The Best That You Can Be

Devonshire Primary Academy

Maths Long Term Plan

Autumn term Year 6 **Autumn term** **21.10.24- 29.10.24 Half term** **Finish 20th December** **13 weeks including 1 enrichment week commencing 25th November (complete Autumn Assessment)**	The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations**, including long multiplication and division**, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

- **Previous Learning:**

EYFS: Cardinality and Counting. Understanding that the cardinal value of a number refers to the quantity, or 'howmanyness' of things it represents. Subitising and Counting skills and explore the composition of numbers within and beyond 5. Equal, unequal and connecting two equal groups, number facts, counting larger numbers.

Pre School: Number and Counting; say numbers 1-10, recognising numbers, counting objects, count from a group, Days of the week, amounts, decrease, compared, near and far.

Year 1: count to and across 100, forwards and backwards, read and write numbers to 100, count in multiples of 2,5,10, using number lines, language equal, more than, less than, fewer, most, least, read, write and interpret addition and subtraction signs +-=, solve problems including missing numbers, +- one digit and two digit numbers to 20, including 0, number bonds 10/20, arrays, lots of, count in fractions up to 10, ½, ¼ equivalence on a number line, recognise, find and name fractions ½ as two equal parts, compare decimals with the same number of up to 2 dp, recognise and name 2D and 3D shapes, describe position and movement including half, quarter and three quarter turn, measurement in height, length and volume, time(hours, seconds and mins) Sequence events.

Year 2: count in steps of 2,3,5 and10 from 0, identify, represent and estimate numbers, read and write numbers to 100, compare and order numbers from 0 up to 100 <>=, recognise the place value of each digit in a 2digit number- tens and ones. Solve number fact problems, mental and written methods, add and subtract two-digit numbers and ones, adding three digit numbers, show commutative, inverse relationships, recall +- facts to 100, multiplication and division symbols, recall 2,5,10 multiplication tables, recognise odd and even numbers, count in tenths, recognise fractions, whole, ½, ¼, 1/3, equivalent fractions, 2D, 3D shapes, lines of symmetry, regular and irregular polygons, position and direction- turn, right angles, half turn etc, compare lengths mass and volume, tell the time, pictograms, charts, tables tally's

Year 3: count from 0 in multiples of 4,8,50 and 100, find 10 or 100 more or less than a given number, identify represent and estimate numbers, read and write numbers up to 1000 in numerals and words, compare and order numbers up to 1000, recognise place value of each digit in a three digit number(hundreds, tens, ones), solve practical problems, addition and subtraction one step problems, add and subtract mentally including 3digit number and ones, tens and hundreds, column method, estimate using inverse, solve problems, write and calculate multiplication and division calculations including 2digit one digit using mental and formal methods, recall facts for 3,4 and 8 times tables. Count up and down in tenths, recognise fractions, non-unit and unit fractions, recognise tenths (dividing into 10 equal parts), identify each digit in numbers given to 3 decimal places, equivalent fractions, add and subtract fractions, recognise,draw and make 2 d and 3d shapes, identify right angles, half turn, ¾ 's four turns= a whole, horizontal and vertical lines, perpendicular and parallel lines, measurement, perimeter, add and subtract money, tell the time including roman numerals, Interpret and present data using bar charts, pictograms and tables

The Best That You Can Be

Devonshire Primary Academy

Maths Long Term Plan

Year 4: count backwards through 0 to include negative numbers, count in multiples of 6,7,9,25 and 1000, find 1000 more or less than a given number, identify represent and estimate numbers using different manipulatives, read roman numerals to 100(I-C), order and compare numbers beyond 1000, recognise the place value digit in four digit number, round to the nearest 10,100,1000, solve problems, solve addition and subtraction problems, +- with up to 4 digits using formal and written methods of columnar, use rounding where possible, 2 step problems, missing numbers, multiply 3digit by 1 digit formal method, estimate, recall all multiplication and division facts including product, odd/even/ factors/ divisibility rules, square numbers, count in fractions up to 10, using ½ and 2/4, recognise hundredths when dividing an object by 100 and dividing tenths by 10, compare numbers of the same decimals up to 2 dp, round decimals to nearest whole, equivalent fractions, add and subtract fractions, divide one or 2 digit numbers by 10 and 100, non-unit and unit fractions (divide), money problems involving fractions and decimals to 2dp, lines of symmetry in 2d shapes, compare and classify geometric shapes including quadrilaterals, triangles, identify acute, obtuse angles, compare and order by size, describe positions on a 2D grid, plot points and draw sides to complete a polygon, convert between different units of measure, perimeter and area of shapes, read and convert time, interpret data, graphs, bar charts and time graphs, calculate mean.

Year 5: count forwards or backwards in steps of powers of 10 for any given number to 1 000 000, read, write, order and compare numbers to at least 1 000 000 and determine the value of teach digit, round any number up to 1 000 000 to the nearest 10,100,10,000 and 100 000, solve number problems, sole addition and subtraction problems, add and subtract whole numbers with more than 4 digits, using formal methods, identify common factors and common multiples, square, cube and prime numbers up to 19, x and divide by 10, 100 and 1000, equivalent fractions, convert between improper fractions and mixed numbers, compare and order fractions and less that 1, add and subtract fractions, multiply 2, 3 and 4-digit numbers by a 2-digit numbers, divide 4-digit number by a 1-digit number (with remainders), solve multiplication and division problems, multiply fractions by an integer, calculate fractions of an amount, use fractions as operators, find equivalent fractions in decimals, in tenths and hundredths, recognise thousandths in fractions and decimals, round decimals up to 1dp, calculate the perimeter of different shapes, calculate the area of different shapes, line graphs, interpret time tables, identify 3D shapes, angles in degrees, acute, obtuse, reflex, regular and irregular polygons, position and direction, add and subtract decimals, 2dp, multiply and divide by 10, 100, 1000, negative numbers, convert between different units of measure,

Topic	Small Steps	National Curriculum- Progression Document/Prioritisation	Vocabulary	Notes on provision and priority for teaching Sam J Sam O'H Lou W
Autumn 1 Place Value	● Numbers to ten million ● compare and order and number ● round any number ● negative numbers	**6NPV–1** 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–2** Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning. **6NPV–3** Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts **6NPV–4** 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. **Use negative numbers in context, and calculate intervals across zero** **Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit** **Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit** **Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit**	ones (1s), tens (10s), hundreds (100s), thousands (1,000s), ten thousands (10,000s), hundred thousands (100,000s), millions (1,000,000s), ten	

The Best That You Can Be

Devonshire Primary Academy

Maths Long Term Plan

		round any whole number to a required degree of accuracy **Solve number and practical problems that involve all of the above** To use knowledge of rounding to aid estimation. To be able to perform mental calculations working with large numbers. To be able to work systematically in response to a given problem, including multi-step problems. To use practical resources to deepen understanding of place value. To use mathematical reasoning to explain logical answers to questions To be able to work systematically in response to a given problem, including multi-step problems.	million (10,000,000) place value partition/partitioned/partitioning interval estimate compare/comparison/comparing order/ordering less than (<), greater than (>), equal to (=) rounding/rounded/round up/round down/rounds negative, positive odd, even accurate/accurately, exactly, approximate	
Autumn 1/ 2 Four operations Addition and	● Add and subtract integers ● multiply up to 4-digit number by 2-digit number ● short division	**6AS/MD–1** 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–2** Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. **6AS/MD–3** Solve problems involving ratio relationships. **6AS/MD–4** Solve problems with 2 unknowns.	add, addend, sum, total subtract, subtrahend, minuend,	

The Best That You Can Be

Devonshire Primary Academy

Maths Long Term Plan

subtraction , multiplication and division	● division using factors ● long division ● common factors ● common multiples ● primes to 100 ● squares and cubes ● order of operations ● mental calculations and estimation ● reason from known facts	**Use their knowledge of the order of operations to carry out calculations involving the four operations** Represent the calculation pictorially to prove the answer. Add and subtract negative integers Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why **Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.** **Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication** **Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy** Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3). Solve problems involving multiplication and division including using knowledge of factors and multiples, squares and cubes Use knowledge of order of operations to carry out calculations involving the four operation	difference, reduce method, column, columnar multiply, multiplication, multiplicand, multiplier product, multiple, commutative approximation divide, division, short division, long division factor, , divisor, dividend, quotient	
Autumn 2 Position and Direction	● the first quadrant four quadrants ● translations ● reflections	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.	plotting, coordinates, quadrant, point, axis, x-axis, y-axis, grid, x-coordinate, y-coordinate vertices, vertex, square,	

The Best That You Can Be

Devonshire Primary Academy

Maths Long Term Plan

			side, rectangle, triangle, equilateral, oblong, shape, irregular, hexagon,	
Autumn 2 Fractions	● simplify fractions ● fractions on a number line ● compare and order (denominator) ● compare and order (numerator) ● add and subtract fractions ● add fractions ● subtract fractions ● mixed addition and subtraction ● multiply fractions by integers ● multiply fractions by fractions ● divide fractions by integers ● four rules with fractions ● fraction of an amount ● fraction of an amount - find the whole	**6F–1** Recognise when fractions can be simplified and use common factors to simplify fractions. **6F–2** Express fractions in a common denomination and use this to compare fractions that are similar in value **6F–3** Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy **Count up and down in hundredths.** **Recognise, find and name a half as one of two equalparts of an object, shape or quantity.** **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 (e.g. 0.375) for a simple fraction (e.g. 3/8).** Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. **Associate a fraction withdivision and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g.$^{3}/_{8}$).**	whole, part numerator, denominator, vinculum, common denominator equivalent simplify, simplest form factor, highest common factor, lowest common multiple compare order, ascending, descending less than, greater than proper fraction, improper fraction mixed	

The Best That You Can Be

Devonshire Primary Academy

Maths Long Term Plan

			number convert	
Complete Autumn assessment at the start Baseline and again at the end.				
SMSC	Calculate whether an answer is wrong			
BV	Discuss their work Explain their reasoning when solving problems			
Wider World	Link to jobs- Baker, shop keeper, teacher, builder, gardener, engineer, architect, historian, soldier, zoo keeper			
Spring term Year 6 **Spring Term** **Half term 17-21st Feb** **Finish 11th April (Easter)** **13 weeks including Number Day 7th Feb; 1 enrichment week commencing 24th-28th March (complete Spring Assessment)** .	The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.			
Topic	Small Steps	National Curriculum- Progression Document/Prioritisation	Vocabulary	Notes on provision and priority for teaching Sam J Sam O'H Lou W
Spring 1 Decimals	● three decimal places ● multiply by 10, 100 and 1,000 ● divide by 10, 100 and 1,000 ● multiply decimals by integers ● divide decimals by integers	**6NPV–1** 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–2** Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning. **6NPV–3** Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.	multiply (×), divide (÷) decimal placeholder place value, tenths, hundredths, thousandths factor, multiple, product group, share numerator, denominator convert, simplify, equivalent divisor, dividend, quotient, remainder	

The Best That You Can Be

Devonshire Primary Academy

Maths Long Term Plan

	● division to solve problems ● decimals as fractions ● fractions to decimals	**6NPV–4** 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. **Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.** **Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy** **Identify the value of each digitin numbers given to three decimal places.** **Solve problems which requireanswers to be rounded to specified degrees of accuracy** **Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8).**		
Spring 1 Percentages	● fractions to percentages ● equivalent FDP ● order FDP ● percentage of an amount ● percentages - missing values	**Associate a fraction with division and 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	per cent (%), percentage parts, whole decimal fraction, equivalent fraction, tenth, hundredth, half, quarter less than () divide (÷), share, multiply (×) convert, compare, order, simplify	
Spring 1-2 Algebra	● find a rule - one step ● find a rule - two step ● forming expressions ● substitution ● formulae	use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geometry: Properties of Shapes) find pairs of numbers that satisfy number sentences involving two unknowns	pattern, growing pattern sequence rule term algebra, algebraic expression formula, formulae substitute generalise operation calculation, calculate	

The Best That You Can Be

Devonshire Primary Academy

Maths Long Term Plan

	● forming equations ● solve simple one-step equations ● solve two-step equations ● find pairs of values ● enumerate possibilities	use simple formulae recognise when it is possible to use **formulae** for area and volume of shapes (copied from Measurement) generate and describe linear number sequences	equation inverse solution represent value	
Spring 1 – Afternoon area perim and volume	● Shapes - same area ● area and perimeter ● area of triangle ● area of parallelogram ● volume - counting cubes ● volume of a cuboid	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 [for example, mm3 and km3].	perimeter, distance, area, space, volume centimetres (cm), metres (m), square centimetres (cm2), square metres (m2), cubic centimetres (cm3), cubic metres (m3) rectangle, square, triangle, rectilinear shape, sides, length, width, parallelogram, cube, cuboid measure, combine, total, double, estimate	
Spring 2 Measurement converting units	● metric measures ● convert metric measures ● calculate with metric measures ● miles and kilometres ● imperial measures	**· time (hours, minutes, seconds)** **Sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening** **Recognise and know the value of different denominations of coins and notes** **Recognise and use language relating to dates, including days of the week, weeks, months and years** **· Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.**	units (of measure/ment), metric, imperial, length, mass, volume, capacity, distance measure, convert, equal, equivalent, approximate, smaller (unit), larger (unit), for every, ratio millimetres (mm), centimetres (cm), metres (m), kilometres (km), grams (g), kilograms (kg), millilitres (ml), litres (l) inches (in), feet ( ), ounces (oz), pounds (lbs), pints, miles, gallons, yards digits,	

The Best That You Can Be

Devonshire Primary Academy

Maths Long Term Plan

			decimal conversion table, conversion graph.	
Spring 2 Ratio	● using ratio language ● ratio and fractions ● introducing the ratio symbol ● calculating ratio ● using scale factors ● calculating scale factors ● ratio and proportion problems	**6AS/MD–3** Solve problems involving ratio relationships. ● 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.	ratio, ratio notation, 1 : 2 proportion part, whole, total group fraction unequal, equal simplest form, simplify for every x there are y similar enlarge, enlargement scale, map scale, scale factor	
Complete Spring Assessment				
SMSC	Explore maths in the real world (Money)			
BV	Follow rules for fact families			
Wider World	Link to jobs- Baker, shop keeper, teacher, builder, gardener, engineer, architect, historian, soldier, zoo keeper			

Summer Term Year 6 **Half term 26th May-9th June** **Finish 18th July** **11 weeks including; 2 enrichment weeks** **19th-23rd May Health and Wellbeing week** **14th-18th July** **Complete- statistics/time/money in enrichment week (Health)** **Summer assessment to be completed last enrichment week.**	The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

The Best That You Can Be

Devonshire Primary Academy

Maths Long Term Plan

Topic	Small Steps	National Curriculum- Progression Document/Prioritisation	Vocabulary	Notes on provision and priority for teaching
Summer 1 Shape	● measure with a protractor ● introduce angles ● calculate angles ● vertically opposite angles ● angles in a triangle ● angles in a triangle - special cases ● angles in a triangle - missing angles ● angles in special quadrilaterals ● angles in regular polygons ● draw shapes accurately ● draw nets of 3D shapes	**6G–1** Draw, compose, and decompose shapes according to given properties, including dimensions, angles, and area, and solve related problems. Recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing) Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius draw 2-D shapes using given dimensions and angles Careers education e.g. bricklaying recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties) Model making and construction. Measuring areas e.g. carpet fitting. compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons Understanding functionality of shapes e.g. round wheels. Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles Recognising in the community, time, body position, positional language, taking directions, map reading, compass bearings. use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geometry: Properties of Shapes) find pairs of numbers that satisfy number sentences involving two unknowns	degrees, measurement, length angle, obtuse, acute, reflex, right angle, interior protractor, baseline, crosshairs, scale vertex, edge, face parallel properties triangle, isosceles, equilateral, scalene regular, polygon, quadrilateral, parallelogram, kite, rhombus, trapezium diameter, radius, circumference, concentric, centre perimeter pyramid, tetrahedron, cylinder, prism, cuboid, cube	

The Best That You Can Be

Devonshire Primary Academy

Maths Long Term Plan

Summer 1 Statistics Afternoon if needed.	● read and interpret line graphs ● draw line graphs ● use lines graphs to solve problems ● circles ● read and interpret pie charts ● pie charts with percentages ● draw pie charts ● the mean	Interpret and construct pie charts and line graphs and use these to solve problems Calculate and interpret the mean as an average solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	average, mean,set, share pie chart, segment, whole, section, degree, angle, right angle tally chart, bar chart fraction, percentage line graph, axis/axes, estimate, accurate, interpret, increase, above, below, zero (0), value, x-axis, y-axis, minus (–), between, plot, point, vertical, horizontal, construct, convert/conversion, straight, equivalent, predict, curve more, equal, even, size, total, share, great(er/est), calculate, divide, highest, compare, lowest, group, data, represent, balance, odd, different/difference, least, inverse, operation, advantages, disadvantages, largest, half, scale, quarter, frequency, smallest, part, same, more, category, results, exact	
Summer 2	Recap previous learning and set children on a business task			
Complete summer assessment Linked stories: RECOMMENDATIONS - MathsThroughStories.org - for specific topics				
SMSC	Use structured apparatus Develop mathematical reasoning			
BV	Decide on the best way to represent their conclusions in a bar chart			
Wider World	Link to jobs- Baker, shop keeper, teacher, builder, gardener , engineer, architect, historian, soldier, zoo keeper, geographer, scientist,			

+