Maths at Fawbert and Barnard's Primary School

The table below is a summary of the learning journey for each year group and how they are connected. Our learning journey has been developed using various resources including the ready-to-progress criteria, NECTM, White Rose, Power Maths, and subject knowledge. The annual map is created in a spiral curriculum ensuring that learning is recapped over time termly building on prior knowledge.

Strand	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number and Place value	• To recognise and explore the composition of numbers up to 10. • Subitise to 6. • Link the number symbol (numeral) with its cardinal number value. • Count beyond 10. • Comparing numbers using the vocabulary more, less, fewer, same, equal to. • Understand 'one more than/less than' consecutive numbers. • Recall number bonds for numbers 0-5 a d some to 10.	• Count, read and write numbers to 100 in numerals • Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • Identify and represent numbers up to 100 using objects and pictorial representations including the number line; use the language of: equal to, more than, less than (fewer), most, least • Count, read and write numbers to 100 in numerals • count in multiples of twos, fives and tens • From a given number (up to 100), identify one more and one less • read and write numbers from 1 to 20 in numerals and words	• Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward • Use place value and number facts to solve problems. • Recall place value of each digit in a two-digit number (tens, ones) • Identify, represent and estimate numbers using different representations, including the number line • Compare and order numbers from 0 up to 100; use <, > and = signs • Read and write numbers to at least 100 in numerals and in words	• Solve number problems and practical problems involving place value and rounding. • Identify, represent and estimate numbers up to 4-digits using different representations • Compare and order numbers up to 1000 • Count from 0 in multiples of 4, 50 and 100; find 10 or 100 more or less than a given number	• Round any number to the nearest 10, 100, 1000 or 10 000 • Solve number and practical problems that involve place value and rounding and with increasingly large positive numbers • Find 1000 more or less than a given number • Count backwards through zero to include negative numbers • Count in multiples of 6, 7, 9, 25 and 1000 • Recognise the place value of each digit in a five-digit number (ten thousands, thousands, hundreds, tens, and ones) • Order and compare numbers up to and beyond 10 000 • Identify, represent and estimate numbers using different representations	• Read, write 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 from any given number up to 1 000 000 • Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 1 000 000 • Solve number problems and practical problems that involve number, place value and rounding up to 1 000 000 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero	• Use negative numbers up to and beyond 100 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 • Round any whole number to a required degree of accuracy up to and beyond 10 000 000 • Solve number and practical problems that involve number, place value and rounding up to and beyond 10 000 000
Adding and subtracting		• Solve one- step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems • Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs	• Show that addition of two numbers can be done in any order (commutative) 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.	• Estimate the answer to a calculation and use inverse operations to check answers • Add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens	• Use both mental and written methods with increasingly large numbers to aid fluency • Estimate and use inverse operations to check answers to a calculation • Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	• Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) decimals and fractions of values up to 1 000 000 • Add and subtract numbers mentally with increasingly large numbers of values up to 1 000 000	• Solve multi-step problems involving addition, subtraction, multiplication and division of numbers up to 5 digits • Continue to practise the four operations for larger numbers using the formal written methods of columnar addition and subtraction, short and long multiplication, and short and long division

		• Represent and use number bonds and related subtraction facts within 20 • Add and subtract one-digit and two-digit numbers to 20, including zero	• Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: - a two-digit number and ones - a two-digit number and tens - two two-digit numbers - adding three one-digit numbers • Using concrete objects and pictorial representations, including those involving numbers, quantities and measures • Solve problems with addition and subtraction • Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100	a three-digit number and hundreds • Add and subtract numbers with up to three digits, using the efficient written methods of columnar addition and subtraction • Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	• Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	• Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy of values up to 1 000 000 • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why of values up to 1 000 000	• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • Perform mental calculations, including with mixed operations and large numbers up to 10 000 000 • Solve addition and subtraction multi- step problems in contexts, deciding which operations and methods to use and why up to 10 000 000 • Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy • Identify common factors, common multiples and prime numbers up to 100 Recall and use square numbers and cube numbers, and the notation for squared (^{2}) (up to 12^2) and cubed (^{3}) (up to 5^3) • Use written division methods in cases where the answer has up to two decimal places
Multiplying and dividing		•Counting in 5s, recognising patterns and recalling the 5 times table. •Understanding on how to make equal groups of 5 •Recall counting in 2's and 10's •Use concrete objects, pictorial representations and arrays with the support of the teacher to create the 5 times table • Solve one-step problems involving multiplication and division, by calculating the answer	•Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot •Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs	• solve problems, including missing number problems, involving multiplication and division • Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • Write and calculate mathematical two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	• Solve problems involving multiplying and adding, to multiply three-digit numbers by one digit, • recall multiplication and division facts for multiplication tables up to 12 × 12 • use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers • 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	• Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign of up to 4-digit numbers • Recall multiples and factors, including finding all factor pairs of a number and common factors of two numbers of numbers up to 100 • Solve problems involving 4-digit multiplication and division where larger numbers are used by decomposing them into their factors • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime)	

						numbers of numbers up to 100 • Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • 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 showing fractions or decimal answers Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	
Fractions, decimals and percentages		• Recognise, find and name a half as one of two equal parts of an object, shape or quantity • Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	•Write simple fractions e.g. 1⁄2 of 6 = 3 and recognise the equivalence of two quarters and one half •Recognise, find, name and write fractions 1 /3, 1⁄4, 2⁄4 and 3⁄4 of a length, shape, set of objects or quantity	• Add and subtract fractions with the same denominator within one whole • Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. • Recognise and use fractions as numbers *on the number line:* unit fractions and non-unit fractions with small denominators • Recognise and show, using diagrams, equivalent fractions with small denominators	• Identify, name and write equivalent fractions of a given fraction, including tenths and hundredths and convert into decimals • Recognise and write decimal equivalents of any number of tenths or hundredths • Recognise and write decimal equivalents to $^1/_4$; $^1/_2$; $^3/_4$ • Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten • Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non- unit fractions where the answer is a whole number • Recall the effect of dividing a one- or two-digit number by 10 and 100,	• Convert confidentially between percentages, decimals and fractions • Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. • Compare and order fractions whose denominators are all multiples of the same number • Recognise mixed numbers and improper fractions and convert from one form to the other • Add and subtract fractions with the same denominator and multiples of the same number • Add and subtract decimals with a different number of decimal places • Round decimals with two decimal places to the nearest whole number and to one decimal place	• Multiply simple pairs of proper fractions, writing the answer in its simplest form • Divide proper fractions by whole numbers • Solve percentages of a quantity to any given percentage • Use a variety of images to support understanding of multiplication with fractions Use common factors to simplify fractions; use common multiples to express fractions in the same denomination • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000

				•Compare and order unit fractions, and fractions with the same denominators •Solve problems that involve fractions	• Round decimals with one decimal place to the nearest whole number • Solve simple measure and money problems involving fractions and decimals to two decimal places	• Read, write, order and compare numbers with up to three decimal places • Solve problems and puzzles involving number up to three decimal places, checking the reasonableness of answers • 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.	where the answers are up to three decimal places • Multiply and divide numbers with up to two decimal places by one-digit and two-digit whole numbers • Solve problems which require answers to be rounded to specified degrees of accuracy and check the reasonableness of answers.
Ratio and proportion							• Solve problems involving the calculation of percentages (e.g. measures) such as 15% of 360 and the use of percentages for comparison • Link percentages of 360° to calculating angles of pie charts • 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
Algebra							• Find pairs of numbers that satisfy number sentences involving two unknowns. •Use symbols and letters to represent variables and unknowns in mathematical situations such as: - missing numbers, lengths, coordinates and angles - mathematics and science formulae

							- arithmetic rules •generalising number patterns • Express missing number problems algebraically • Use simple formulae expressed in words • Enumerate all possibilities of combinations of two variables • Generate and describe linear number sequences
Measurements	Compare length Compare weight Compare capacity	•Recognise and use language relating to dates, including days of the week, weeks, months and years; • Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] • Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times • Compare, describe, measure and solve practical problems for: - Lengths and heights (- Mass or weight (e.g. heavy/light, heavier than, lighter than) - Capacity/volume (full/empty, more than, less than, quarter) - Time	•Compare and sequence intervals of time tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times know the number of minutes in an hour and the number of hours in a day •Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels •Compare and order lengths, mass, volume/capacity and record the results using >, < and = •Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value find different combinations of	• Add and subtract amounts of money to give change, using both £ and p in practical contexts. • Measure the perimeter of simple 2-D shapes • Measure, compare, add and subtract: length (m/cm/mm); mass (kg/g); volume/capacity (l/ml) • Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour *digital* clocks • Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon	• Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. • Convert between different metric units of measure	• Understand and use equivalences between metric and common imperial units such as inches, pounds and pints • Calculate and compare the area and perimeter of rectilinear shapes including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes • Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • Calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes • Estimate volume e.g. using $1cm^3$ blocks to build cubes and cuboids and capacity • Solve problems involving converting between units of time	• Recognise when it is possible to use formulae for area and volume of shapes • calculate, estimate and compare volume of cubes and cuboids using standard units • 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 three decimal places • Recognise that shapes with the same areas can have different perimeters and vice versa • Calculate the area of parallelograms and triangles, relating it to the area of rectangles • Solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate

		•Recognise and know the value of different denominations of coins and notes	coins that equal the same amounts of money			• Use all four operations to solve problems involving measure	• convert between miles and kilometres and other units commonly used
Geometry	• Compose and decompose shapes so that children recognise a shape can have other shapes within it just as numbers can • Continue, copy and create repeating patterns	• Recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles] • Recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	• Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] • Compare and sort common 2-D and 3-D shapes and everyday objects. • Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces	• Identify horizontal and vertical lines and pairs of perpendicular and parallel lines • Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations; and describe them • Recognise that angles are a property of shape or a description of turn • Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle	• Identify acute and obtuse angles and compare and order angles up to two right angles by size, *without using a protractor* • Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • Recall 2D and 3D shapes	• Use angle sum facts and other properties to make deductions about missing angles • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • Draw given angles, and measure them in degrees (°) • Identify: o angles at a point and one whole turn (total 360°) o angles at a point on a straight line and ½ a turn (total 180°) o other multiples of 90° Use the properties of rectangles to deduce related facts and find missing lengths and angles	• Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius •Recap how to 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 any triangles, quadrilaterals, and regular polygons
Positioning, movement and Transformation	• Select, rotate and manipulate shapes.	• Describe position, direction and movement, including whole, half, quarter and three-quarter turns.	• use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise). • Order and arrange combinations of mathematical objects in patterns		• Describe movements between positions as translations of a given unit to the left/right and up/down • describe positions on a 2-D grid as coordinates in the first quadrant • Plot specified points and draw sides to complete a given polygon.	• Identify coordinates after multiple step translation or reflection • Identify, describe and represent the position of a shape following a reflection • Translate a shape using the appropriate language and know that the shape has not changed.	• 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. • Predict missing coordinates of quadrilaterals by using the properties of shapes, which may be expressed algebraically
Statistics			• Ask and answer simple questions about totalling and comparing categorical data using the data into a table	• Interpret data presented in many contexts • Interpret and present data using bar charts, pictograms and tables,	• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs and line graphs	• Complete, read and interpret information in tables, including timetables.	• Encounter and draw graphs relating two variables, arising from their own enquiry and in other subjects.

			• 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 the categories by quantity	understanding and using simple scales e.g. 2, 5, 10 units per cm with increasing accuracy. • Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables	• Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	Solve comparison, sum and difference problems using information presented in line graphs	• Interpret and construct pie charts and line graphs and use these to solve problems • Calculate and interpret the mean as an average.