St Joseph's RC Primary School, Mathematics Long Term Plan

At St. Joseph's we have adopted a Mastery approach to the teaching of Mathematics. We believe this fosters deep and sustained learning of all concepts and that using this approaches helps children to sequentially build on firm foundations in their understanding and application of all areas of maths. We use White Rose (Master the Curriculum in EYFS) a basis for progression and planning as well as support from other Mastery sources to ensure all concepts have been covered in depth.

Nursery, Autumn	Recognising numbers of personal significance Uses number names in play Counting in everyday activities and play Developing an awareness of Numicon Identifying shapes in the environment Recites numbers in order to 10 Comparing quantities – more/less	*Vocabulary:* compare, more, less, number, five frame, quantity, order, length *How does this prepare them for future years?* The children are developing a good foundation of Mathematics to help them further develop their understanding of number and pattern and begin to use this to solve problems.
Nursery, Spring	Beginning to recognise numerals 1-5 Identifying shapes and using them for purpose Comparative language through play Ordering items by length Revising knowledge of number through songs Building on Numicon skills Understanding different representations of number – five / ten frames Counting objects (1:1 correspondence) Begin to match numeral to quantity	
Nursery, Summer	Recognising numerals 1-10 Counting objects 1:1 with accurate number names Finding total of 2 groups by counting on One more/less Beginning to estimate amounts Language related to: Time and Money Beginning to solve a range of number problems Estimates how many objects they can see and checks by counting	

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Reception, Autumn	Recognise when things are the same and different Sort objects according to certain attributes Compare amounts Recognising, comparing and composing 1, 2, 3 Spatial awareness Day and night Circles and triangles All about the number four Shapes with 4 sides All about the number five One more, one less Copy and create repeating patterns Recognise and continue repeating patterns	*Vocabulary:* compare, more, less, number, five frame, quantity, order, length, height, capacity, take away, whole, part, share, odd, even, weight *How does this prepare them for future years?* The children are developing a good foundation of Mathematics to help them further develop their understanding of number and pattern and begin to use this to solve problems.
Reception, Spring	Compare and construct numbers to 5 Compare and construct numbers 6, 7, 9, 9 and 10 Number bonds to 10 Number bonds to 10 to solve problems Combine amounts and say what the total is Compare mass/weight Compare capacity Compare length and height Explore and name 3D shapes	
Reception, Summer	Understand counting patterns beyond 10 Know and build numbers to 20 Add amounts to an existing amount Take away from an amount Change an amount by adding and taking away Recognise and say double numbers Equally share and group from numbers Recognise and say odd and even numbers Combine shapes to make new shapes Use spatial reasoning to solve problems	

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Year 1 Number and Place Value	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens Given a number, identify one more and one less Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least Read and write numbers from 1 to 20 in numerals and words	*Vocabulary*: equal to, more than, less than (fewer), most, least, greatest, smallest, same, different, sort, groups, digit, value *How does this prepare them for future years?* The children are developing their number sense to then use this to solve problems and be able to relate this to multiplication and division.
Year 1 Addition and Subtraction	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-digit and two-digit numbers to 20, including zero Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ – 9.	*Vocabulary:* add, plus, subtract, take away, part, whole, bar model, equal to (=), fact families, number bond, pattern, digit, more/greater, less/smaller *How does this prepare them for future years?* The children are developing their number sense to then use this to solve problems and be able to relate this to multiplication and division.
Year 1 Multiplication and Division	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	*Vocabulary:* multiply, times, half, quarter, arrays, equal, divide *How does this prepare them for future years?* The children are developing their number sense to then use this to solve problems and be able to relate this to fractions.
Year 1 Fractions	Recognise, find and name a half as one of two equal parts of an object, shape or quantity Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	*Vocabulary:* half, quarter, equal parts, shape, quantity *How does this prepare them for future years?* The children are developing their understanding of fractions and will begin to use these to solve problems.

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Year 1 Measurement	<u>Compare, describe and solve practical problems for:</u> Lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] Mass/weight [for example, heavy/light, heavier than, lighter than] Capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] Time [for example, quicker, slower, earlier, later] <u>Measure and begin to record the following:</u> Lengths and heights Mass/weight Capacity and volume Time (hours, minutes, seconds) Recognise and know the value of different denominations of coins and notes Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] Recognise and use language relating to dates, including days of the week, weeks, months and years Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	*Vocabulary:* tall, short, long, shorter, longer, double, half, heavier, lighter, full, empty, half full, quicker, slower, later, earlier, hours, minutes, seconds. *How does this prepare them for future years?* The children will continue to develop their knowledge of measurement, using their understanding to learn further knowledge of measurement and apply this when solving problems.
Year 1 Geometry (Shape)	<u>Recognise and name common 2-D and 3-D shapes, including:</u> 2-D shapes [for example, rectangles (including squares), circles and triangles] 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	*Vocabulary:* rectangles, squares, circles, triangles, 2D shapes, cuboids, cubes, pyramids, spheres, 3D shapes. *How does this prepare them for future years?* The children will begin to understand the properties of the shapes and compare these.
Year 1 Geometry (Position and Direction)	Describe position, direction and movement, including whole, half, quarter and three-quarter turns	*Vocabulary:* position, direction, whole, half, quarter, three-quarter, turn. *How does this prepare them for future years?* The children will use their knowledge of position and direction and relate this to degrees as they progress throughout the school.

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Year 1 Number and Place Value	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens Given a number, identify one more and one less Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least Read and write numbers from 1 to 20 in numerals and words	*Vocabulary*: equal to, more than, less than (fewer), most, least, greatest, smallest, same, different, sort, groups, digit, value *How does this prepare them for future years?* The children are developing their number sense to then use this to solve problems and be able to relate this to multiplication and division.
Year 1 Addition and Subtraction	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-digit and two-digit numbers to 20, including zero Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ – 9.	*Vocabulary:* add, plus, subtract, take away, part, whole, bar model, equal to (=), fact families, number bond, pattern, digit, more/greater, less/smaller *How does this prepare them for future years?* The children are developing their number sense to then use this to solve problems and be able to relate this to multiplication and division.
Year 1 Multiplication and Division	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	*Vocabulary:* multiply, times, half, quarter, arrays, equal, divide *How does this prepare them for future years?* The children are developing their number sense to then use this to solve problems and be able to relate this to fractions.
Year 1 Fractions	Recognise, find and name a half as one of two equal parts of an object, shape or quantity Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	*Vocabulary:* half, quarter, equal parts, shape, quantity *How does this prepare them for future years?* The children are developing their understanding of fractions and will begin to use these to solve problems.

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Year 2 Number and Place Value	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.	*Vocabulary*: equal to, more than, less than (fewer), most, least, greatest, smallest, same, different, sort, groups, digit, value *How does this prepare them for future years?* The children are developing their number sense and understanding of place value within three-digit numbers.
Year 2 Addition and Subtraction	Solve problems with addition and subtraction: Using concrete objects and pictorial representations, including those involving numbers, quantities and measures Applying their increasing knowledge of mental and written methods Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: 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.	*Vocabulary:* add, plus, subtract, take away, part, whole, bar model, equal to (=), fact families, number bond, pattern, digit, more/greater, less/smaller, two-digit, tens, ones *How does this prepare them for future years?* The children are developing their number sense to then use this to solve problems. In Year 3, they will begin to move onto three-digit numbers and estimating answers, as well as developing their understanding of column addition and subtraction.
Year 2 Multiplication and Division	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 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.	*Vocabulary:* multiply, times, half, quarter, arrays, equal, divide, equals, odd, even, repeated addition *How does this prepare them for future years?* The children are developing their number sense to then use this to solve problems and be able to relate this to fractions, as well as counting in multiples and learning additional multiplication tables in Year 3.

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Year 2 Fractions	Recognise, find, name and write fractions ⅓, ¼, 2⁄4 and ¾ of a length, shape, set of objects or quantity Write simple fractions e.g. ½ of 6 = 3 and recognise the equivalence of two quarters and one half.	*Vocabulary:* half, quarter, equal parts, shape, quantity, ⅓, ¼, 2⁄4 and ¾ *How does this prepare them for future years?* The children are developing their understanding of fractions and will begin to use these to solve problems and find related fractions, as well as beginning to add fractions with the same denominator.
Year 2 Measurement	Choose and use appropriate standard units to estimate and measure length, height in any direction (m/cm); mass (kg/g); temperature (degrees C); capacity (l / 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 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	*Vocabulary:* tall, short, long, shorter, longer, double, half, heavier, lighter, full, empty, half full, quicker, slower, later, earlier, hours, minutes, seconds, degrees, temperature, pounds, pence, volume, capacity, time, quarter past, quarter to *How does this prepare them for future years?* The children will continue to develop their knowledge of measurement, beginning to learn about perimeter and the use of Roman numerals in time throughout Year 3.
Year 2 Geometry (Properties of Shape)	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.	*Vocabulary:* rectangles, squares, circles, triangles, 2D shapes, cuboids, cubes, pyramids, spheres, 3D shapes, edges, vertices, faces *How does this prepare them for future years?* This prepares the children for Year 3 where they will learn about angels within shapes.
Year 2 Geometry (Position and Direction)	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 anti-clockwise).	*Vocabulary:* position, direction, whole, half, quarter, three-quarter, turn, clockwise, anticlockwise. *How does this prepare them for future years?* The children will use their knowledge of position and direction and relate this to degrees as they progress throughout the school.

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Year 2 Statistics	Interpret and construct simple pictograms, tally charts, block diagram 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 by totalling and comparing categorical data	*Vocabulary:* pictograms, tally charts, block diagram, tables, sorting, totalling, comparing *How does this prepare them for future years?* The children will develop their knowledge further in Year 3 as they interpret and present data in a variety of ways, including developing their understanding of scaled data.
Year 3 Number and Place Value	Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) Compare and order numbers up to 1000 Identify, represent and estimate numbers using different representations Read and write numbers up to 1000 in numerals and in words Solve number problems and practical problems involving these ideas.	*Vocabulary*: three-digit, hundreds, tens, ones, compare, order, represent, estimate. *How does this prepare them for future years?* This prepares the children for Year 4 as deepen their understanding of number and place value, working with larger numbers and Roman numerals.
Year 3 Addition and Subtraction	Add and subtract numbers mentally, including: Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Estimate the answer to a calculation and use inverse operations to check answers Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	*Vocabulary*: add, subtract, inverse, calculation, estimate, number facts *How does this prepare them for future years?* This prepares the children for Year 4 where they will learn to add and subtract with 4-digit numbers.
Year 3 Multiplication and Division	Recall and use multiplication and division facts for the 3,4 and 8 multiplication tables Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one digit numbers, using mental strategies and progressing to formal written methods Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which 'n' objects are connected to 'm' objects.	*Vocabulary*: multiplication, division, tables, two-digit numbers. *How does this prepare them for future years?* This prepares the children for Year 4 where they deepen their understanding of multiplication and division and learning their times tables up to 12.

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Year 3 Fractions	Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators Recognise and show, using diagrams, equivalent fractions with small denominators Add and subtract fractions with the same denominator within one whole [for example, 5⁄7 + 1⁄7 = 6⁄7 Compare and order unit fractions, and fractions with the same denominator Solve problems that involve all of the above	*Vocabulary*: fractions, equivalent fractions, unit, non-unit, denominator *How does this prepare them for future years?* This prepares the children for Year 4 as they deepen their understanding of fractions, learning to round decimals up to two decimal places.
Year 3 Measurement	Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) Measure the perimeter of simple 2-D shapes Add and subtract amounts of money to give change, using both £ and p in practical contexts Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12hour and 24-hour clocks Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight Know the number of seconds in a minute and the number of days in each month, year and leap year Compare durations of events [for example to calculate the time taken by particular events or tasks].	*Vocabulary*: measure, compare, lengths, mass, volume, perimeter, change, analogue, Roman numerals, durations, seconds, minutes, days, month, year, leap year, hours. *How does this prepare them for future years?* This prepares the children for Year 4 where they will deepen their knowledge of perimeter and begin to convert measurements.
Year 3 Geometry (Properties of Shape)	Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them 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	*Vocabulary*: 2-D, 3-D, orientations, angles, properties, turn, right angles, half-turn, three quarters, complete turn, greater than, less than, perpendicular, parallel, horizontal, vertical *How does this prepare them for future years?* This prepares the children for Year 4 where they will learn to describe movements between positions as translations.

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Year 3 Statistics	Interpret and present data using bar charts, pictograms and tables Solve one-step and two-step questions, using information presented in scaled bar charts and pictograms and tables	*Vocabulary*: interpret, present, bar charts, pictograms, tables, scaled *How does this prepare them for future years?* This prepares the children for Year 4 where they learn to interpret discrete and continuous data.
Year 4 Number and Place Value	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 know that over time, the numeral system changed to include the concept of zero and place value	*Vocabulary*: four-digit, thousands, hundreds, tens, ones, order, compare, round, positive numbers, zero, place value *How does this prepare them for future years?* This prepares the children for Year 5 as deepen their understanding of number and place value, working with larger numbers and beginning to gain an understanding of negative numbers.
Year 4 Addition and Subtraction	Add and subtract numbers with up to 4 digits using the formal written methods of columnar 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	*Vocabulary*: add, subtract, inverse, calculation, estimate *How does this prepare them for future years?* This prepares the children for Year 5 to become confident with addition and subtraction as they begin to learn about rounding numbers to check answers.
Year 4 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 Recognise and use factor pairs and commutativity in mental calculations Multiply 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	*Vocabulary*: multiplication, division, tables, zero, place value, factor pairs, commutativity, distributive law, integer, scaling. *How does this prepare them for future years?* This prepares the children for Year 5 where they deepen their understanding of multiplication and division using numbers with up to 4 digits.

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Year 4 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 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- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths Round decimals with 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	*Vocabulary*: fractions, equivalent fractions, hundredths, tenths, divide, denominator, decimal, ones. *How does this prepare them for future years?* This prepares the children for Year 5 as they deepen their understanding of fractions and how to compare and order fractions with the same denominator.
Year 4 Measurement	Convert between different units of measure (for example, kilometre to metre; hour to minute) Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. Find the area of rectilinear shapes by counting squares Estimate, compare and calculate different measures, including money in pounds and pence 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	*Vocabulary*: covert, measure, perimeter, measure, convert, analogue, digital, hours, minutes, seconds, years, months, weeks, days *How does this prepare them for future years?* This prepares the children for Year 5 where they will develop their knowledge further on converting units and looking at imperial, as well as metric, measures.
Year 4 Geometry (Properties of Shape)	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	*Vocabulary*: geometric shapes, quadrilaterals, triangles, acute, obtuse, orientations, symmetry *How does this prepare them for future years?* This prepares the children for Year 5 as they develop their knowledge further about acute, obtuse and reflex angles.

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Year 4 Geometry (Position and Direction)	Describe positions on a 2-D grid as coordinates in the first quadrant Describe movements between positions as translations of a given unit to the left/right and up/down Plot specified points and draw sides to complete a given polygon	*Vocabulary*: 2-D, coordinates, first quadrant, movements, translations, plot, polygon *How does this prepare them for future years?* This prepares the children for Year 5 where they look at the position of shapes following reflection and translation.
Year 4 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	*Vocabulary*: interpret, discrete, continuous, graphical methods, bar charts, time graphs, pictograms, tables. *How does this prepare them for future years?* This prepares the children for Year 5 where they learn to interpret information on a line graph.
Year 5 Number and Place Value	Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 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.	*Vocabulary*: order, compare, value, powers, negative numbers, round, Roman numerals. *How does this prepare them for future years?* This prepares the children for Year 6 as deepen their understanding of number and place value, determining the value of larger numbers and rounding with more accuracy.
Year 5 Addition and Subtraction	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Add and subtract numbers mentally with increasingly large numbers 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	*Vocabulary*: add, subtract, rounding, accuracy, operations *How does this prepare them for future years?* This prepares the children for Year 6 as they continue to deepen their knowledge of addition and subtraction, estimating with increasing accuracy.

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Year 5 Multiplication and Division	Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers 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 Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers Multiply and divide numbers mentally, drawing upon known facts 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 Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 Recognise and use square numbers and cube numbers, and the notation for squared and cubed Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	*Vocabulary*: multiple, factors, prime numbers, prime factors, composite numbers, divide, remainders, square numbers, cube numbers, simple rates, simple fractions, equals *How does this prepare them for future years?* This prepares the children for Year 6 as they continue to develop their understanding of multiplication and division using 4 digit numbers and remainders more regularly.

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Year 5 Fractions	Compare and order fractions who denominators are all multiples of the same number Identify, name and write equivalent fractions of a given fractions, represented visually, including tenths and hundredths Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements as a mixed number Add and subtract fractions with the same 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 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 Read, write, order and compare numbers with up to three decimal places Solve problems involving number 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 of ½, ¼, 1/5, 2/5 and those fractions with a denominator of a multiple of 10 or 25.	*Vocabulary*: fractions, denominators, multiples, equivalent, decimal numbers, tenths, hundredths, thousandths, percentages *How does this prepare them for future years?* This prepares the children for Year 6 as they learn to solve problems with fractions involving mixed numbers.

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Year 5 Measurement	Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water] Solve problems involving converting between units of time Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	*Vocabulary*: metric measure, imperial units, perimeter, capacity, scaling, length, mass, volume, money, estimate, converting, time *How does this prepare them for future years?* This prepares the children for Year 6 when they will learn to convert measures using decimal places.
Year 5 Geometry (Properties of Shape)	Identify 3-D shapes, including cubes and other cuboids, from 2D representations Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles and measure them in degrees 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	*Vocabulary*: 3-D shapes, 2D shapes, angles, degrees, acute, obtuse, reflex, properties, regular, irregular, polygons, equal. *How does this prepare them for future years?* This prepares the children for Year 6 as they draw 2-D shapes using given dimensions and angles and look at nets of shapes.
Year 5 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	*Vocabulary*: positon, reflection, translation *How does this prepare them for future years?* This prepares the children for Year 6 as they learn about coordinate grids and draw / translate simple shapes, reflecting them in the axis.
Year 5 Statistics	Solve comparison, sum and difference problems using information presented in a line graph Complete, read and interpret information in tables, including timetables	*Vocabulary*: comparison, sum, difference, line graph *How does this prepare them for future years?* This prepares the children for Year 6 as they interpret and construct pie charts and line graphs to solve problems.

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Year 6 Number 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.	*Vocabulary*: order, digit, whole number, accuracy, negative numbers, calculate *How does this prepare them for future years?* This prepares the children for KS3 where the children will deepen their knowledge of number and place value further.
Year 6 Addition and Subtraction	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, an appropriate degree of accuracy. Use estimation to check answers to calculations and determine, in the context of the problem, an appropriate degree of accuracy.	*Vocabulary*: operations, addition, subtraction, accuracy, estimation *How does this prepare them for future years?* This prepares the children for KS3 where the children will deepen their knowledge of addition and subtraction further.
Year 6 Multiplication and Division	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. Perform mental calculations, including with mixed operations and large numbers Identify common factors, common multiples and prime numbers.	*Vocabulary*: multiply, digit, remainders, mixed operations, common factors, common multiples, prime numbers *How does this prepare them for future years?* This prepares the children for KS3 where the children will deepen their knowledge of multiplication and division further, including the use of negative numbers.

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Year 6 Fractions	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. Compare and order fractions, including fractions >1. 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. Divide proper fractions by whole number. Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction. Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000, giving the answers 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. Recall and use equivalences between simple fractions, decimals and percentages including in different contexts.	*Vocabulary*: fractions, denominations, common multiples, compare, mixed numbers, proper fractions, whole number, simple fraction *How does this prepare them for future years?* This prepares the children for KS3 where the children will deepen their knowledge of fractions further, including interpreting fractions and percentages as operators.
Year 6 Ratio and Proportion	Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and use percentages for comparison. 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.	*Vocabulary*: integer multiplication, percentages, comparison, factor, fractions, multiples *How does this prepare them for future years?* This prepares the children for KS3 where the children will deepen their knowledge of ratios, proportions and rates of change.

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Year 6 Measurement	Solve problems involving the calculation and conversion of units of measure, using decimal notation up 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 up to three decimal places, where appropriate. Convert between miles and kilometres. Recognise that shapes with the same areas can have different perimeters and vice versa. Recognise when it is possible to use the formulae for area and volume of shapes. Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres, and cubic metres, and extending to other units (e.g. mm3 and km3).	*Vocabulary*: Conversion, units, decimal, miles, kilometres, perimeters, cubic centimetres, cubic metres, estimate, volume, area *How does this prepare them for future years?* This prepares the children for KS3 where the children will deepen their knowledge of geometry and measurement further.
Year 6 Geometry (Properties of Shape)	Draw 2-D shapes using given dimensions and angles. Recognise, describe and build simple 3-D shapes including making nets. Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. Illustrate and name parts of circle, including radius, diameter and circumference and know that the diameter is twice the radius. Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	*Vocabulary*: dimensions, angles, nets, classify, geometric shapes, quadrilaterals, radius, diameter, circumference, radius *How does this prepare them for future years?* This prepares the children for KS3 where the children will deepen their knowledge of geometry and measurement further.
Year 6 Geometry (Position and Direction)	Describe positions on the full coordinate grid (all four quadrants). Draw and translate simple shapes on the coordinate plane, and reflect them in the axis.	*Vocabulary*: positions, quadrants, coordinate grid, translate, coordinate plan, reflect, axis *How does this prepare them for future years?* This prepares the children for KS3 where the children will deepen their knowledge of geometry and measurement further.

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Year 6 Statistics	Interpret and construct pie charts and line graphs and use these to solve problems. Calculate and interpret the mean as an average.	*Vocabulary*: interpret, construct, pie charts, line graphs, calculate, mean, average *How does this prepare them for future years?* This prepares the children for KS3 where the children will deepen their knowledge of statistics further.
Year 6 Algebra	Use simple formulae. Generate and describe linear number sequences. Express missing number problems algebraically. Find pairs of numbers that satisfy number sentences involving two unknowns. Enumerate possibilities of combinations of two variables.	*Vocabulary*: formulae, linear, algebraically, possibilities, variables *How does this prepare them for future years?* This prepares the children for KS3 where the children will deepen their knowledge of algebra further, solving problems involving algebra.