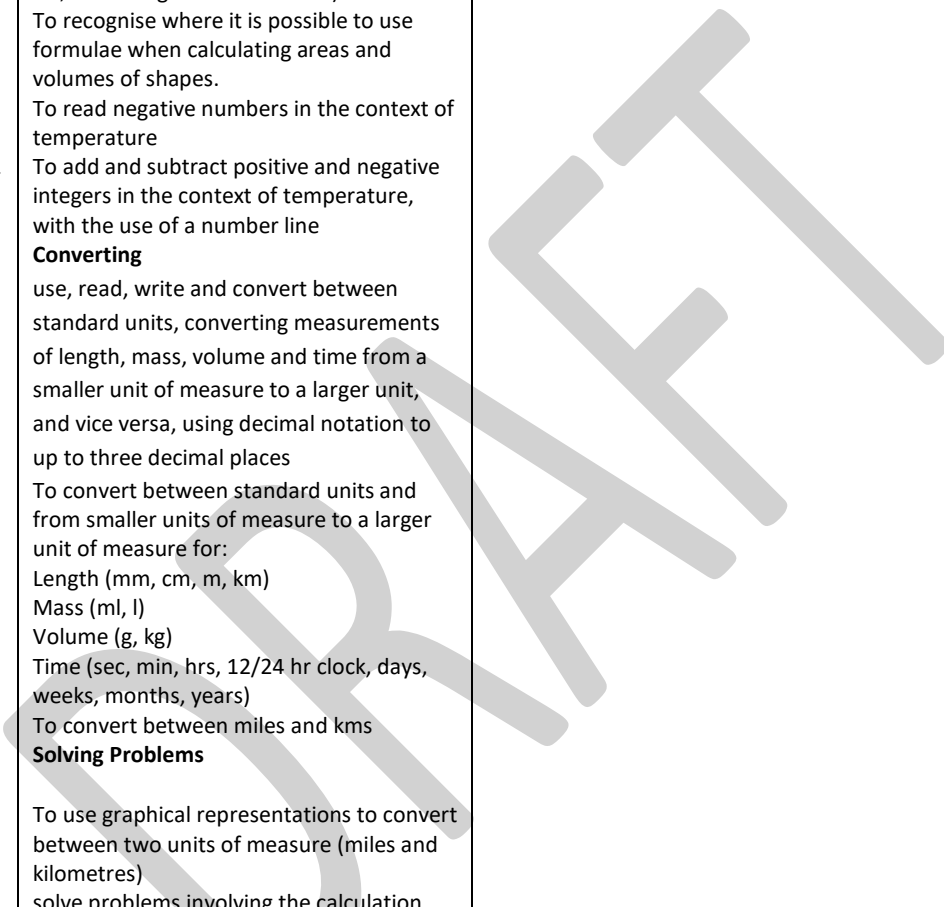
Term 5 – fractions, decimals and percentages, addition, subtraction, multiplication and division		
Year 5 objectives	Year 6 objectives	Assessment – performance descriptors
<p>Number – fractions, decimals and percentages</p> <p>Recognising fractions Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>Comparing fractions compare fractions by converting to a common denominator.</p> <p>Comparing decimals read, write, order and compare numbers with up to three decimal places</p> <p>Rounding decimals Round decimals with two decimal places to the nearest whole number and to one decimal place.</p> <p>Equivalence Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths Read and write decimal numbers as fractions. Recognise 1000ths and relate to 100ths and 10ths Recognise the per cent symbol (%) and understand that per cent relates to “number of parts per hundred”,</p>	<p>Number – fractions, decimals and percentages</p> <p>Comparing fractions Compare and order fractions, including fractions >1</p> <p>Comparing decimals Identify the value of each digit in numbers given to three decimal places</p> <p>Rounding solve problems which require answers to be rounded to specified degrees of accuracy</p> <p>Equivalence use common factors to simplify fractions use common multiples to express fractions in the same denomination 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.</p> <p>Multiplying and dividing 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</p>	<p>Year 5</p> <ul style="list-style-type: none"> Identify, name and write equivalent fractions including decimals of a given fraction, represented visually, including tenths and hundredths Round, order and compare decimals to 3.d.p. Recognise % symbol and explain as a fraction with denominator 100 Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25 <p>Year 6</p> <ul style="list-style-type: none"> Simplify, compare, and order fractions, including fractions > 1 Use all 4 operations to solve problems involving fractions and decimals (including mixed numbers) Calculate decimal fraction equivalents e.g. $\frac{3}{8} = 0.375$ To recall and use equivalences between fractions, decimals and percentages Multiply one-digit numbers with up to two decimal places by whole numbers <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Working at the expected standard in year 6 TA The pupil can recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as 15 or 0.2 or 20% of the whole cake). The pupil can calculate using fractions, decimals or percentages (e.g. knowing that 7 divided by 21 is the same as $\frac{7}{21}$ and that this is equal to $\frac{1}{3}$; 15% of 60; $11\frac{1}{2} + \frac{3}{4}$; $\frac{7}{9}$ of 108; 0.8×70).</p> <p>Working at the expected standard in year 6 Test Recognise and use equivalent fractions (e.g. $300 \div 900 = \frac{1}{3}$; $45 \div 8 \times 10 = 80 \div 100$) Recognise and use the equivalences between simple fractions, decimals and percentages (e.g.</p> </div>

<p>Write percentages as a fraction with denominator 100 as a decimal fraction</p> <p>Solving problems solve problems involving numbers up to three decimal places solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25.</p>	<p>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. use written division methods in cases where the answer has up to two decimal places</p> <p>Solve Problems involving Fractions Using equivalence between fractions, decimals and percentages in different contexts Develop skills of rounding and estimating to predict magnitude of answers of decimal calculations Rounding answers to a specified degree of accuracy</p>	<p>0.3 = $\frac{3}{10}$ = 30%) and becoming more confident with calculating other decimal fraction equivalents</p> <ul style="list-style-type: none"> • find simple fractions and percentages of whole numbers and quantities (e.g. 23 of 90; 20×15; 30% of £60)
<p>Number – addition, subtraction, multiplication and division Written methods Use standard written methods for addition and subtraction To use formal written methods to multiply and divide Use division with remainders and put them in their correct context Use short division as a method for dividing by a single digit number</p>	<p>Number – addition, subtraction, multiplication and division Written methods To use formal written methods of columnar addition and subtraction. Multiply numbers up to 4 digits by a 2 digit whole number using formal written method. Divide numbers up to 4 digit by a 2 digit whole number using a formal written method including: short and long division methods To interpret remainders as: whole number remainders fractions by rounding interpreting remainders according to the context</p>	<p>Year 5</p> <ul style="list-style-type: none"> • Use column methods for addition and subtraction using numbers with than 4 digits • Multiply and divide numbers up to 4 digits using written calculations. Interpret remainder in a context <p>Year 6</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 appropriate <p>Working at the expected standard in year 6 Test Add and subtract whole numbers with up to two significant figures (e.g. $95 + 36$, $5700 - 2900$) Add and subtract whole numbers with more than four digits, using formal written methods where appropriate Use their understanding of place value to multiply and divide whole numbers and decimals with up to two decimal places by 10 or 100 (e.g. $1532 \div 100 =$, $\div 100 = 6.3$) Multiply and divide whole numbers mentally drawing upon multiplication facts up to 12×12 and place value (e.g. 60×70) and begin to use these facts to work with larger numbers Multiply numbers with up to two digits by a two digit number using the formal long</p>

		multiplication method and becoming more confident with multiplication with larger numbers; Multiply and divide numbers with up to four digits by a single digit number using the formal short division method and become more confident with division using larger numbers including the long division method.
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Term 6 – Geometry. Measure and statistics		
Year 5 objectives	Year 6 objectives	Assessment – performance descriptors
<p>Geometry – shapes and angles Identifying shapes and their properties identify 3-D shapes, including cubes and other cuboids, from 2-D representations Drawing and constructing draw given angles, and measure them in degrees (o) Comparing and classifying use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles Angles Recognise the different types of angles – acute $< 90^\circ$, obtuse $> 90^\circ$ and $< 180^\circ$, right angle 90° Estimate, order and compare and order angles Use a protractor to measure angles accurately</p>	<p>Geometry – shapes and angles Identifying shapes and their properties Use conventional markings and labels for lines and angles To visualise and describe 3D shapes To use nets to construct 3D shapes. To illustrate and name parts of a circle. Drawing and constructing To draw 2D shapes accurately using straight lines and angles Compare and classify To sort and classify geometric shapes based on: their properties sizes unknown angles in any triangle, quadrilateral and regular polygons To explore and identify the properties of a circle and express these algebraically To find unknown angles in any triangles, quadrilaterals, and regular polygons</p>	<p>Year 5</p> <ul style="list-style-type: none"> • Identify 3d shapes from 2d representations • Estimate, compare, draw and measure angles to the nearest degree • Recognise angles in relation to whole and fractions of whole turns. (a quarter, three quarters etc.) • Use reasoning to derive unknown information (missing lengths and angles) to solve problems involving 2d shapes • Solve problems involving the translation and reflection of shapes <p>Year 6</p> <ul style="list-style-type: none"> • 2D/3D Shapes draw accurately <ul style="list-style-type: none"> ➢ understand and apply the properties of circles • Angles <ul style="list-style-type: none"> ➢ use the properties to solve problems • Co-ordinates <ul style="list-style-type: none"> ➢ use all four quadrants • solve problems involving coordinates.

<p>Calculate the size of an unknown angle from known facts without using a protractor- angles in a triangle =180*, angles in a full circle = 360*, angles in a straight line = 180*, the 4 angles of a quadrilateral make a full turn, 360</p>	<p>Angles To identify angle sums on triangles, quadrilaterals and regular pentagons To recognise angles around a point To recognise angles on a straight line To recognise vertically opposite angles To find missing angles using properties of shapes</p> <p>Solve problems involving shapes To show how relationships can be expressed algebraically to find unknowns $d = 2 \times r$ $a = 180 - (b+c)$</p>	
<p>Measure Comparing and estimating calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes estimate volume (e.g. using 1 cm³ blocks to build cubes and cuboids) and capacity (e.g. using water) Measuring and calculating use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling. measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres to calculate areas of squares and rectangles. To calculate areas of irregular shapes. Telling the time</p>	<p>Measure 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. recognise that shapes with the same areas can have different perimeters and vice versa To calculate the area of a parallelogram by dissecting a rectangle using the formulae (in words or symbols) To calculate the area of a triangle by dissecting a rectangle using the formulae (in words or symbols) To estimate and compare volumes of cubes</p>	<p>Year 5</p> <ul style="list-style-type: none"> • Convert between units of measure and use approximate imperial equivalents • Calculate perimeter and area • Estimate volume and capacity <p>Solve problems with all 4 operations involving different measures, scaling and decimal notation</p> <p>Year 6</p> <ul style="list-style-type: none"> • Solve problems using all units <ul style="list-style-type: none"> ➢ use, read, write, convert and calculate using all four operations ➢ 3 decimals points • Volume and capacity <ul style="list-style-type: none"> ➢ estimate calculate and compare using formulae • Perimeters and areas <ul style="list-style-type: none"> ➢ calculate, compare and estimate complex shapes

<p>To solve problems involving converting units of time. Use timetables to solve problems. Conversion know the equivalence between the different metric units 1000g=1kg 1000ml=1L 1000mm=1m understand the meaning of prefixes (kilo-, milli-, centi-) convert cm and mm to m and m to Km in length convert g to Kg and Kg to g convert L to ml and ml to L know the approximate metric equivalents of imperial units use imperial units to solve problems relating to length, weight and volume/capacity.</p>	<p>and cuboids using standard units (cm^3 and m^3, extending to mm^3 and km^3) To recognise where it is possible to use formulae when calculating areas and volumes of shapes. To read negative numbers in the context of temperature To add and subtract positive and negative integers in the context of temperature, with the use of a number line 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 To convert between standard units and from smaller units of measure to a larger unit of measure for: Length (mm, cm, m, km) Mass (ml, l) Volume (g, kg) Time (sec, min, hrs, 12/24 hr clock, days, weeks, months, years) To convert between miles and kms Solving Problems To use graphical representations to convert between two units of measure (miles and kilometres) solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</p>	
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<p>Statistics</p> <p>Complete, read and interpret tables including timetables.</p> <p>Predict missing facts in tables using patterns within the data</p> <p>To plot points on a line graph, interpret information and present data in line graphs.</p> <p>solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</p>	<p>Statistics</p> <p>To construct a simple pie chart using angles</p> <p>To interpret a pie chart using angles, fractions and percentages</p> <p>To construct a line graph</p> <p>To interpret a line graph</p> <p>To interpret a conversion graph between two variables such kilometres and miles</p> <p>To find a mean of a data set</p> <p>To interpret the mean of a data set</p> <p>To know when to find the mean of a data set</p>	<p>Year 5</p> <ul style="list-style-type: none"> • Solve comparison, sum and difference problems using information presented in a line graph • Complete, read and interpret information in tables, including timetables <p>Year 6</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
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