Barton Clough Primary School
BRIGHT FUTURES EDUCATIONAL TRUST

Maths Curriculum Overview

The Outcome – Mathematicians

We want our mathematicians to develop an appreciation of the beauty and power of mathematics. They will be curious mathematicians who think deeply about the world, approaching problems creatively and flexibly, including breaking problems down into a series of simpler steps and persevering in seeking solutions. They will have an understanding of the concepts which underpin procedures, the ability to reason mathematically and to make rich connections between the different mathematical domains. They will 'know' numbers; develop a number sense and be able to recall and apply knowledge rapidly, accurately and efficiently. They will be able to move fluently between different representations of mathematical ideas and will be able to use manipulatives to model their mathematical thinking.

Threads

One World	Human Impact	Human Endeavour
Diversity & Mutual Respect Democracy & Individual Liberty	Sustainability & Ecology	The spirit of adventure, innovation and inspiration

Starting Points – Area of Study

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Number: Place Value Addition Subtraction Multiplication Division Fractions **Geometry**: Shape Position and Direction **Measurement:** Length Height Weight Volume Money	**Number**: Place Value Addition Subtraction Multiplication Division Fractions **Geometry**: Properties of Shape Position and Direction **Measurement:** Length Height Money Time Capacity	**Number**: Place Value Addition Subtraction Multiplication Division Fractions **Geometry:** Properties of Shape **Measurement:** Money Length Perimeter Time Mass Capacity	**Number**: Place Value Addition Subtraction Multiplication Division Fractions Decimals **Geometry:** Properties of Shape Position and Direction **Measurement:** Length Perimeter Area Money	**Number**: Place Value Addition Subtraction Multiplication Division Fractions Decimals Percentages **Geometry**: Properties of Shape Position and Direction **Measurement**: Perimeter Area Covering Units	**Number**: Place Value Addition Subtraction Multiplication Division Fractions Decimals Percentages Algebra Ratio **Geometry:** Position and Direction Properties of Shape **Measurement:** Covering Units

	Time	Temperature	Statistics	Time	Volume	Perimeter Area Volume
		Statistics		**Statistics**	**Statistics**	**Statistics**

<table>
<tr><td colspan="7" align="center">Curriculum Coverage – NC
The minimum requirements as detailed within the National Curriculum

Process Skills and Process Knowledge – Knowing How?</td></tr>
<tr><td>EYFS</td><td>Year 1</td><td>Year 2</td><td>Year 3</td><td>Year 4</td><td>Year 5</td><td>Year 6</td></tr>
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EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Number: Place Value - count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number - count, read and write numbers to 100 in numerals, count in multiples of 2, 5, 10 - given a number, identify one more and one less - identify and represent numbers using objects and pictorial representatives including the number line and the use of language of equal to, more than, less than, most, least - read and write numbers from 1 to	**Number: Place Value** - count in steps of 2, 3, 5 from 0 and in tens from any number forward and backward - recognise the place value of each digit in a two-digit number - identify, represent and estimate numbers using different representations - compare and order numbers from 0 up to 100, using < > = - read and write numbers to at least 100 in numerals and in words - use place value and number facts to solve problems	**Number: Place Value** - count from 0 in multiples of 4, 8, 50 - fine 10 or 100 more or less than a given number - recognise the place value of each digit in a three-digit number - compare and order numbers up to 1000 - identify, represent and estimate numbers using different representatives - read and write numbers up to 1000 in numerals and words - solve problems and practical problems involving these ideas **Number: Addition and Subtraction**	**Number: Place Value** - count in multiples of 6, 7, 9, 25 and 1000 - find 1000 more or less than a given number - count backwards through zero to include negative numbers - recognise the place value of each digit in a four-digit number - order and compare numbers beyond 1000 - identify, represent and estimate numbers using different representatives - round any number to the nearest 10, 100 or 1000 - solve number and practical problems that involve all of the above and with increasingly large positive numbers - read Roman numerals to 100	**Number: Place Value** - read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit - count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 - interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero - round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000 - solve number problems and practical problems that involve all of the above - read Roman numerals to 1000 and recognise years written in Roman numbers	**Number: Place Value** - read, write, order and compare numbers up to 10,000,000 and determine the value of each digit - round any whole number to a required degree of accuracy - use negative numbers in context and calculate intervals across zero - solve number and practical problems that involve all of the above **Number: Addition, Subtraction, Multiplication and Division** - multiply multi-digit numbers up to 4-digits by a 2-digit whole number using the formal written method of long multiplication - divide numbers up to 4-digit by a 2-digit number using the formal written

20 in numerals and words **Number: Addition and Subtraction** - read, write and interpret mathematical statements involving + - = - represent and use number bonds and related subtraction facts within 20 - add and subtract one-digit and two-digit numbers to 20 - solve one-step problems that involve addition and subtraction **Number: Multiplication and Division** - solve one-step problems involving multiplication and division, by calculating the answer using concrete objects etc. **Number: Fractions** - recognise, find and name a half as one of two equal parts of an object, shape or quantity	**Number: Addition and Subtraction** - solve problems with addition and subtraction using concreate objects and pictorial representatives and applying their increasing knowledge of mental and written methods - recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100 - show that addition of two numbers can be done in any order and subtraction of one number from another cannot - recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems **Number: Multiplication and Division** - recall and use multiplication and	- add and subtract numbers mentally - add and subtract numbers with up to three-digits, using formal written methods of columnar addition and subtraction - estimate the answer to a calculation and use inverse operations to check answers - solve problems, including missing number problems, using number facts, place value etc. **Number: Multiplication and Division** - recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables - write and calculate mathematical statements for multiplication and division using the multiplication tables that they know - solve problems involving multiplication and division	**Number: Addition and Subtraction** - add and subtract numbers with up to 4-digits using the formal written methods of columnar addition and subtraction - estimate and use inverse operations to check answers - solve addition and subtraction two-step problems in contexts deciding which operations and methods to use and why **Number: Multiplication and Division** - recall multiplication and division facts for multiplication tables up to 12 x 12 - use place value, known and derived facts to multiply and divide mentally including multiplying by 0 and 1, dividing by 1 - recognise and use factor pairs and commutativity in mental calculations - multiply two-digit and three-digit numbers by a one-digit number using formal written layout	**Numbers: Addition and Subtraction** - add and subtract whole numbers with more than 4 digits, including using formal written methods - add and subtract numbers mentally with increasingly large numbers - use rounding to check answers to calculations and determine levels of accuracy - solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why **Number: Multiplication and Division** - identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers - know and use the vocabulary of prime numbers, prime factors and composite numbers - establish whether a number up to 100 is prime and recall prime numbers up to 19 - multiply numbers up to 4 digits by a one or two-digit number using a formal written method including	method of long division and interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context - divide numbers up to 4-digit by a 2-digit number using the formal written method of short division where appropriate - perform mental calculations including with mixed operations and large numbers - identify common factors, common multiples and prime numbers - use their knowledge of the order of operations to carry out calculations involving the four operations - solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why - solve problems involving addition, subtraction, multiplication and division - use estimation to check answers to calculations and determine and appropriate degree of accuracy **Number: Fractions (including decimals and percentages)** - use common factors to simplify fractions, use
	Number: Multiplication and Division - recall and use multiplication and				

- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity **Measurement**: - compare, describe and solve practical problems for length, heights, mass, weight, capacity, volume and time - measure and begin to record the following: lengths, heights, mass, weight, capacity, volume and time - recognise and know the value of different denominations of coins and notes - sequence events in chronological order - recognise and use language relating to dates - tell the time to the hour and half past the hour and draw the hands on a clock face to show these times **Geometry:** **Properties of Shape** - recognise and name common 2-D and 3-D shapes (including	division facts for the 2, 5 and 10 multiplication tables - calculate statements for multiplication and division within the multiplication tables and write them using x ÷ and = - show that multiplication of two numbers can be done in any order and division of one number by another cannot - solve problems involving multiplication and division **Number: Fractions** - recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity - write simple fractions **Measurement:** - choose and use appropriate standard units to estimate and measure length/ height, mass, temperature and capacity	**Number: Fractions** - count up and down in tenths, recognise that tenths arise from dividing an object into 1- equal parts - recognise, find and write fractions of a discrete set of objects - recognise and use fractions as numbers, unit fractions and non-unit fractions with small denominators - recognise and show equivalent fractions with small denominators - add and subtract fractions with the same denominators within one whole - compare and order unit fractions and fractions with the same denominator - solve problems that involve all of the above **Measurement:** - measure, compare, add and subtract lengths, mass, volume and capacity	- solve problems involving multiplying and adding **Number: Fractions (including decimals)** - recognise and show families of common equivalent fractions - count up and down in hundredths, recognise that hundredths arise when dividing an object by one hundred - solve problems involving increasingly harder fractions to calculate quantities - add and subtract fractions with the same denominator - recognise and write decimal equivalents of any number of tenths or hundredths - recognise and write decimal equivalents to ¼, ½, ¾ - find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths - round decimals with one decimals place to the nearest whole number	long multiplication for two-digit numbers - multiply and divide numbers mentally drawing upon known facts - divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 - recognise and use square numbers and cube numbers - solve problems involving multiplication and division using their knowledge of factors, multiples, squares and cubes - solve problems involving addition, subtraction, multiplication and division and a combination of these - solve problems involving multiplication and division including scaling by simple fractions and problems involving simple rates **Number: Fractions (including decimals and percentages)** - compare and order fractions whose denominators are all	common multiples to express factions in the same denominators - compare and order fractions - add and subtract fractions with different denominators and mixed numbers using the concept of equivalent fractions - multiply simple pairs of proper fractions, writing the answer in its simplest form - divide proper fractions by whole numbers - associate a fraction with division and calculate decimal fraction equivalents - identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places - multiply one-digit numbers with up to two decimal places by whole numbers - use written division methods in cases where the answer has up to two decimal places - solve problems which require answers to be rounded to specified degrees of accuracy - recall and use equivalences between simple fractions, decimals and percentages

squares, circles, triangles, cuboids, pyramids and spheres) **Geometry: Position and Direction** - describe position, direction and movement	- compare and order lengths, mass, volume/ capacity and record the results using < > = - recognise and use symbols for pounds £ and pence p - find different combinations of coins that equal the same amount of money - solve simple problems in a practical context including addition and subtraction of money of the same unit, including giving change - compare and sequence intervals of time -tell and write the time to 5 minutes - know the number of minutes in an hour and the number of hours in a day **Geometry: Properties of Shape** - identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line	- measure the perimeter of simple 2-D shapes - add and subtract amounts of money to give change - tell and write the time from an analogue clock - estimate and read time with increasing accuracy to the nearest minute, record and compare time in terms of seconds, minutes and hours - know the number of seconds in a minute and the number of days in each month, year and leap year - compare duration of events **Geometry: Properties of Shape** - draw 2-D shapes and make 3-D shapes using modelling materials - recognise 3-D shapes in different orientations and describe them - recognise angles as a property of shape or a description of a turn	- compare numbers with the same number of decimal places up to two decimal places - solve simple measure and money problems involving fractions and decimals to two decimal places **Measurement:** - convert between different units of measure - measure and calculate the perimeter of a rectilinear figure in cm and m - find the area of rectilinear shapes by counting squares - estimate, compare and calculate different measures including money in pounds and pence - read, write and convert time between analogue and digital - solve problems involving converting from hours to minutes, minutes to seconds, years to months and weeks to day **Geometry: Properties of Shape** - compare and classify geometric shapes based	multiples of the same number - identify, name and write equivalent fractions of a given fraction - recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements - add and subtract fractions with the same denominator and denominators that are multiples of the same number - multiply proper fractions and mixed numbers by whole numbers - read and write decimal numbers as fractions - recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents - round decimals with two decimal places to the nearest whole number and to one decimal place - read, write, order and compare numbers with up to three decimal places - solve problems involving number up to three decimal places - recognise the per cent symbol % and understand that per cent relates to 'number of parts per hundred'	**Number: Ratio and Proportion** - 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 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 **Number: Algebra** - 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 **Measurement**: - solve problems involving the calculation and conversation of units of measure, using decimal notation up to three

- identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces - identify 2-D shapes on the surface of 3-D shapes - compare and sort common 2-D and 3-D shapes and everyday objects **Geometry: Position and Direction** - order and arrange combinations of mathematical objects in patterns and sequences - use mathematical vocabulary to describe position, direction and movement **Statistics:** - interpret and construct simple pictograms, tally charts, block diagrams and simple tables - ask and answer simple questions by counting the number of objects in each category and sorting	- identify right angles, recognise that two right angles make a half turn etc. - identify horizontal and vertical lines and pairs of perpendicular and parallel lines **Statistics**: - interpret and present data using bar charts, pictograms and tables - solve one=step and two-step questions	on their properties and sizes - identify acute and obtuse angles and compare and order angles up to two right angles by size - identify lines of symmetry in 2-D shapes presented in different orientations - complete a simple symmetric figure with respect to a specific line of symmetry **Geometry: Position and Direction** - describe positions on a 2-D grid as coordinates in the first quadrant - describe movements between positions as translations of a given unit to the left/ right and up/down - plot specified points and draw sides to complete a given polygon **Statistics:** - interpret and present discrete and continuous data using appropriate graphical methods including bar charts and time graphs - solve comparison, sum and difference problems	- write percentages as a fraction with denominator 100 and as a decimal - solve problems which require knowing percentages and decimal equivalents **Measurements:** - convert between different units of metric measurements - understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints - measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres - calculate and compare the area of rectangles - estimate volume - solve problems involving converting between units of time - use all four operations to solve problems involving measure **Geometry: Properties of Shape** - identify 3-D shapes from 2-D representatives - know angles are measured in degrees, estimate and compare acute, obtuse and reflex angles	decimal places where appropriate - use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit - convert between miles and kilometres - 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 **Geometry: Properties of Shape** - draw 2-D shapes using given dimensions and angles - recognise, describe and build simple 3-D shapes, including making nets - compare and classify geometric shapes based on their properties and sizes and find unknown angles in triangles, quadrilaterals and regular polygons - illustrate and name parts of circles, including radius,

		the categories by quantity - ask and answer questions about totalling and comparing data		using information presented in a bar chart, pictogram, tables and other graphs	- draw given angles and measure them in degrees - identify angles at a point and one whole turn, angles at a point on a straight line, other multiples of 90 degrees 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 **Geometry: Position and Direction** - identify, describe and represent the position of a shape following a reflection or translation using the appropriate language and know that the shape has not changed **Statistics:** - solve comparison, sum and different problems using information presented in a line graph - complete, read and interpret information in tables, including timetables	diameter and circumference and know that the diameter is twice the radius - recognise angles where they meet at a point, are on a straight line or are vertically opposite and find missing angles **Geometry: Position and Direction** - describe positions on full coordinate grid (all four quadrants) - draw and translate simple shapes on the coordinate plane and reflect them in the axes Statistics: - interpret and construct pie charts and line graphs and use these to solve problems - calculate and interpret the mean as an average

Propositional Knowledge – Knowing What?						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Getting to know you Just like me!	It's Me, 1, 2, 3! Light and Dark	Alive in 5! Growing 6, 7, 8	Building 9 and 10 Consolidation	To 20 and Beyond! First, then, now	Find My Pattern On The Move!
Year 1	**Number**: Place Value (within 10) **Number**: Addition and Subtraction (within 10)	**Number**: Addition and Subtraction (within 10) **Geometry**: Shape **Number**: Place Value (within 20)	**Number**: Addition and Subtraction (within 20) **Number**: Place Value (within 50)	**Number**: Place Value (Multiples of 2, 5 and 10) **Measurement**: Length and Height **Measurement**: Weight and Volume	**Number**: Multiplication and Division **Number**: Fractions **Geometry**: Position and Direction	**Number**: Place Value (within 100) **Measurement**: Money **Measurement**: Time
Year 2	**Number**: Place Value **Number**: Addition and Subtraction	**Number**: Addition and Subtraction **Measurement**: Money **Number**: Multiplication and Division	**Number**: Multiplication and Division **Statistics** **Geometry**: Properties of Shape	**Number**: Fractions **Measurement**: Length and Height	**Geometry**: Position and Direction **Measurement**: Time SATs consolidation	**Measurement**: Mass, Capacity and Temperature Investigations
Year 3	**Number**: Place Value **Number**: Addition and Subtraction	**Number**: Addition and Subtraction **Number**: Multiplication and Division	**Number**: Multiplication and Division **Measurement**: Money **Statistics**	**Measurement**: Length and Perimeter **Number**: Fractions	Number: Fractions **Measurement**: Time **Geometry**: Properties of Shape	**Geometry**: Properties of Shape **Measurement**: Mass and Capacity
Year 4	**Number**: Place Value	**Measurement**: Length and Perimeter	**Number**: Multiplication and Division	**Number**: Fractions	**Number**: Decimals	**Statistics**

Year						
	Number: Addition and Subtraction **Measurement**: Length and Perimeter	**Number**: Multiplication and Division	**Measurement**: Area **Number**: Fractions	**Number**: Decimals	**Measurement**: Money **Measurement**: Time	**Geometry**: Properties of Shape **Geometry**: Position and Direction
Year 5	**Number**: Place Value **Number**: Addition and Subtraction **Statistics**	**Statistics** **Number**: Multiplication and Division **Measurement**: Area and Perimeter	**Number**: Multiplication and Division **Number**: Fractions	**Number**: Fractions **Number**: Decimals and Percentages	**Number**: Decimals **Geometry**: Properties of Shape	**Geometry**: Position and Direction **Measurement**: Converting Units **Measurement**: Volume
Year 6	**Number**: Place Value **Number**: Addition, Subtraction, Multiplication and Division	**Number**: Fractions **Geometry**: Position and Direction	**Number**: Decimals **Number**: Percentages **Number**: Algebra	**Measurement**: Converting Units **Measurement**: Volume, Area and Perimeter **Number**: Ratio	**Geometry**: Properties of Shape **Statistics** Problem Solving SATs consolidation	

Key Subject Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Key Mathematical Vocab:	**Key Mathematical Vocab:**	**Key Mathematical Vocab:**	**Key Mathematical Vocab:**	**Key Mathematical Vocab:**	**Key Mathematical Vocab:**	**Key Mathematical Vocab:**

Experiences and Wider Purpose						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6