

## Crossfell Mathematics Curriculum 2022-23

	Mathematics Curriculum – Year 5 Autumn				
Unit:	Number: Place Value	Number: Addition and Subtraction	Statistics	Number: Multiplication and division	Measure: Perimeter and area
Term:	Autumn 1: 3 Weeks	Autumn 1: 2 Weeks	Autumn 2: 2 Weeks	Autumn 2: 3 Weeks	Autumn 2: 2 Weeks
<b>What We Will Learn</b>	Pupils will compare and order numbers up to 100,000 by applying their understanding from year 4 and how numbers can be represented in different ways. by using place value counters, part-whole models and Roman numerals. They will play card games and find the greatest number, they will be able to round up to the numbers to the nearest 10, 100, 1,000 and 10,000	Pupils will build upon previous learning of column addition. They will now look at numbers with more than 4 digits. They will use their place value knowledge to line up the numbers accurately. Pupils will learn the importance of subtracting the smallest digit first.	Pupils will read and interpret line graphs. They make links back to using number lines when reading horizontal and vertical axes.	Pupils will build on their time table knowledge, pupils will find multiples of whole numbers. They will build multiples of numbers using concrete and pictorial representations e.g. an array. Pupils will understand the relationship between multiplication and division and use arrays to show the relationship between them.	Pupils will measure the perimeter of rectilinear shapes from diagrams without grids. They will recap measurement skills and learn that when measuring with a ruler they will need accurate readings.
<b>What We Will Do</b>	Read, write, order and compare numbers to at least 1000000 and determine the value of each digit. Count forwards or backwards in steps of powers of 10 for any given number up to 1000000. Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero. Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000 Solve number problems and practical problems that involve all of the above. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	Add and subtract numbers mentally with increasingly large numbers. Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. Solve addition and subtraction multi-step problems in contexts deciding which operations and methods to use and why	Solve comparison, sum and difference problems using information presented in a line graph. Complete, read and interpret information in tables including timetables	Multiply and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers by 10, 100 and 1000. Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2 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. Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. Recognise and use square numbers and cube numbers and the notation for squared (2) and cubed (3) Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign.	Measure and calculate the perimeter of composite rectilinear shapes in cm and m. Calculate and compare the area of rectangles (including squares), and including using standard units, cm <sup>2</sup> ,m <sup>2</sup> estimate the area of irregular
<b>Skills Learned</b>	Pupils will further develop their number skills read write and numbers up to 1,000,000	Pupils will develop their skills and knowledge and build on their understanding of estimating for calculations and problems.	Pupils will build on prior knowledge of scales and co-ordinates to represent data in a line graph.	Pupils will develop their knowledge of factors and will be able to understand that factors are whole numbers that you multiple together to get another whole number. (factor x factor = product)	Pupils will develop their knowledge and will be able to consider alternative methods when finding the perimeter of rectangles. E.g. $l + w + l + w$ or $(l + w) \times 2$

## Crossfell Mathematics Curriculum 2022-23

Mathematics Curriculum – Year 5 Spring				
Unit:	Number: Multiplication and division	Number: Fractions	Number: Decimals and Percentages	Consolidation
Term:	Spring 1: 3 Weeks	Spring 1:6 Weeks	Spring 2: 2 Weeks	Spring 2: 1 Week
<b>What We Will Learn</b>	<p>Pupils will build on their time table knowledge, pupils will practice multiply and dividing with concrete manipulatives.</p> <p>Multiplication:            2-digit by 1-digit            3-digit by 1-digit            4-digit by 1-digit</p> <p>Division            2-digit by 1-digit            3-digit by 1-digit            4-digit by 1-digit</p>	<p>Pupils will explore fractions in different representations, for example, fractions of shapes, quantities and fractions on a number line. They explore and recap the meaning of numerator and denominator, non-unit and unit fractions. Pupils explore equivalent fractions using models and concrete representations, they will use models to make the link to multiplication and division. Pupils then apply the abstract method to find equivalent fractions.</p>	<p>Pupils will explore the relationship between decimals and fractions. They start with a fraction (including concrete and pictorial representations of fractions) convert it into a decimal and as they progress, children will see the direct link between fractions and decimals. Pupils will understand to represent percentages as fractions using the denominator 100 and make the connection to decimals and hundredths.</p>	
<b>What We Will Do</b>	<p>Multiply and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers by 10, 100 and 1000. Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2 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. Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. Recognise and use square numbers and cube numbers and the notation for squared (2) and cubed (3) Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign</p>	<p>Compare and order fractions whose denominators are multiples of the same number. Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths. Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt;1</math> as a mixed number [for example <math>2/5 + 4/5 = 6/5 = 1</math> and <math>1/5</math>] 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. Read and write decimal numbers as fractions for example <math>0.71 = 71/100</math> Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p>	<p>Read, write, order and compare numbers with up to three decimal places. 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. Solve problems involving number up to three decimal places. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. 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. Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25.</p>	<p>Time at the beginning or end of the term for consolidation, gap filling, seasonal activities, assessments , etc</p>
<b>Skills Learned</b>	<p>Pupils will continue to use place value counters to partition and then group their number to further develop their understanding of the short division method.</p>	<p>Pupils will be able to transfer their knowledge of all fractions and will be able to spot patterns by understanding the link between multiplying fractions and finding fractions of an amount.</p>	<p>Pupils will be able to recognise percentages, decimals and fractions are different ways of expressing proportions.</p>	

## Crossfell Mathematics Curriculum 2022-23

Mathematics Curriculum – Year 5 Summer						
Unit:	Consolidation	Decimals	Geometry – Properties of shapes	Geometry: Position and direction	Measurements: Converting units	Measurement: Volume
Term:	Summer 1: 1 Week	Summer 1: 3 Weeks	Summer 1: 3 Weeks	Summer 1: 2 Weeks	Summer 2: 2 Weeks	Summer 2: 1 Week
<b>What We Will Learn</b>		Pupils will learn how to add decimals within one whole. They use place value counters and place value charts to support adding decimals and understand what happens when we exchange between columns. Pupils build on their understanding that 0.45 is 45 hundredths, children can use a hundred square to add decimals.	Pupils develop their understanding of obtuse and acute angles by comparing with a right angle. They use an angle tester to check whether angles are larger or smaller than a right angle. Pupils learn that an acute angle is more than 0 degrees and less than 90 degrees, a right angle is exactly 90 degrees and an obtuse angle is more than 90 degrees but less than 180 degrees.	Pupils are introduced to coordinates for the first time and they describe positions in the first quadrant. They read, write and use pairs of coordinates. Pupils need to be taught the order in which to read the axes, -axis first, then -axis next. They become familiar with notation within brackets. Pupils will learn to translate shapes on a grid and be able to find and identify lines of symmetry within 2-D shapes.	Pupils will focus on the use of the prefix 'kilo' in units of length and mass, meaning a thousand. They convert from metres to kilometres (km), grams to kilograms (kg) and vice versa. Pupils will feel the weight of a kilogram and various other weights in order for them to have a better understanding of their value.	Pupils will understand that volume is the amount of solid space something takes up. They look at how volume is different to capacity, as capacity is related to the amount a container can hold. Pupils will use centimetre cubes to make solid shapes. Through this, they recognise the conservation of volume by building different solids using the same amount of centimetre cubes.
<b>What We Will Do</b>	Time at the beginning or end of the term for consolidation, gap filling, seasonal activities, assessments , etc	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 ½ a turn (total 180° ) other multiples of 90°	Identify 3D shapes, including cubes and other cuboids, from 2D representations. 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.	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	Convert between different units of metric measure (for example, km and m; cm and m; cm and mm; g and kg; l and ml) Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. Solve problems involving converting between units of time.	Estimate volume [for example using 1cm <sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water] Use all four operations to solve problems involving
<b>Skills Learned</b>		Pupils will use their addition and subtraction skills to be able to add and subtract numbers with decimals from whole numbers.	Pupils will build on their prior knowledge and develop their understanding of using both the inside and outside scales of the protractor,	Pupils will develop their knowledge and understanding. They will be able to read, write and use pairs of coordinates.	Pupils further develop their knowledge in measurement they will be able to convert between different units of length and choose the appropriate unit for measurement.	Pupils will use and develop their understanding of volume (the amount of solid space taken up by an object) to compare and order different solids that are made of cubes.

