At Fairfield Road, we aim to to offer a rich mathematics curriculum that allows our children to:

- become confident, skilled and resilient mathematicians
- understand that Mathematics is a fundamental part of everyday life and the world we live in.
- develop an enthusiastic attitude towards the subject
- build resilience in this subject – mistakes are part of their learning journey and help them to improve in the future.

Curriculum Aims

By the end of EYFS, children at Fairfield Road will be able to recite numbers to 50, recall one more and one less than any number to 10, recall number bonds to 5 and understand odd and even.

By the end of KS1, children at Fairfield Road will be able to count forwards and backwards from any number within 100; count in 2s, 5s and 10s; recall number bonds up to 100; recognise halves, thirds and quarters; and name a variety of 2D and 3D shapes.

By the end of KS2, children at Fairfield Road will be able to determine the value of any digit within a number including up to 3 decimal places, be confident in all their times tables (up to 12x12), round any number to any degree of accuracy, have strong FDP skills (converting between the three), convert between different units of measurement and recall all appropriate angle facts

Mathematics – Curriculum Progression across EYFS and Key Stages 1 & 2

1. Number: Number and Place Value
2. Number: Addition and Subtraction
3. Number: Multiplication and Division
4. Number: Fractions
5. Number: Ratio & Proportion
6. Measurement
7. Geometry: Properties of Shape
8. Geometry: Position and Direction
9. Statistics
10. Algebra

*NS – covered within the EYFS Statutory Framework (Educational Programmes) but not assessed under ELG.

Number & Place Value	R	1	2	3	4	5	6
Counting	• Have a deep understanding of number to 10, including the composition of each number. (Counting with 1:1 correspondence; cpounting to 10 orally; one more or one less) • Subitise (recognise quantities without counting) up to 5.	• 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 twos, fives and tens	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number	• count in multiples of 6, 7, 9, 25 and 1000 • count backwards through zero to include negative numbers • find 1000 more or less than a given number	• 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	• use negative numbers in context, and calculate intervals across zero
Place Value (Reading, Writing, Ordering, Comparing and Valuing Numbers)	• one more or one less • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.	• given a number, identify one more and one less • read and write numbers from 1 to 20 in numerals and words.	• recognise the place value of each digit in a two-digit number (tens, ones) • read and write numbers to at least 100 in numerals and in words • compare and order numbers from 0 up to 100; use <, > and = signs	• recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • read and write numbers up to 1000 in numerals and in words • compare and order numbers up to 1000	• recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • order and compare numbers beyond 1000	• read, write, order and compare numbers to at least 1 000 000 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
Identifying, Representing and Estimating Number		• identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least	• identify, represent and estimate numbers using different representations, including the number line	• identify, represent and estimate numbers using different representations	• identify, represent and estimate numbers using different representations		

Rounding					• round any number to the nearest 10, 100 or 1000	• round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	• round any whole number to a required degree of accuracy
Problem Solving			• use place value and number facts to solve problems.	• solve number problems and practical problems involving these ideas.	• solve number and practical problems that involve all of the above and with increasingly large positive numbers	• solve number problems and practical problems that involve all of the above	• solve number and practical problems that involve all of the above.
Roman Numerals					• read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value	• read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	

Addition & Subtraction	R	1	2	3	4	5	6
Problem Solving		• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = [ ] – 9.	• solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods	• 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.	• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	• 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
Facts	• Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.	• represent and use number bonds and related subtraction facts within 20	• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100				
Understanding and Using Statements & Relationships		• 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 & 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	• estimate and use inverse operations to check answers to a calculation	• use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	• use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. • use their knowledge of the order of operations to carry out calculations involving the four operations

Addition and Subtraction – Mental & Written Methods		• 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	• add and subtract numbers mentally, including: • a three-digit number and ones • a three-digit number and tens • a three-digit number and hundreds • add & subtract numbers up to 3 digits, using formal methods of columnar addition and subtraction	• 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) • add and subtract numbers mentally with increasingly large numbers	• perform mental calculations, including with mixed operations and large numbers
Multiplication & Division		**1**	**2**	**3**	**4**	**5**	**6**
Problem Solving		• solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	• solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	• solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	• solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	• solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	• 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, in the context of a problem, an appropriate degree of accuracy.

Facts	• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.		• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	• recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	• recall multiplication and division facts for multiplication tables up to 12 × 12	• establish whether a number up to 100 is prime and recall prime numbers up to 19	
Understanding and Using Statements & Relationships			• show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot		• 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	• 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 (non-prime) numbers • recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	• identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the four operations
Multiplication and Division – Mental & Written Methods			• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	• write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	• multiply two-digit and three-digit numbers by a one-digit number using formal written layout	• 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 • multiply and divide numbers mentally using known facts • divide numbers up to 4 digits by a one-digit number using the formal written method of short division & interpret remainders	• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context

						appropriately for the context • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	• divide numbers up to 4 digits by a two-digit number using formal short division where appropriate, interpreting remainders according to the context • perform mental calculations, including mixed operations and large numbers

FDP	R	1	2	3	4	5	6
Recognising, Finding, Naming and Writing Fractions inc. Equivalent Fractions		• 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.	• recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity • write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ & $\frac{1}{2}$.	• 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: unit fractions and non-unit fractions with small denominators	• recognise and show, using diagrams, families of common equivalent fractions • recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ • compare numbers with the same number of decimal places up to two decimal places	• recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] • read and write decimal numbers as fractions [for example, 0.71 = $\frac{71}{100}$] • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per hundred’, and write percentages as a fraction with denominator 100, and as a decimal • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	• use common factors to simplify fractions; use common multiples to express fractions in the same denomination • 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 • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$] • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
Counting & Ordering				• count up and down in tenths; recognise that tenths arise	• count up and down in hundredths; recognise that	• read, write, order and compare numbers with up to	• compare and order fractions, including fractions > 1

				from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • compare and order unit fractions, and fractions with the same denominators	hundredths arise when dividing an object by one hundred and dividing tenths by ten. • round decimals with one decimal place to the nearest whole number	three decimal places • compare and order fractions whose denominators are all multiples of the same number	
Adding, Subtracting, Dividing & Multiplying Fractions				• add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]	• add and subtract fractions with the same denominator • find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths	• round decimals with two decimal places to the nearest whole number and to one decimal place • 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, supported by materials and diagrams	• 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 [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$] • divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$] • multiply 1-digit numbers up to 2 decimal places by whole numbers • use written division methods with an answer up to 2 decimal places
Problem Solving				• solve problems that involve all of the above.	• solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the	• solve problems involving number up to three decimal places • solve problems which require knowing percentage and decimal	• solve problems which require answers to be rounded to specified degrees of accuracy

					answer is a whole number • solve simple measure and money problems involving fractions and decimals to two decimal places.	equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.	

Ratio and Proportion	R	1	2	3	4	5	6
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 [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 & grouping using knowledge of fractions & multiples.

Measurement	R	1	2	3	4	5	6
Calculating						• use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
Measuring length, mass, temperature, capacity (volume), perimeter & area	• NS: Similarities and differences; explore length, height and size using correct vocabulary such as: long, tall, small, big, short	• compare, describe and solve practical problems for: • lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] • mass/weight [for example, heavy/light, heavier than, lighter than] • capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] • time [for example, quicker, slower, earlier, later] • measure and begin to record the following: • lengths and heights • mass/weight • capacity and volume • time (hours, minutes, seconds)	• compare and order lengths, mass, volume/capacity and record the results using >, < and = • 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	• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes	• Convert between different units of measure [for example, kilometre to metre; hour to minute] • measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • find the area of rectilinear shapes by counting squares • estimate, compare and calculate different measures, including money in pounds and pence	• convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • 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 (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes	• use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places • 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

						• estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]	standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].
Money		• recognise and know the value of different denominations of coins and notes	• recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value • find different combinations of coins that equal the same amounts of money • solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change	• add and subtract amounts of money to give change, using both £ and p in practical contexts	• estimate, compare and calculate different measures, including money in pounds and pence		
Time	• NS Introduction to language: yesterday, tomorrow, today, morning, afternoon and evening • NS Ordering familia events e.g. daily routine using language such as first, next and then. • OWN PROGRAMME OF STUDY	• sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] • 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	• 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.	• tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight	• read, write and convert time between analogue and digital 12- and 24-hour clocks • solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	• solve problems involving converting between units of time	•

		clock face to show these times.		• know the number of seconds in a minute and the number of days in each month, year and leap year • compare durations of events [for example to calculate the time taken by particular events or tasks].			

Geometry - Shapes	R	1	2	3	4	5	6
Recognising, naming, drawing, comparing & classifying 2D & 3D Shapes	• NS: Recognise 2-D shapes: circle, triangle, rectangles and square • Recall of properties (sides and corners) for each shape • Recognise and name some 3-D shapes (passports)	• recognise and name common 2-D and 3-D shapes, including: • 2-D shapes [for example, rectangles (including squares), circles and triangles] • 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	• 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 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.	• draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	• compare and classify geometric shapes, including quadrilaterals and triangles**,** based on their properties and sizes	• identify 3-D shapes, including cubes and other cuboids, from 2-D representations • distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	• 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 • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
Angles and Symmetry	•	•	•	• recognise angles as a property of shape or a description of a 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 horizontal and vertical lines and pairs of	• 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.	• know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees (°) • identify: • angles at a point and one whole turn (total 360°) • angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°)	• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

				perpendicular and parallel lines.		• other multiples of 90^o • use the properties of rectangles to deduce related facts and find missing lengths and angles	

Geometry – Position & Direction	R	1	2	3	4	5	6
Describing	• NS: Prepositional language i.e. in, under, next to, on top of, behind, in front and inbetween.	• 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).		• 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	• 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.	• describe positions on the full coordinate grid (all four quadrants)
Representing	• NS: Two-step repeating patterns moving onto three using shapes, objects and body parts	•	• order and arrange combinations of mathematical objects in patterns and sequences		• plot specified points and draw sides to complete a given polygon.	• (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.	• draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

Statistics	R	1	2	3	4	5	6
Representations			• interpret and construct simple pictograms, tally charts, block diagrams and simple tables	• 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.	• complete, read and interpret information in tables, including timetables.	• interpret and construct pie charts and line graphs and use these to solve problems
Problem Solving			• ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling & comparing categorical data.	• solve one-step and two-step questions [for example, '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 a line graph •	• calculate and interpret the mean as an average.

Algebra	R	1	2	3	4	5	6
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.