



Barrowby CE Primary School

Maths Curriculum

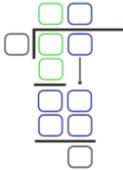
The Maths Curriculum for Year 6

Autumn Term 1							
	Week 1	Week 2	Week 3	Week 4		Week 5	Week 6
Unit	Place Value	Multiple and Divide by 10, 100 and 1000	Choosing Effective Mental Calculation Strategies	Problem Solving with Four Operations and Application of Factors, Multiples and Primes		Equivalent Fractions	Comparing and Ordering Fractions
	By the end of this unit children will be able to: <ul style="list-style-type: none"> Solve number problems and practical problems that involve place value 	By the end of this unit children will be able to: <ul style="list-style-type: none"> Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to three decimal places 	By the end of this unit children will be able to: <ul style="list-style-type: none"> Perform mental calculations, including with mixed operations and large numbers 	By the end of this unit children will be able to: <ul style="list-style-type: none"> Solve problems involving addition, subtraction, multiplication and division Identify common factors, common multiples and primes 		By the end of this unit children will be able to: <ul style="list-style-type: none"> Use common factors to simplify fractions; use common multiples to express fractions in the same denomination 	By the end of this unit children will be able to: <ul style="list-style-type: none"> Compare and order fractions, including fractions >1
Suggested support for children with additional needs	<ul style="list-style-type: none"> Place value counters and place value sliders to represent 4-digit numbers. Support children with reading written numbers e.g. four hundred and sixty-one Use of bead strings to support partitioning Place value sliders Rounding mountains as a visual representation 	<ul style="list-style-type: none"> Use of place value sliders Pre-teaching the concept of divide and multiply by ten linking to times tables Visual representations and comparisons e.g. bar model 	<ul style="list-style-type: none"> Recap potential strategies drawing on previous sequences Partition numbers to support mental understanding and logical answering Mixed ability pairings for games suggested on Learning Sequence 	<ul style="list-style-type: none"> Multiplication grids available for children to recognise factor pairs Use of bar model 		<ul style="list-style-type: none"> Use of fraction bars to represent equivalent fractions visually Fraction walls for pictorial representations 	<ul style="list-style-type: none"> Use of fraction bars to represent equivalent fractions visually Fraction walls for pictorial representations
Step	LS1	LS2	LS3	LS4	LS5	LS6	LS7
1	Read and write large numbers	Develop fluency of multiplying and dividing by 10, 100 and 1000	Reasoning the efficiency of mental strategy	Using a bar model to solve multi-step problems	Clarify terminology relating to properties of number	Create equivalent fractions in their simplest form	Reasoning about ordering fractions
2	Counting and regrouping large numbers	Application in the context of measure	Using estimation to check mental calculations	Solve problems	Recognise common multiples	Simplify fractions	Compare fractions using visual representations

				by working backwards			
3	Comparing and ordering numbers		Applying and combining mental strategies to solve problems	Finding a starting point / prioritising	Apply knowledge of common multiples	Identify common multiples	Compare fractions with consideration of their proximity to 0, half or 1
4	Comparing numbers including to 3 decimal places			Select an appropriate problem solving strategy	Apply knowledge of factors and multiples	Change fractions to have common denominators	Compare fractions by changing to a common denominator
5	Negative numbers						Order fractions
6	Rounding numbers						Order fractions in a range of contexts

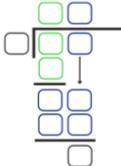
The Maths Curriculum for Year 6

Autumn Term 2							
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Unit	Formal Written Method of Multiplication	Addition and Subtracting Fractions	Fraction and Decimal Equivalents, Fractions, Decimals and Percentages and Calculating Percentages	Formal Written Method of Short Division	Formal Written Method for Long Division	Area of Parallelograms and Triangles	Properties of Shape
	<p>By the end of this unit children will be able 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 	<p>By the end of this unit children will be able to:</p> <p>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</p>	<p>By the end of this unit children will be able to:</p> <ul style="list-style-type: none"> • Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8] • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts • 	<p>By the end of this unit children will be able to:</p> <ul style="list-style-type: none"> • Use written division methods in cases where the answer has up to two decimal places 	<p>By the end of this unit children will be able to:</p> <ul style="list-style-type: none"> • Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division (and short division where appropriate) and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context 	<p>By the end of this unit children will be able to:</p> <ul style="list-style-type: none"> • Calculate the area of parallelograms and triangles 	<p>By the end of this unit children will be able to:</p> <ul style="list-style-type: none"> • Compare and classify geometric shapes based on their properties and sizes • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • Recognise, describe and build simple 3-D shapes, including making nets

Suggested support for children with additional needs	<ul style="list-style-type: none"> •Scaffold layout of formal written method in books •Use of part whole model to break down calculations through partitioning •Use of apparatus such as dines to support partitioning numbers •Scaffold layout of formal written method in books 	<ul style="list-style-type: none"> •Use of concrete fraction resources e.g. foam fraction walls •Multiplication grids to support identifying common factors 	<ul style="list-style-type: none"> •Use of concrete percentage resources e.g. foam percentage walls •Encourage pupils to make connections between finding fractions of amounts and shapes through images and different representations as proof that division is associated with fractions. 	<ul style="list-style-type: none"> •Scaffold layout of formal written method in books •Place value counters to model sharing given numbers equally into different sized groups •Provide a template to structure calculations 	<ul style="list-style-type: none"> •Scaffold layout of formal written method in books •Provide a template to structure calculations e.g. 	<ul style="list-style-type: none"> •Use tactile equipment for work relating to shape, space and measures rather than visual information e.g. 2D and 3D shapes. 	<ul style="list-style-type: none"> •Use tactile equipment for work relating to shape, space and measures rather than visual information e.g. 2D and 3D shapes. •Pre teach to recap shape knowledge from previous years. 		
Step	LS12	LS8	LS9, 10 & 11			LS14	LS17	LS13	LS15
1	Revision of short multiplication for a 3- or 4-digit number by a 1-digit number	Use pictorial representations to show addition and subtraction of fractions	Associate fractions with division	Use pictorial representations to show addition and subtraction of fractions	Calculating the area of rectilinear and composite shapes (Year 5 revision)	Understanding short division	Comparing short and long division layout	Calculating the area of rectilinear and composite shapes (Year 5 revision)	Using the language of 2-D shapes
2	Revision of expanded vertical method for a 3- or 4-digit number by a 2-digit number	Application of adding and subtracting fractions	Decimal and fraction equivalents	Application of adding and subtracting fractions	Finding the area of right-angled triangles	Short division where answers have up to 2 decimal places	Long division for numbers up to 4 digits	Finding the area of right-angled triangles	Classifying 2-D shapes – triangles

3	Revision of long multiplication for a 3- or 4-digit number by a 2-digit number			Short division with decimal remainders up to 2 decimal places	Interpreting remainders as whole numbers	Calculating the area of triangles	Classifying 2-D shapes – quadrilaterals
4	Generating new facts from known facts			Prove decimal fraction equivalents using short division	Expressing quotients with fractions	Calculating the area of parallelograms	Parts of circles
5	Long multiplication involving numbers with up to 2 decimal places multiplied by a 1-digit number				Expressing quotients with decimals	Solving problems involving area of rectangles, triangles and parallelograms	Using the relationship between radius and diameter to solve problems
6	Application of short multiplication						Naming and identifying the properties of 3-D shapes
7							Building 3-D shapes from nets

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Spring Term 1						
	Week 1	Week 2	Week 3	Week 4		Week 5
Unit	Order of Operations and Algebra	Formal Written Method for Long Division	Exploring Relationships Between Perimeter and Area	Recognise and Find Angles and Reflection and Translation		Multiplying Fractions
	By the end of this unit children will be able to: <ul style="list-style-type: none"> • Use their knowledge of the order of operations to carry out calculations involving the four operations • Use simple formulae • Express missing number problems algebraically 	By the end of this unit children will be able to: <ul style="list-style-type: none"> • Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division (and short division where appropriate) and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context 	By the end of this unit children will be able to: <ul style="list-style-type: none"> • Recognise that shapes with the same areas can have different perimeters and vice versa 	By the end of this unit children will be able to: <ul style="list-style-type: none"> • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles • Draw and translate simple shapes on the coordinate plane, and reflect them in the axes 		By the end of this unit children will be able to: <ul style="list-style-type: none"> • Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $1/4 \times 1/2 = 1/8$]
Suggested support for children with additional needs	<ul style="list-style-type: none"> • Provide visual reminders of the order of operations e.g. prompt stickers • Scaffold layout of calculations • Use beadstrings or Cuisenaire rods to represent calculations visually 	<ul style="list-style-type: none"> • Scaffold layout of formal written method in books • Provide a template to structure calculations e.g. 	<ul style="list-style-type: none"> • Cubes for a concrete representation for finding area of shapes • Include a range of drawings, written explanations and calculations when representing area and perimeter • Provide speaking frames to support children expressing their understanding 	<ul style="list-style-type: none"> • Provide children with cut outs of the shapes to aid accurate translation • Provide template of grids for plotting coordinates • Support with drawing lines and angles to support fine motor skills. 		<ul style="list-style-type: none"> • Pre-teach concepts to children • Provide a multiplication grid to aid calculations.
Step	LS16	LS17	LS18	LS19	LS20	LS21
1	Why we need the order of operations	Comparing short and long division layout	Consolidate understanding of perimeter	Recognise and name angles	Draw and label axes in all four quadrants	Understand the effect of multiplying with proper fractions
2	Develop order of operations and start to write formulas	Long division for numbers up to 4 digits	Consolidate finding the area of rectilinear shapes, parallelograms and triangles	Investigate vertically opposite angles	Plot positions on the full coordinate grid	Represent multiplication with simple pairs of proper fractions
3	Deepen understanding of order of operations – abstract calculations	Interpreting remainders as whole numbers	Investigate shapes with the same area but different perimeters and vice-versa	Find missing angles from known facts	Draw and label shapes in all four quadrants	Multiply simple pairs of proper fractions

4	Considering division and indices (powers) in order of operations	Expressing quotients with fractions	Solve problems involving area and perimeter		Translate shapes in all four quadrants	Apply multiplication of fractions in a range of contexts
5	Connecting algebraic equations to known models (addition and subtraction)	Expressing quotients with decimals			Reflect shapes in all four quadrants	
6	Connecting algebraic equations to known models (multiplication and division)					
7	Simplifying equations to find the unknown					
8	Solving word problems involving algebra					
9	Solving problems involving algebra – abstract calculations					

The Maths Curriculum for Year 6

Spring Term 2							
	Week 1		Week 2	Week 3		Week 4	Week 5
Unit	Dividing Fractions and Fraction Problem Solving		Ratio and Proportion	Volume and Measures		Statistics—Interpret Line Graphs and Pie Charts	Algebra and Sequence
	By the end of this unit children will be able to: <ul style="list-style-type: none"> Divide proper fractions by whole numbers [for example, $13 \div 2 = 16$] This sequence applies the previous NC statements from 6LS6, 6LS7, 6LS8, 6LS21 and 6LS22 to ensure that pupils can combine and use this knowledge to solve problems 		By the end of this unit children will be able to: <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 	By the end of this unit children will be able to: <ul style="list-style-type: none"> 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 [for example, mm³ and km³] Recognise when it is possible to use formulae for area and volume of shapes Convert between miles and kilometres 		By the end of this unit children will be able to: <ul style="list-style-type: none"> Interpret and construct pie charts and line graphs and use these to solve problems 	By the end of this unit children will be able to: <ul style="list-style-type: none"> Generate and describe linear number sequences Find pairs of numbers that satisfy an equation with two unknown variables Enumerate possibilities of combinations of two variables
Suggested support for children with additional needs	<ul style="list-style-type: none"> Pre-teach concepts to children Provide a multiplication grid to aid calculations. Use of the bar model to represent calculations visually and support understanding of missing number problems 		<ul style="list-style-type: none"> Concrete apparatus to represent ratio practically and provide a visual to aid understanding. Break down ratio problems into smaller chunks to aid understanding of scaling 	<ul style="list-style-type: none"> Concrete apparatus to make learning relevant e.g. capacity beakers and measuring equipment such as tape measures and rulers. Recap of formulae for finding area and volume. Provide a formulae prompt sheet to aid retention of strategies. 		<ul style="list-style-type: none"> Provide a pre-drawn graph for data to be populated on Explore the different forms of mathematical representation and discuss how data collected in a table can be transferred to a bar chart / line graph to display the information differently. Open ended questioning about the collected data. 	<ul style="list-style-type: none"> Scaffold layout of calculation and missing numbers in equations in books Model how to build a linear sequence: 3, 5, 7, 9, 11 etc with a ruler/tape measure/ Cuisenaire rods.
Step	LS22	LS23	LS24	LS25	LS26	LS27	LS28
1	Understand the relationship between fractions and division	Reason about fractions in problems	Simplifying ratios	Visualise and calculate the volume of cubes	Clarify what is known about measures and converting them	Understanding pie charts	Build and describe linear sequences

2	Understand division of fractions by whole numbers in context	Solve mixed fraction problems	Different types of comparisons: part to part and part to whole	Calculate and compare volumes	Apply knowledge of measures and conversions to solving problems	Interpreting a simple pie chart	Identify missing terms - start and end number given
3	Unitary fractions divided by whole numbers - word problems		Solving problems with ratio – given the ratio and one part or the whole	Estimate volume	Explore the link between miles and kilometres (imperial and metric units of length)	Reviewing line graphs	Find pairs of numbers that satisfy an equation with two unknown variables
4	Non-unitary fractions divided by whole numbers		Solving problems with ratio – given the ratio and the difference			Interpreting comparison graphs	
5	Solving mixed problems		Solving problems with ratio – given the parts			Conversion graphs	
6			Scaling problems				
7			Scale factors				

The Maths Curriculum for Year 6

Summer Term 1						
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Unit	Statistics—Calculate and Interpret Mean Average and Application of Previous Years' Learning	Application of Known Facts and Calculation Strategies	Any remaining time before SATs to be used to consolidate key learning		Constructing Pie Charts	Statistical Representations
	By the end of this unit children will be able to: <ul style="list-style-type: none"> • Calculate and interpret the mean as an average 	<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, an appropriate degree of accuracy 	SATS WEEK		By the end of this unit children will be able to: <ul style="list-style-type: none"> • Interpret and construct pie charts and line graphs and use these to solve problems 	By the end of this unit children will be able to: <ul style="list-style-type: none"> • Interpret and construct pie charts and line graphs and use these to solve problems Related NC Statements <ul style="list-style-type: none"> - calculate and interpret the mean as an average - solve problems involving the calculation of percentages and the use of percentages for comparison - solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
Suggested support for children with additional needs	<ul style="list-style-type: none"> •Link application to real life contexts to make learning relevant. •Support with drawing shapes to support fine motor skills. •Visual prompts for Roman Numerals •Use clocks to support visual understanding of time conversions 	<ul style="list-style-type: none"> •Scaffolded layout of methods in books •Discuss estimations to develop an understanding of logical approximates 	<ul style="list-style-type: none"> •Readers / prompts as appropriate for assessments. 		<ul style="list-style-type: none"> •Support with drawing pie charts to support fine motor skills. •turn mathematical ideas into graphic forms through the use of ICT. 	<ul style="list-style-type: none"> •Build on pupils' preferred learning styles when explaining mathematical concepts, by exploiting different media •Exploit the many forms of mathematical representation – eg pie charts, number lines, abacus, bar charts, tiles – and the connections between them.
Step	LS29	LS30	LS31		LS32	LS33

The Maths Curriculum for Year 6

Summer Term 2						
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Unit	Further Algebra	Financial Maths and Enterprise	Maths Preparation for KS3	Year 6 Opportunities		
	By the end of this unit children will be able to: <ul style="list-style-type: none"> • Generate and describe linear number sequences 	By the end of this unit children will be able to: <ul style="list-style-type: none"> • Solve number and practical problems • Solve problems involving addition, subtraction, multiplication and division 	(Preparation for KS3)	Production Gala Dinner Transition Visits London Residential		
Suggested support for children with additional needs	<ul style="list-style-type: none"> • Scaffold layout of calculation and missing numbers in equations in books • Model how to build a linear sequence: 3, 5, 7, 9, 11 etc with a ruler/tape measure/ Cuisenaire rods. 	<ul style="list-style-type: none"> • Make learning relevant and link to real life contexts for children modelling how maths is used in day to day life. 	<ul style="list-style-type: none"> • Pre-teach important mathematical vocabulary, concepts and/or processes • Scaffold when pupils use equipment, especially for tasks requiring accuracy or skill (eg drawing or measurement) 			
Step	LS34	LS35	LS36			
1	Building sequences to generalise	Introduction to budgeting Enterprise lessons	Reflect on what you are like as a mathematician			
2	Linking sequences and algebra	Introduction to the project	Show your calculation strategy choices			
3	Describe the relationship between term and term number	Initial business ideas and market research	Show connections and depth of understanding			
4		Product planning				
5		Creating a business plan and pitching				
6		Making it, marketing it and selling it				
7		Evaluation and reflection				