Cowbit St Mary's Cof E Primary School Whole School Curriculum Progression Map – Maths

	EYFS	KS1		KS2			
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number and place value	ELG 11 children count reliably with numbers 1 to 20 and place them in order. ELG 11 Numbers 1 to 20 – children say 1 more 1 less than number given	Count to and across 100, forwards and backwards from any given number Count, read and write numbers to 100 in numerals Count in multiples of 2, 5 and 10. Read and write numbers from 1 to 20 in words Identify 1 more/1less Use the language of: equal to, more than, less than, (fewer, greater), most and least Identify and represent numbers using objects and pictorial representations including a number line.	Count in steps of 2, 3 and 5 from 0. Count in steps of 10 from any given number forwards and backwards. Read and write numbers to at least 100 in numerals and words. Compare and order numbers up to 100 using < > and = signs. Recognise the place value of each digit in a two digit number (tens and ones) Identify, represent and estimate numbers using different representations including the number line. Use place value and number facts to solve problems	Read, and write numbers to at least 1000 in numerals and words. Count from 0 – 96 in 8s. Compare and order numbers up to 1000 using =, > and <.	Read Roman numerals to 100. Count backwards through zero and understand that -2 is greater than -3. Order numbers up to 10,000 using =, > and <. Count in multiples of 9 and 25. Round any numbers up to 10,000 to the nearest 1000.	Count forwards and backwards in steps of 1,000 and 100,000 from any number up to 1,000,000. Round any number up to 1,000,000 to the nearest 100,000 10,000, 1000, 100 and 10. Read Roman numerals to 1000(M) and recognise years written in Roman numerals. **Solve number problems and practical problems that involve all these aspects.**	Read, write, order and compare numbers up to 10,000,000. Calculate the value of each digit by partitioning. Round any whole number to a required degree of accuracy.
Addition, Subtraction, multiplication and division	ELG 11 Using quantities and objects, they add and subtract two single digit numbers and count on or back to find the answer. ELG11 They solve problems involving doubling, halving and sharing.	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Represent and use number bonds and related subtraction facts within 20. Add and subtract one and two digit numbers to 20, including 0. Solve one step problems involving addition and subtraction using concrete objects and pictorial representations Solve missing number problems such as: 7 = - 9 WITH ADULT SUPPORT Solve one-step multiplication problems by using concrete objects or pictures Solve one-step multiplication problems by using arrays Solve one –step division problems by using concrete objects or pictures Solve one-step division problems by using arrays	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 Show that addition of two numbers can be done in any order (commutative) and subtraction cannot. Calculate mathematical statements for multiplication and division and write them using x ÷ = signs. Show that multiplication of two numbers can be done in any order (commutative) and division cannot. Recall and use addition and subtraction facts to 20 fluently and derive and use the related facts up to 100 Recall and use multiplication and division facts for 2, 5 and 10 times table Recognise odd and even numbers Solve problems with + and – - using concrete objects and pictorial representation, involving numbers, quantities and measures. -Applying increasing knowledge of mental and written methods Solve problems with x and ÷ using arrays, repeated addition, mental methods and facts. Recognise and use the inverse relationship between + and – and use this to check calculations and solve missing number problems.	Add numbers with up to 3-digits, using the column method with carrying and exchanging. Subtract numbers with up to 3-digits, using the column method with carrying and exchanging. Estimate the answer to a calculation. Use inverse operations to check answers. Solve missing number addition and subtraction problems. Solve more complex addition and subtraction problems. Mentally add and subtract a 3-digit number and a hundreds number. Multiply a 2-digit number by a single digit using a simple grid. Answer multiplication and division facts for the 2, 3, 4, 5, 8, 10, 11 times tables very quickly. Solve problems, including missing number problems. Solve maths problems e.g. 3 hats and 4 coats – how many different outfits?	Solve 2-step problems by deciding which operation to use and why. Make a sensible estimate and check the answer using the inverse operation. Answer multiplication and division facts for multiplication tables up to 12x12 very quickly. Say all the square numbers. Work out the factor pairs and use them in mental calculations. Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written method. Solve more complex problems. Calculate the prime factors and work out the factors within any number up to 144	Mentally add and subtract any 2 and 3-digit numbers. Add and subtract any 1000s number from any 5-digit number. Identify multiples and be able to find all factor pairs. Recognise and use squared and cubed numbers and the correct notation. Use the square root sign √. Solve problems where larger numbers are used by decomposing them into their factors. Multiply numbers up to 4-digits by a 1-digit and 2-digit number using an efficient written method. Divide numbers up to 4-digits by a 1-digit number using short division written method. Solve problems including scaling by simple fractions and problems involving simple rates.	Add and subtract using negative numbers. Perform mental calculations, including with mixed operations and large numbers. Divide numbers up to 4-digits by a 2-digit whole number up to 20 using the efficient written method and interpret remainders as whole number remainders, fractions or by rounding, as appropriate for the context. Solve multi-step problems involving the 4 rules and use estimations to check answers to calculations. Use my knowledge of the order of operations to carry out calculations involving the 4 operations.

Fractions (including, decimals and percentages)	Understand halving	Recognise, find and name a half as one of two equal parts of: - An object - A shape - A quantity Recognise, find and name a quarter as one of four equal parts of: - An object - A shape - A quantity	Recognise, find, name and write fractions 1/3, ¼, 2/4, and ¾ of - A length - A shape - A set of objects - A quantity Write simple fractions e.g. ½ of 6 = 3 Recognise the equivalence of 2/4 and ½	Show using diagrams, equivalent fractions with small denominators. Add and subtract fractions with the same denominator up to one whole. Find pairs of fractions that add up to a whole. Solve fraction problems using what I know so far about fractions. Find non unit fractions with small denominators of a set of objects.	Calculate decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$. Round decimals with one decimal place to the nearest whole number. Order numbers with the same number of decimal places up to one decimal place. Calculate equivalent fractions of a given fraction including tenths and hundredths. Add and subtract fractions with the same denominator.	Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25. Mentally add and subtract tenths and mixed numbers with tenths. Add and subtract decimals up to 3 decimal places. Compare and order fractions whose denominators are all multiples of the same number. Add and subtract fractions with the same denominator and related fractions; write mathematical statements >1 as a mixed number. Multiply proper fractions and mixed numbers by whole numbers up to 10, 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 (e.g. 1/4 x 1/2) Divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6). Multiply 1-digit numbers with up to 2 decimal places by whole numbers. Use written division methods in cases where the answer has up to 2 decimal places. Solve problems which require answers to be rounded to specified degrees of accuracy. Find a percentage of any given number.

| Measurement | ELG 12 Use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. | Compare, describe and solve practical problems for:
 - Lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half)
 - Mass/weight e.g. heavy/light
 - Capacity and volume e.g. full/empty, more/less, half/quarter full

 Measure and begin to record:
 - Lengths and heights
 - Mass/weight
 - Capacity/volume
 - Time (hours, minutes, seconds)

 Recognise and know the value of different denominations of coins and notes

 Sequence events in chronological order using language e.g. before, after, next, first, yesterday, tomorrow, morning, afternoon and evening.

 Recognise and use language relating to dates, including days of the week, months and years

 Tell the time to the hour and half past and draw hands on a clock to show these times | Choose and use appropriate standard units to estimate and measure:
 - Lengths and heights (m/cm)
 - Mass/weight (kg/g)
 - Capacity and volume (litres/ml)
 - Temperature (˚/C)
 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 coins that equal the same amounts of money

 Solve simple + and – problems involving money of the same unit. Including giving change

 Compare and sequence intervals of time

 Tell and write the time to 5mintues, including quarter past/to the hour and draw the hands on a clock face

 Know the number of minutes in an hour and hours in a day | Add and subtract amounts of money up to £100.

 Give change from £10.

 Tell and write the 12-hour and 24-hour time using Roman numerals.

 Read time to the nearest minute and use a.m./p.m., morning, afternoon, noon and midnight.

 Calculate how long events or tasks will take. | Know the formula for measuring the area of a square or rectangle.

 Know the formula for measuring the perimeter of a square or rectangle.

 Solve simple measure and money problems involving fractions and decimals to two decimal places. | Convert metric to common imperial units and imperial to metric.

 Measure and calculate the perimeter of composite rectilinear shapes in cm and m.

 Calculate and compare the areas of squares and rectangles using square centimetres and square metres and estimate the area of irregular shapes. | Recognise that shapes with the same areas can have different perimeters and vice versa.

 Calculate the area of parallelograms and triangles and be able to use the correct formulae.

 Calculate the volume of cubes and cuboids using centimetre cubed and cubic metres and extending to other units, such as mm cubed and km cubed. |
| **Geometry: Properties of shape; position and direction** | ELG 12 Recognise create and describe patterns

 Explore and describe shapes using mathematical language

 Use language to talk about size, position, distance to compare and solve problems | Recognise and name common 2D and 3D shapes
 - Rectangles, triangles, squares, circles
 - Cuboids, cubes, pyramids and spheres

 Describe position, direction and movement, including whole, half, quarter and three-quarter turns. | Identify and describe 2D and 3D shape properties
 - Sides, symmetry, vertical line
 - Edges, vertices, faces

 Identify 2D shapes on the surface of 3D shapes

 Compare and sort common 2D and 3D shapes and objects.

 Order and arrange combinations of objects in patterns

 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) | Draw horizontal, vertical, perpendicular and parallel lines.

 Know a right angle has 90˚ and a straight angle has 180˚.

 Use a compass to draw a circle with a radius up to 10c.m. | Compare 2-D shapes, including quadrilaterals and triangles, based on their properties and sizes.

 Identify acute and obtuse angles and compare and order angles up to two right angles by size.

 Calculate the perimeter of a rectilinear figure in centimetres and metres.

 Calculate the area by counting the squares. | Draw squares, rectangles and all triangles using given dimensions (to the nearest millimetre) and angles with a protractor.

 State and use the properties of a rectangle (including squares) to deduce related facts.

 Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.

 Identify multiples of 90°; angles at a point on a straight line and ½ a turn (total 180°); angles at a point and one whole turn (total 360°); reflex angles and compare different angles.

 Identify, describe and represent the position of a shape following a reflection or translation in all four quadrants, using the appropriate language, and know that the shape has not changed. | Classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons.

 Find unknown angles where they meet at a point and are on a straight line and are vertically opposite.

 Find missing angles in a parallelogram, rhombus and trapezium by working out diagonally opposite angles.

 Draw and translate simple shapes on the co-ordinate plane, reflect them in the axes and rotate around a point. |

Statistics			Interpret and construct simple pictograms, tally charts, block graphs and simple tables 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 and comparing categorical data.	Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in tables.	Solve a problem by collecting data, presenting it in a bar chart and interpreting it. Solve a problem by collecting data, presenting it in a line graph and interpreting it.	Solve problems using information presented in line graphs. Interpret information stored in a pie chart.	Interpret and construct pie charts and use these to solve problems using my knowledge of angles, fractions and percentages. Interpret and construct line graphs and use these to solve problems.
Algebra						N/A	Find pairs of numbers that satisfy number sentences involving two unknowns e.g. what is 2a+3b if a=2 and b=3. Work out all possibilities of combinations of two variables.
Ratio and Proportion						N/A	Solve problems involving the relative sizes of 2 quantities. Solve problems involving unequal sharing and grouping e.g. 3/5 of the class are boys etc. Solve problems involving similar shapes where the scale factor is known or can be found. Solve simple ratio and proportion problems. Reduce a given ratio to its lowest terms.