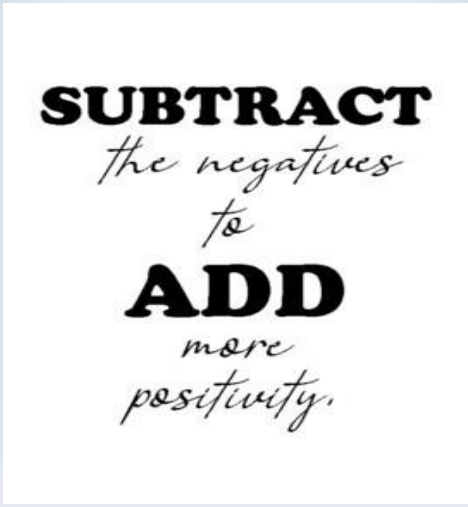
Mathematics
Progression Map and End Points

St Joseph's RC Primary School



St Joseph's RC Primary School

Mathematics Curriculum Progression

	End of EYFS	End of KS1	End of Lower KS2	End of Upper KS2
Place Value	• Counts in steps of 1 from 0 to 20 forwards and backwards and then beyond • Counting in 1's forwards and backwards from any number up to 20 and then beyond recognising the pattern of the counting system. • Link the number symbol (numeral) with its cardinal number value. • Explore the composition of numbers to 10. • Automatically recall number bonds for numbers 0-5 and some to 10. • Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5. • 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.	• Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward ▪ Recognise the 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 ▪ Use place value and number facts to solve problems	▪ Count in multiples of 6, 7, 9, 25 and 1000 ▪ Find 1000 more or less than a given number ▪ Count backwards through zero to include negative numbers ▪ Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) ▪ Order and compare numbers beyond 1000 ▪ Identify, represent and estimate numbers using different representations ▪ Round any number to the nearest 10, 100 or 1000 ▪ Solve number and practical problems that involve all of the above and with increasingly large positive numbers ▪ Read Roman numerals to 100 (I to C) and understand how, over time, the numeral system changed to include the concept of zero and place value.	▪ 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 problems and practical problems that involve all of the above.
Addition and Subtraction	• Compare quantities up to 10 in different contexts, recognising when one quantity is greater	• Solve problems with addition and subtraction: • Using concrete objects and	• Add and subtract numbers with up to 4 digits using the efficient written methods of columnar	• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the efficient written method of

	than, less than or the same as the other quantity.	pictorial representations, including those involving numbers, quantities and measures • Applying their increasing knowledge of mental and written methods • Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • Add and subtract number 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 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.	addition and subtraction where appropriate • Estimate and use inverse operations to check answers to a calculation • Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	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 • Divide numbers up to 4 digits by a two-digit whole number using the formal written method of short division, and interpreting remainders according to the context • Perform mental calculations, including with 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 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, levels of accuracy.
Multiplication and Division	▪ 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 • Calculate mathematical statements for multiplication and division	• 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	

		within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	• Recognise and use factor pairs and commutativity in mental calculations • Multiply and divide two-digit and three-digit numbers by a one-digit number using formal written layout • 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	
Fractions (including decimals and percentages)	▪ In practical activities explore halves of whole amounts	• Recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity • Write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½.	• 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 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 • Add and subtract fractions with the same denominator • Recognise and write decimal equivalents of any number of tenths or hundredths • Recognise and write decimal equivalents to ¼; ½; ¾ • Find the effect of dividing a one-	• Use common factors to simplify fractions; use common multiples to express fractions in the same denomination • Compare and order fractions, including fractions >1 • Associate a fraction with division to calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8) • 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 × 1/2 = 1/8) • Divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6). • Identify the value of each digit to three decimal places and multiply and

			or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths • Round decimals with one decimal place to the nearest whole number • Compare numbers with the same number of decimal places up to two decimal places • Solve simple measure and money problems involving fractions and decimals to two decimal places.	divide numbers by 10, 100 and 1000 where the answers are up to three decimal places • Multiply one-digit numbers with up to two decimal places by whole numbers • Use written division methods in cases where the answer has up to two decimal places • Solve problems which require answers to be rounded to specified degrees of accuracy. • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts and to compare proportions.
Measurement	▪ Compare length, weight and capacity.	▪ 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 coins that equal the same amounts of money. ▪ Solve simple problems in a practical context involving	• Convert between different units of measure (e.g. 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 • 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 the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate • 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 • Convert between miles and kilometres • Recognise that shapes with the same areas can have different perimeters and vice versa • Calculate the area of parallelograms and triangles • Recognise when it is necessary to use the formulae for area and volume of shapes • Calculate, estimate and compare

		addition and subtraction of money of the same unit, including giving change ▪ 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.		volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3) and extending to other units, such as mm3 and km3.
Geometry (Properties of Shapes)	▪ Select, rotate and manipulate shapes in order to develop spatial reasoning skills. ▪ Selects a particular named shape. ▪ Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.	• 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	• Compare and classify geometric 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 • 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.	• Draw 2D 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 • Recognise angles where they meet at a point, are on a straight line, and are vertically opposite and find missing angles

Geometry (Position and Direction)	• Continue, copy and creates repeating patterns. • Uses everyday language to talk about position and distance.	• Order and arrange combinations of mathematical • objects in patterns and sequences • 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 anticlockwise	• Describe positions on a 2D grid as coordinates in the first quadrant • Describe movements between positions as translations of a given unit to the left/right and up/down • Plot specified points and draw sides to complete a given polygon.	• 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.
Statistics		• 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 • Ask and answer questions about totalling and comparing categorical data.	• 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.	• Interpret and construct pie charts and line graphs and use these to solve problems • Calculate and interpret the mean as an average

Ratio and Proportion			• 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 $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.	• 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 e.g. of measures and such as 15% of 360 and the use of percentages for comparison • Solve problems involving similar shapes where the scale factor if known or can be found • Solve problems involving unequal sharing and grouping using knowledge and multiples
Algebra	▪ Explore and represent patterns within numbers up to 10	▪ Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9. ▪ Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	• Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	• Express missing number problems algebraically • Use simple formulae expressed in words • Generate and describe linear number sequences • Find pairs of numbers that satisfy number sentences involving two unknowns. • Enumerate all possibilities of combinations of two variables

St Joseph's RC Primary School

Maths End Points

EYFS	
Number	**Numerical patterns**
The children should be able to: Have a deep understanding of number to 10, including the composition of each number. Subitise (recognise quantities without counting) up to 5. 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.	**The children should be able to:** Verbally count beyond 20, recognising the pattern of the counting system. Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Year 1 By the end of:		
Autumn term	**Spring term**	**Summer term**
The children should be able to: <u>Number and place value</u> Sort, count and represent objects including from a larger group. Represent objects. Recognise numbers as words. Count on from any number. 1 more and 1 less Count backwards within 10. Compare groups by matching. Know the meaning of fewer, more, same, less than,	**The children should be able to:** <u>Place Value (within 20)</u> Count within 20 Understand the numbers 10, 11, 12, 13 14, 15, 16,17, 18, 19 and 20. To know and find 1 more and 1 less of numbers to 20. Use a number line to 20. Estimate on a number line to 20.	**The children should be able to:** <u>Multiplication and division</u> Count in 2s 10s and 5s Recognise equal groups Add equal groups and use grouping and sharing. Make arrays Make doubles <u>Fractions</u>

greater than, equal to Compare and order objects and numbers. Use a number line. <u>Addition and subtraction.</u> <u>Addition</u> add more. Find a part of a whole. Fact families - the eight facts <u>Subtraction</u> find a part. Understand the vocabulary: take away/cross out. , how many left? Subtract using a number line. Add or subtract 1 or 2. <u>Shape</u> Recognise and name and sort 3-D shapes Recognise and name and sort 2-D shapes. Identify and build patterns with 2-D and 3-D shapes.	Compare and order numbers to 20. <u>Addition and subtraction. (Within 20)</u> <u>Addition</u> Add by counting on within 20. Add ones using number bonds. Find and make number bonds to 20. Recognise doubles and near doubles. <u>Subtraction</u> Subtract ones using number bonds. Be able to count back To find the difference. Solve missing number problems. <u>Place value within 50.</u> Count from 20 to 50 (20, 30, 40 and 50) Count by making groups of tens. Groups of tens and ones Partition into tens and ones Use a number line to 50 and estimate on a number line to 50. 1 more, 1 less than numbers between 20 and 50. <u>Length and height.</u> Compare lengths and heights. Measure length using objects. Measure length in centimetres. <u>Mass and volume</u> Heavier and lighter Measure and compare mass	Recognise a half of an object or a shape Find a half of an object or a shape Recognise a half of a quantity Find a half of a quantity Recognise a quarter of an object or a shape Find a quarter of an object or a shape Recognise a quarter of a quantity Find a quarter of a quantity <u>Position and direction.</u> Describe turns Describe position - left and right Describe position - forwards and backwards Describe position - above and below Ordinal numbers <u>Place value (within 100)</u> Count from 50 to 100 Know Tens to 100 Partition into tens and ones Use a number line to 100 1 more, 1 less of number up to 100 Compare numbers with the same number of tens Compare any two numbers <u>Money.</u> Unitising Recognise coins and notes Count in coins <u>Time.</u>

	Full and empty Compare volume Measure and compare capacity	Before and after Days of the week Months of the year Hours, minutes, and seconds Tell the time to the hour Tell the time to the half hour
Year 2 **By the end of:**		
Autumn term	**Spring term**	**Summer term**
The children should be able to: <u>Place value</u> Count objects to 100 by making 10s Recognise tens and ones Use a place value chart Partition numbers to 100 Write numbers to 100 in words Flexibly partition numbers to 100 Write numbers to 100 in expanded form 10s on the number line to 100 10s and 1s on the number line to 100 Step 11 Estimate numbers on a number line Step 12 Compare objects and numbers Order objects and numbers Count in 2s, 5s and 10s and 3s <u>Addition and subtraction</u> Number bonds to 10 Fact families - addition and subtraction bonds within 20 Number bonds to 100 (tens) Add by making 10 Add three 1-digit numbers Add to the next 10 Add across a 10	**The children should be able to:** <u>Money</u> Count money - pence, pound and pounds and pence Choose notes and coins to make an amount, in a variety of ways. Compare amounts of money Calculate with money Make a pound Find change <u>Multiplication and division</u> Recognise, make and add equal groups Introduce the multiplication symbol Multiplication sentences Use arrays Make equal groups - grouping Make equal groups - sharing The 2 times-table Divide by 2 Doubling and halving	**The children should be able to:** <u>Fractions</u> Introduction to parts and whole Equal and unequal parts Recognise and find a half Recognise and find a quarter Recognise and find a third Find the whole Unit fractions Non-unit fractions Recognise the equivalence of a half and two-quarters Recognise and find three-quarters Count in fractions up to a whole <u>Time</u> Recognise O'clock and half past Recognise quarter past and quarter to Tell the time past the hour Tell the time to the hour Tell the time to 5 minutes Minutes in an hour

Add two 2-digit numbers (not across a 10 and across a 10) Subtract across 10 Subtract from a 10 Subtract a 1-digit number from a 2-digit number (across a 10) 10 more, 10 less Add and subtract 10s Subtract two 2-digit numbers (not across a 10 and across a 10) Mixed addition and subtraction Compare number sentences Missing number problems <u>Shape</u> Recognise 2-D and 3-D shapes Count sides and vertices on 2-D shapes Draw 2-D shapes Recognise lines of symmetry on shapes Use lines of symmetry to complete shapes Sort 2-D shapes Count faces, edges, and vertices on 3-D shapes Sort 3-D shapes Make patterns with 2-D and 3-D shapes	Odd and even numbers The 5 and 10 times-table Divide by 5 and 10 <u>Length and height</u> Measure in centimetres Measure in metres Compare lengths and heights Order lengths and heights Four operations with lengths and heights <u>Mass, capacity and temperature.</u> Compare mass Measure in grams and kilograms Use the four operations with mass Compare volume and capacity Measure in millilitres and litres Four operations with volume and capacity Temperature, what it is and how it is measured.	Hours in a day <u>Statistics</u> Make tally charts Understand and read tables Understand and read block diagrams Draw pictograms (1-1) Interpret pictograms (1-1) Draw and interpret pictograms (2, 5 and 10) <u>Position and direction</u> Use the Language of position Describe movement Describe turns Describe movement and turns Shape patterns with turns
Year 3 By the end of :		
Autumn term	**Spring term**	**Summer term**

The children should be able to:	The children should be able to:	The children should be able to:
<u>Place value</u> Understand hundreds Represent and partition numbers to 100 Use, including estimating, a number line 100 and 1000 Represent and partition numbers to 1,000 including flexible partitioning to 1000 Find 1, 10 or 100 more or less Estimate on a number line to 1,000 Compare numbers to 1,000 Order numbers to 1,000 Count in 50s <u>Addition and subtraction</u> Apply number bonds within 10 Add and subtract 1s, Add and subtract 10s Add and subtract 100s Spot the pattern Add 1s across a 10 Add 10s across a 100 Subtract 1s across a10 Subtract 10s across a 100 Add and subtract two numbers (no exchange) Add two numbers (across a 10) Add two numbers (across a 100) Subtract two numbers (across a 10) Subtract two numbers (across a 100) Add 2-digit and 3-digit numbers Subtract a 2-digit number from a 3-digit number Complements to 100	<u>Multiplication and division.</u> Multiples of 10 Reason about multiplication Multiply a 2-digit number by a 1-digit number - no exchange Multiply a 2-digit number by a 1-digit number - with exchange Link multiplication and division Divide a 2-digit number by a 1-digit number - no exchange Divide a 2-digit number by a 1-digit number - flexible partitioning. Divide a 2-digit number by a 1-digit number - with remainders Understand multiplication by focusing on scaling as opposed to repeated addition. <u>Length and perimeter.</u> Measure in metres and centimetres Measure in millimetres Measure in centimetres and millimetres Metres, centimetres and millimetres Equivalent lengths (metres and centimetres) Equivalent lengths (centimetres and millimetres) Compare lengths Add and subtract lengths Understand what perimeter is Measure and calculate perimeter	<u>Fractions</u> Add fractions Subtract fractions Partition the whole Unit fractions of a set of objects Non-unit fractions of a set of objects <u>Money</u> Use and understand pounds and pence Convert pounds and pence Add money Subtract money Find change <u>Time</u> Roman numerals to 12 Tell the time to 5 minutes Tell the time to the minute Read time on a digital clock Use am and pm Know years, months and days Days and hours Hours and minutes - use start and end times Durations in hours and minutes Minutes and seconds Units of time Solve simple problems with time <u>Shape</u> Understand and identify turns and angles Identify a right angle Compare angles Measure and draw accurately Understand the vocabulary: horizontal and vertical

Estimate answers Inverse operations <u>Multiplication and division.</u> Multiplication - equal groups Use arrays Multiples of 2 Multiples of 5 and 10 Sharing and grouping The three times tables Multiply and divide by 3 The 4 times table Multiply and divide by 4 The 8 times tables Multiply and divide by 8 Spot patterns and links between the 2,4 and 8s times tables.	<u>Fractions</u> Understand the denominators of unit fractions Compare and order unit fractions Understand the numerators of non-unit fractions Understand the whole Compare and order non-unit fractions Fractions and scales Fractions and count fractions on a number line Equivalent fractions on a number line and as bar models. <u>Mass and capacity</u> Use scales Measure mass in grams Measure mass in kilograms and grams Equivalent masses (kilograms and grams) Compare mass Add and subtract mass Measure capacity and volume in millilitres Measure capacity and volume in litres and millilitres Equivalent capacities and volumes (litres and millilitres) Compare capacity and volume Add and subtract capacity and volume	Parallel and perpendicular. Recognise and describe 2-D shapes Draw polygons Recognise and describe 3-D shapes Make 3-D shapes <u>Statistics</u> Interpret pictograms Draw pictograms Interpret bar charts Draw bar charts Collect and represent data in different ways Understand and use two-way tables.

Year 4 **By the end of:**		
Autumn term	**Spring term**	**Summer term**
The children should be able to: <u>Place value</u> Represent, partition and use a number line for numbers to 1,000 Represent and partition numbers to 10,000 Use flexible partitioning of numbers to 10,000 Find 1, 10, 100, 1,000 more or less Number line to 10,000 Estimate, compare and order numbers to 10,000 Use a number line to 10,000 Roman numerals Round to the nearest 10, 100 or 1,000 <u>Addition and subtraction</u> Add and subtract 1s, 10s, 100s and 1,000s Add up to two 4-digit numbers - no exchange Add two 4-digit numbers - one exchange Add two 4-digit numbers - more than one exchange Subtract two 4-digit numbers - no exchange	The children should be able to: <u>Multiplication and division</u> Know Factor pairs are. Use factor pairs Multiply by 10 and 100 Divide by 10 and 100 Relate facts for multiplication and division Use Informal written methods for multiplication Multiply a 2-digit number by a 1-digit number Multiply a 3-digit number by a 1-digit number Divide a 2-digit number by a 1-digit number (1) Divide a 2-digit number by a 1-digit number (2) Divide a 3-digit number by a 1-digit number Solve correspondence problems Use efficient multiplication	The children should be able to: <u>Decimals</u> Make a whole with tenths Make a whole with hundredths Partition decimals Flexibly partition decimals Compare decimals Order decimals Round to the nearest whole number Know halves and quarters as decimals. <u>Money</u> Write money using decimals Convert between pounds and pence Compare amounts of money Estimate with money Calculate with money Solve problems with money

Subtract two 4-digit numbers - one exchange
Subtract two 4-digit numbers - more than one exchange
Use efficient subtraction
Estimate answers
Use simple checking strategies

Area
Know what area is
Count squares to find area
Make shapes of a certain area
Compare areas.

Multiplication and division
Multiples of 3
Multiply and divide by 6
6 times-table and division facts
Multiply and divide by 9
Know 9 times-table and equivalent division facts
The 3, 6 and 9 times-tables
Multiply and divide by 7
7 times-table and division facts
11 times-table and division facts
12 times-table and division facts
Multiply by 1 and 0
What happens if you divide a number by 1 and itself
Multiply three numbers

Length and perimeter
Measure in kilometres and metres
Know equivalent lengths (kilometres and metres)
Understand and find Perimeter on a grid
Understand and find Perimeter of a rectangle
Understand and find Perimeter of rectilinear shapes
Find missing lengths in rectilinear shapes
Calculate perimeter of rectilinear shapes
Calculate the Perimeter of regular polygons
Calculate the Perimeter of polygons

Fractions
Understand the whole
Count beyond 1
Partition a mixed number
Use number lines with mixed numbers
Compare and order mixed numbers
Understand improper fractions
Convert mixed numbers to improper fractions
Convert improper fractions to mixed numbers
Identify equivalent fractions on a number line
Know equivalent fraction families
Add two or more fractions
Add fractions and mixed numbers
Subtract two fractions
Subtract from whole amounts
Subtract from mixed numbers

Decimals
Tenths as fractions
Tenths as decimals

Time
Understand Years, months, weeks and days, hours, minutes and seconds
Convert between analogue and digital times
Convert to the 24-hour clock
Convert from the 24-hour clock

Shape
Understand angles as turns
Identify angles
Compare and order angles
Know the properties and types of triangles
Know properties and names of quadrilaterals
Know properties of polygons
Lines of symmetry
Complete a symmetric figure.

Statistics
Interpret charts
Know the meaning of comparison, sum and difference
Interpret line graphs
Draw line graphs

Position and direction
Describe position using coordinates
Plot coordinates
Draw 2-D shapes on a grid
Translate on a grid
Describe translation on a grid

	Tenths on a place value chart Tenths on a number line Divide a 1-digit number by 10 Divide a 2-digit number by 10 Hundredths as fractions Hundredths as decimals Hundredths on a place value chart Divide a 1- or 2-digit number by 100	

Year 5
By the end of:

Autumn term	Spring term	Summer term
The children should be able to: <u>Place value</u> Roman numerals to 1,000 Numbers to 10,000 Numbers to 100,000 Numbers to 1,000,000 Read and write numbers to 1,000,000. Powers of 10 10/100/1,000/10,000/100,000 Partition numbers to 1,000,000 Number line to 1,000,000 Compare and order numbers to 100,000 and 1,000,000. Round to the nearest 10, 100 or 1,000 Round within 100,000 Round within 1,000,000 <u>Addition and subtraction</u>	**The children should be able to:** <u>Multiplication and division.</u> Multiply up to a 4-digit number by a 1-digit number. Multiply a 2-digit number by a 2-digit number. Multiply a 3-digit number by a 2-digit number. Multiply a 4-digit number by a 2-digit number Solve problems with multiplication. Use short division to work out division sums. Divide a 4-digit number by a 1-digit number. Divide with remainders. Use efficient division. Solve problems with multiplication and division. <u>Fractions</u> Multiply a unit fraction by an integer.	**The children should be able to:** <u>Shape.</u> Understand and use degrees. Classify angles. Estimate angles. Measure angles up to 180° Draw lines and angles accurately. Calculate angles around a point. Calculate angles on a straight line. To identify and calculate lengths and angles in shapes. Know some properties of Regular and irregular polygons. Identify features and names of 3-D shapes. <u>Position and direction</u> Read and plot coordinates. Solve problems with coordinates.

Mental strategies
Add or subtract whole numbers with more than four digits.
Use rounding to check answers.
Inverse operations (addition and subtraction)
Multi-step addition and subtraction problems
Compare calculations.
Find missing numbers in number sentences.

Multiplication and division
Multiples
Common multiples
Factors
Know common factors.
Know prime, square and cube numbers.
Multiply by 10, 100 and 1,000.
Divide by 10, 100 and 1,000.
Know multiples of 10, 100 and 1,000

Fractions
Find fractions equivalent to a unit fraction.
Find fractions equivalent to a non-unit fraction.
Recognise equivalent fractions.
Convert improper fractions to mixed numbers.
Convert mixed numbers to improper fractions.
Compare and order fractions less than 1
Compare and order fractions greater than 1
Add and subtract fractions with the same denominator.
Add fractions within 1.
Add fractions with total greater than 1.
Add to a mixed number.
Add two mixed numbers.
Subtract fractions.
Subtract from a mixed number.
Subtract from a mixed number - breaking the whole.
Subtract two mixed numbers.

Multiply a non-unit fraction by an integer.
Multiply a mixed number by an integer.
Calculate a fraction of a quantity.
Calculate a fraction of an amount.
Find the whole.
Use fractions as operators.

Decimals and percentages
Recognise and write decimals up to 2 decimal places
Identify equivalent fractions and decimals (tenths)
Identify equivalent fractions and decimals (hundredths)
Identify equivalent fractions and decimals.
Understand thousandths as fractions.
Understand thousandths as decimals.
Understand and write thousandths on a place value chart.
Order and compare decimals (same number of decimal places) and decimals with up to 3 decimal places.
Round to the nearest whole number
Round to 1 decimal place
Understand percentages.
Identify Percentages as fractions.
Identify Percentages as decimals.
Recognise equivalent fractions, decimals and percentages.

Perimeter and area
Calculate the perimeter of rectangles.
Calculate the perimeter of rectilinear shapes.

Understand and describe translation including with coordinates.
Identify and draw lines of symmetry.
Identify reflection in horizontal and vertical lines.

Decimals
Use known facts to add and subtract decimals within 1
Calculate and identify complements to 1
Add and subtract decimals across 1.
Add and subtract decimals with the same number of decimal places.
Add and subtract decimals with different numbers of decimal places.
Use efficient strategies for adding and subtracting decimals.
Identify and create decimal sequences.
Multiply and divide by 10, 100 and 1,000
Multiply and divide decimals finding missing values.

Negative numbers
Understand negative numbers.
Count through zero in 1s.
Count through zero in multiples.
Compare and order negative numbers.
Find the difference between negative numbers.

Converting units
Identifying Kilograms and kilometres
Identifying Millimetres and millilitres
Convert units of length
Convert between metric and imperial units.
Convert units of time
Calculate with timetables.

Volume
Understand cubic centimetres.
Compare volume.

	Calculate the perimeter of polygons. Calculate the area of rectangles. Calculate the area of compound shapes. Estimate area. <u>Statistics</u> Draw line graphs. Read and interpret line graphs. Read and interpret tables. Read and interpret timetables.	Estimate volume. Estimate capacity.
Year 6 **By the end of:**		
Autumn term	**Spring term**	**Summer term**
The children should be able to: <u>Place value</u> Explore numbers to 1,000,000 and 10,000 revise partitioning, exploring both standard and non-standard ways of composing numbers. Identify integers that are 10, 100, 1,000 times the size, or one-tenth, one-hundredth, one-thousandth the size of other integers. Read and write numbers to 10,000,000. Explore a number line to 10,000,000. Compare and order any integers. Round any integer Explore negative numbers in real life contexts. <u>Addition, subtraction, multiplication and division.</u> Add and subtract integers. Identify Common factors and common multiples.	**The children should be able to:** <u>Ratio</u> Use ratio language. Understand the ratio symbol. The comparisons and similarities between Ratio and fractions. Understand and create Scale drawing. Use scale factors. Identify Similar shapes using scale factors. Solve Ratio problems and proportion problems, including in a real-life context e.g., recipes. <u>Algebra</u> Understand and solve 1-step function and 2 step.	**The children should be able to:** <u>Shape</u> Measure and classify angles. Calculate angles. Identify, compare, and calculate Vertically opposite angles. Identify and calculate Angles in a triangle. Identify Angles in a triangle - special cases. Calculate missing Angles in a triangle. Calculate and identify Angles in a quadrilateral. Calculate and identify Angles in polygons. Identify the properties of Circles. Draw shapes accurately. Identify and create Nets of 3-D shapes.

Demonstrate rules of divisibility Know primes to 100 and square and cube numbers. Multiply up to a 4-digit number by a 2-digit number. Solve problems with multiplication. Calculate using short division. Use division using factors. Introduction to long division Use Long division with remainders. Solve problems with division. Solve multi-step problems. Calculate answers using order of operations. Find calculations mentally and using estimation. Reason using known facts. <u>Fractions.</u> Identify equivalent fractions and simplifying. Identify and place equivalent fractions on a number line. Compare and order (denominator) Compare and order (numerator) Add and subtract simple fractions. Add and subtract any two fractions. Add mixed numbers. Subtract mixed numbers. Solve multi-step problems. Multiply fractions by integers. Multiply fractions by fractions. Divide a fraction by an integer. Divide any fraction by an integer. Mixed questions with fractions Revise and find the fraction of an amount. Revise and find fraction of an amount - including finding the whole. <u>Converting units</u> Identify and use Metric measures.	function machines. Understand and create form expressions. Understand and use substitution, Formulae and Form equations Solve 1-step equations. Solve 2-step equations. Find pairs of values Solve problems with two unknowns. <u>Decimals</u> Place value within 1 Place value - integers and decimals Round decimals Add and subtract decimals Multiply and divide by 10, 100 and 1,000 Multiply decimals by integers. Divide decimals by integers. Multiply and divide decimals in context. <u>Fractions decimals and percentages.</u> Identify decimal and fraction equivalents. Understand fractions as division. Understand percentages. Convert Fractions to percentages. Identify equivalent fractions, decimals, and percentages. Order fractions, decimals, and percentages Calculate the percentage of an amount - one step. Calculate the percentage of an amount - multi-step. Calculate the missing values from percentages.	<u>Position and reflection</u> Identify The first quadrant. Read and plot points in four quadrants. Solve problems with coordinates. Describe and draw translations. Describe and draw reflections.

Convert metric measures. Calculate with metric measures. To convert between miles and kilometres Understand Imperial measures.	<u>Area, perimeter and volume</u> Shapes - same area Identify and calculate Area and perimeter. Find the Area of a triangle - counting squares. Find the Area of a right-angled triangle. Find the area of any triangle. Find the Area of a parallelogram. Calculate Volume - counting cubes. Calculate Volume of a cuboid <u>Statistics</u> Interpret, compare and complete Line graphs. Interpret, compare and complete Dual bar charts. Read and interpret pie charts. Interpret Pie charts with percentages. Draw pie charts. Calculate The mean	