St Vincent's Maths Curriculum Knowledge Map

Maths	Autumn Term	Spring Term	Summer Term
PBL Driving Questions	**Year A** How can we show compassion, care and love to those in need? **Year B** Why should we show respect for others and how can we do this?	**Year A** How can we be stewards of our environment and of one another? **Year B** In what practical ways can we learn from our mistakes?	**Year A** Why should we not judge others? **Year B** How can we build trusting relationships?
EYFS	Numbers to 5, Early shapes, matching and sorting, measuring patterns	Numbers to 10 3D shapes Height, Length Time	Numbers to 20 Sharing and grouping Manipulate, compose and decompose
EYFS PBL Maths	Create heart shaped gratitude cards. Use 2D shapes to create shape people	Make a clock Create a class height chart-tallest to shortest.	Sort litter into groups. Create symmetrical leaf patterns.

KS1

	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2
	Place value -Count, read and write numbers to 10 - identify one more or one less. - language: equal to, more than, less than. **addition and subtraction within 10**, - number bonds and related facts within 10. -Read, write and interpret (+), (-) and (=) signs. - Add and subtract one digit numbers to 10 including zero -One step problems- addition and subtraction	**Place Value** - Read and write to at least 100 - Recognise the place value (tens, ones) in a number -Identify, represent and estimate numbers -Compare and order numbers up to 100; use <, > and = signs. **Addition and Subtraction** -Recall and use facts to 20, and use related facts up to 100. - two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers - addition commutative, subtraction not.	**Addition and Subtraction** -Number bonds and related subtraction facts within 20. -Read, write and interpret addition statements. -+/- numbers to 20. -Solve one step +/- problems. **Place Value – within 50** -Count to 50 forwards and backwards. - Read and write numbers to 50 in numerals. -One more or one less. -Identify and represent numbers -Count in twos, fives and tens. **Measurement – Length and Height**	**Multiplication and Division** -Multiplication and division facts for the 2, 5 and 10s -Calculate statements for multiplication and division -Solve problems involving multiplication and division. **Statistics** -Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. -Ask and answer simple questions by counting and sorting the number of objects in each category -Ask and answer questions about totalling and comparing data.	**Multiplication and Division** -Count in multiples of twos, fives and tens. -Solve one step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial Geometry – Position and Direction Describe position, direction and movement, including whole, half, quarter and three quarter turns. representations and arrays. **Fractions** - Recognise, find and name a half as one of two equal	**Geometry – Position and Direction** -Use mathematical vocabulary to describe position, direction and movement -Order and arrange combinations of mathematical objects in patterns and sequences. **Measurement – 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.

shape -Recognise and name common 2-D shapes, - Recognise and name common 3-D shapes -Use place value and number facts to solve problems. -Count in steps of 2, 3, 5 and 10 forward and backward.	- Solve problems with numbers, quantities and measures using mental and written methods. - inverse relationship to check calculations and solve missing number problems. **Measurement – Money** - Use symbols (£) (p); - combine amounts to make a value. -Find combinations that equal the same amounts of money. -Solve simple problems involving +, - of money, including giving change. **Multiplication and Division** - multiplication and division facts for the 2s, 5s and 10s -recognise odd and even. - use the multiplication (x), division (÷) and equals (=) sign. -Solve problems using materials, arrays, repeated addition, mental methods and multiplication and division facts -show multiplication commutative, division not.	-Measure and record lengths and heights. -Compare, describe and solve practical problems. **Measurement – Shape and Volume** -Measure and begin to record mass/weight, capacity and volume. -Compare, describe and solve practical problems for mass/weight:	**Geometry – Properties of Shape** -Identify and describe the properties of 2-D and 3d shapes. -Identify and describe the properties of 3-D shapes -Compare and sort common 2-D and 3-D shapes and everyday objects. **Fractions** -Recognise, find, name and write fractions ½ ¼ ¾ and 1/3 of a length shape, set of objects or quantity. -Write simple fractions for example. **Measurement – Length and Height** -Choose and use appropriate standard units to estimate and measure length/height in any direction. -Compare and order lengths,mass,volume/capacity and record the results using >, < and =.	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. -Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half - Compare, describe and solve practical problems for: mass/weight [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full **Geometry – Position and Direction** -Describe position, direction and movement, including whole, half, quarter and three quarter turns. **Place Value – up to 100** -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. -Given a number, identify one more and one less. -Identify and represent numbers using objects and pictorial representation **Measurement – Money**	-Compare and sequence intervals of time. **Mass, Capacity and Temperature** -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 know the value of different denominations of coins and notes. **Measurement – Time** -Sequence events in chronological order using language. -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 -Compare, describe and solve practical problems	
KS1 PBL maths	**Year A** Go on a living/non-living things hunt. Record results using the tally method. Use addition skills to evaluate results. **Year B** Nets of cubes and other 3D shapes for London houses (Great fire of London)		**Year A** Compare coin values of the pound and the Euro. **Year B** Use measuring skills to create a life size labelled human body. Measure length of each body part and record in table.		**Year A** Create a table/bar chart to present information gathered on sustainability. **Year B** Look at Ancient Greek coins. Compare coins then and now and the value of each.
LKS2	**Year 3** **Place Value** -Identify, represent and estimate numbers -Find 10 or 100 more or less -Place value of three-digit number. -Compare and order numbers up to 1000. -Numbers up to 1000 in numerals and in words. - Solve number problems -Count from 0 in multiples of 4, 8, 50 and 100. **Addition and Subtraction** -+/- numbers mentally. -+/-numbers with three digits, using columnar +/-	**Year 4** **Place Value** -Count in multiples of 6, 7, 9. 25 and 1000. -Find 1000 more or less -Recognise the place value of each digit in a four digit number# -Order and compare numbers beyond 1000 -Identify, represent and estimate numbers -Round to the nearest 10, 100 or 1000. -Solve number and practical problems with increasingly large positive numbers. -Count backwards through zero to include negative numbers.	**Year 3** **Multiplication and Division** -Recall and use x/ ÷ facts for the 3, 4 and 8 x tables. -Write and calculate statements for x/ ÷ using the x tables they know. - Solve problems, including missing number problems, involving x/ ÷ **Measurement – Money** -+/- amounts of money to give change, using £ / p **Statistics** - Data - bar charts, pictograms and tables. -Solve one-step and two-step questions] using	**Year 4** **Multiplication and Division** -Recall and use x/ ÷ facts for x tables up to 12 × 12. - Use place value facts to multiply and divide mentally. -Recognise and use factor pairs and commutativity in mental calculations. -Multiply two digit and three digit numbers by a one digit number using a formal written layout. - Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling	**Year 3** **Fractions** - Recognise and show, using diagrams, equivalent fractions with small denominators. -Compare and order unit fractions, and fractions with the same denominators. -Add and subtract fractions with the same denominator within one whole -Solve problems that involve all of the above. **Measurement – Time** - tell time from an analogue clock, including Roman numerals and 12-hour and 24-hour clocks.	**Year 4** **Decimals** - Compare numbers up to two decimal places. -Round decimals to the nearest whole number. - decimal equivalents to ¼ ½ and ¾ -dividing two digit number by 10 or 100, identifying ones, tenths and hundredths. **Measurement – Money** -Estimate, compare and calculate different measures, including money in pounds and pence. -Solve simple measures and money problems involving

-Estimate and use inverse operations to check. -Solve missing number problems **Multiplication and Division** -Count from 0 in multiples of 4, 8, 50 and 100 -Recall and use x/ ÷ facts for the 3, 4 and 8 x tables. - Write and calculate x/ ÷ using the tables they know. -Solve problems, including missing number problems, involving x/ ÷	**Addition and Subtraction** -Add and subtract 4 digits numbers using the formal written methods -Estimate and use inverse operations to check -Solve +/- two step problems **Measurement – Length and Perimeter** - Measure and calculate the perimeter of a rectilinear figure in cm/m - Convert between different units of measure eg. km/m **Multiplication and Division** -Recall and use x/ ÷ facts for tables up to 12 × 12. -Count in multiples of 6, 7, 9. 25 and 1000 -Use place value facts to x/ ÷ mentally, including: x by 0 and 1; ÷ by 1; x together three numbers. -Solve problems involving x/ ÷ .	scaled bar charts and pictograms and tables. **Length and Perimeter** -Measure length., Equivalent lengths m & -Compare lengths. -Add and subtract lengths. -Measure perimeter. **Fractions -** -Count up and down in tenths; -Tenths - dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 -Recognise and use fractions as numbers -Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. -Solve problems that involve all of the above.	problems and harder correspondence problems. **Measurement – Area** -Find the area of rectilinear shapes by counting squares. **Fractions** -Recognise and show, using diagrams, families of common equivalent fractions. -Count up and down in hundredths; recognise that hundredths arise when dividing an object by one 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. - Add and subtract fractions with the same denominator **Decimals** -Recognise and write decimal equivalents of any number of tenths or hundredths. - 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. -Solve simple measure and money problems involving fractions and decimals to two decimal places.	-Estimate and read time to the nearest minute. -Record and compare time (seconds, minutes and hours). Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight. -Know the number of seconds in a minute and the number of days in each month, year and leap year. -Compare durations of events. **Geometry – Properties of Shape** -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 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. **Measurement – Mass and Capacity** Measure, compare, add and subtract: lengths	fractions and decimals to two decimal places. **Measurement – Time** -Convert different units of measures m/km, h/m -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. **Statistics** -Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. -Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs **Geometry – Properties of Shape** - Identify acute and obtuse angles and compare and order angles up to two right angles by size. -Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. Identify lines of symmetry in 2-D shapes presented in different orientations.

				(m/cm/mm); mass (kg/g); volume/capacity (l/ml)	-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. -Plot specified points and draw sides to complete a given polygon. -Describe movements between positions as translations of a given unit to left/ right and up/ down.
LKS2 PBL maths	**Year A** Place dates on a Victorian timeline **Year B** **Sound Waves: Thunderstorm Stopwatch Activity** Knowing that sound waves travel through the air at 1 mile every 5 seconds, you can estimate the distance of a thunderstorm with my Thunderstorm Stopwatch activity.		**Year A** Multiplying Roman Numerals **Year B** Use Venn diagrams to classify animals.		**Year A** Use money to calculate totals and change on trip to Waitrose **Year B** Explore statistics through stone age numbers activity-tally marks
UKS2	**Year 5** <u>**Place Value**</u> **-** 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,	**Year 6** <u>**Place Value**</u> - 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. <u>**Four Operations**</u> -Solve addition and subtraction multi step	**Year 5** <u>**Multiplication and Division**</u> -Multiply and divide numbers mentally drawing upon known facts. -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.	**Year 6** <u>**Decimals**</u> **-**Identify the value of each digit in numbers given to 3 decimal places and multiply numbers by 10, 100 and 1,000 giving answers up to 3 decimal places. -Multiply one-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.	**Year 5** <u>**Decimals**</u> -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. <u>**Geometry – Properties of Shapes**</u> **-** Identify 3D shapes, including cubes and other cuboids, from 2D representations.	**Year 6** <u>**Geometry – Position and Shape**</u> -Draw 2-D shapes using given dimensions and angles. - Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons. -Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. <u>**Statistics**</u>

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. **Addition and Subtraction** -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. **Statistics** -Solve comparison, sum and difference problems using information presented in a line graph. -Complete, read and interpret information in tables including timetables. **Multiplication and Division** -Multiply and divide numbers mentally drawing upon known facts.	problems in contexts, deciding which operations and methods to use and why. - Multiply multi-digit number up to 4 digits by a 2-digit number using the formal written method of long multiplication. - Divide numbers up to 4 digits by a 2-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. -Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to the context. -Perform mental calculations, including 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 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.	-Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign. **Fractions** - 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 -Add and subtract fractions with the same denominator and denominators that are multiples of the same number. **Fractions** -Multiply proper fractions and mixed numbers by whole numbers. -Read and write decimal numbers as fractions [for example 0.71 = 71/100] -Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	**Percentages** -Solve problems involving the calculation of percentages and the use of percentages for comparison. - Recall and use equivalences between simple fractions, decimals and percentages including in different contexts. **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 – Converting Units** - Solve problems involving the calculation and conversion of units of measure. -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. **Perimeter, Area and Volume**	- 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. - 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 360o), angles at a point on a straight line and ½ a turn (total 180o) other multiples of 90o **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. **Measurement – Converting Units** -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.	- Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Interpret and construct pie charts and line graphs and use these to solve problems. -Calculate the mean as an average.

	- Multiply and divide whole numbers by 10, 100 and 1000. - 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. -Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. - Establish whether a number up to 100 is prime and recall prime numbers up to 19. **Perimeter and Area** -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, cm2,m2 estimate the area of irregular shapes.	**Fractions** -Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. -Compare and order fractions - Generate and describe linear number sequences (with fractions) -Add and subtract fractions with different denominations 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. -Recall and use equivalences between simple fractions, decimals and percentages. **Geometry** -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.	**Decimals and Percentages** -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 numbers up to three decimal places. - Recognise the percent symbol (%) and understand that percent 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.	-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. **Ratio** -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.	-Solve problems involving converting between units of time. **Measurement – Volume** -Estimate volume [for example using 1cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water - Use all four operations to solve problems involving measure	
UKS2 PBL maths	**Year A** Use fractions to create accurate nets for 3D lighthouses. **Year B** Using distances from sun and size of planets to explore place value.		**Year A** Use statistics to present research on seasonality. **Year B** Use the ancient Greek number system to solve simple equations.		**Year A** 3D modelling **Year B** Egyptian maths-build pyramids