



St Monica's Catholic Primary School

Philosophy

Every child is a unique gift from God, with his or her own unique gifts.

Our Catholic school, inspired by the teaching of Jesus Christ, will always endeavour to meet the needs of every child within our school.

At St. Monica's, we strive to ensure that all children and staff are offered the opportunity to develop to their full potential in individual, educational, moral, intellectual and spiritual needs.

Our Mission Statement is "Let Trust, Respect and Love live here."

What we teach and what your children learn in Mathematics.

Please see below a summary of our plans (organised by Year Group and Term) for teaching and learning in Mathematics in our school.

If you want further information on the curriculum, including how it is differentiated for children within classes who are at different stages of learning including your child, please contact your child's teacher or email the school on stmonicas@st-monicas.co.uk

Our Intent, Implementation and Impact Statement for Mathematics

Intent:

Through the delivery of an ambitious curriculum children will become fluent in the fundamentals of mathematics establishing confidence. Children will have a curiosity and interest in maths which is nurtured and fostered through well-planned lessons. We use misconceptions and mistakes as an essential part of learning and ensure that maths is accessible for children of all abilities. Using our statement of “Maths is everywhere,” we encourage children to view maths positively and offer them opportunities to explore the connections between mathematics and everyday life. Our main curriculum planning follows the White Rose Hub maths scheme alongside other materials where necessary to ensure varied and rich content. White Rose Hub allows children to gain a secure understanding of concepts through concrete, pictorial and abstract methods which highly benefits our high proportion of pupils who speak English as an additional language.

We aim for pupils to:

- Become fluent in the fundamentals of mathematics.
- Develop their knowledge from early years to year 6
- Reason mathematically.
- Solve problems by applying their mathematics to a variety of different problems, including real-life scenarios.

Implementation:

Maths is taught on a daily basis throughout the school - EYFS to Year 6. Children in EYFS are exposed to adult-led and child-led maths activities, while children in KS1 and KS2 have 1 hour of maths per day. To ensure full coverage, we use White Rose Hub Maths which is a whole-school primary maths curriculum. Teachers have created curriculum progression maps using White Rose Hub year overviews which sets the curriculum out in blocks and ensures continuity and progression in the teaching of maths. Those progression maps are differentiated beyond the core knowledge listed below to provide for the learning needs of all learners and to ensure all learners, including SEND, Pupil Premium and high attainers, are challenged, including through cross curricular links.

Maths units begin with a pre-assessment of current knowledge and vocabulary. Teachers conduct assessment for learning during lesson time to help plan and support intervention groups. Work is differentiated to meet the needs of all children in the classroom to

ensure accessibility. Children receive regular maths support as part of their daily maths lessons and further targeted support is provided for groups or individuals where needed. Correct mathematical vocabulary as outlined within our school calculation policy and on curriculum progression maps is used by all teachers and this is discussed with and explained to children who are then encouraged to use it independently when talking about maths. Children are taught to use the maths working wall in the classroom, which outlines key vocabulary, learning objectives, examples of good work and reasoning sentence stems to support language development. We use websites such as TT Rockstars to help ignite children's excitement for maths and plan whole-school curriculum maths days, where children are exposed to problem-solving and 'real-life' maths.

At the end of a unit, post-learning assessments provide an opportunity for pupils to demonstrate what they have learnt across their given topic and reflect upon and consolidate their learning. These also provide formative assessment for future learning in addition to the informal assessment which has taken place throughout the topics to close gaps, including with regard to previous learning.

As a staff, we continually strive to build upon our understanding of the curriculum. We achieve this through regular CPD offered by subject leaders, external courses and advice from a maths specialist. We encourage our staff to seek support and request further training if needed to ensure everyone is confident in what they teach. We also attend moderation internally and in our Catholic School Cluster.

Impact:

We formally record tracked progress and attainment on a termly basis to ensure children are working towards their end of year expectations. By the end of each academic year, most children have progressed to achieve the end of year expectations. We aim for children to be fluent in the fundamentals of mathematics with a contextual understanding and an ability to recall and apply knowledge rapidly and accurately. Children have the language to be able to justify, reason and explain their thoughts. Our maths books evidence work of a high standard of which children clearly take pride. Children know that maths is a vital skill that they will use in many areas of their daily life. They have a positive view of maths, know where to go for support and have increased in confidence throughout their time at St Monica's which they can take through the transition into secondary school.

Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
1	1	Number - Place Value (within 10)	<ul style="list-style-type: none"> Count to 10, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 10 in numerals and words. 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. 	<ul style="list-style-type: none"> Sorting objects into two groups or identifying how two sets of objects have been sorted. Counting objects from 0 to 10. Counting two sets of objects presented in one group or two lines. Recognising that one object can be represented by another, using amounts up to 10. Completing missing number sequences by counting forwards from 0 to 10 using numerals, words and images. Completing missing number sequences by counting backwards from 0 to 10 using numerals, words and images. Counting one more than a given number between 0 and 10 using numerals, words and images. e.g. how many? Add one more. Counting back one less from a given number. Numbers between 0 and 10 using objects, numerals, words and images. Understanding and using one-to-one correspondence to 10, where objects are presented in lines or groups. Comparing sets of up to 10 objects, where sets of objects are different and presented in lines or groups. Comparing groups of objects and numbers using inequality symbols. Using numbers and objects arranged in groups or lines up to 10. Comparing pairs of numbers up to 10 using $<$, $>$ and $=$. Ordering three groups of objects (up to 10 objects in each group) from smallest to greatest and greatest to smallest, where sets of objects are different and presented in lines or groups. Ordering 3 numbers within 10 from smallest to greatest and greatest to smallest. Using $<$, $>$ symbols, numerals and some words. Using ordinal numbers from 1st to 10th in relation to their position. Using and completing a number line to 10. 	sort, size, colour, shape, label, count, number names, how many, how many, count, same, match, number, number line, number track, missing number, what comes next, counting forwards, counting backwards, one more, two more, add one more, careful counting, touch each, say one number name, how many fewer than, more than, equal to, greater than, less than and equal to, symbols, order, smallest, greatest, ordering, larger, ordinal numbers, first, 1st, second, 2nd, third, 3rd, number line, what number is missing, what comes next.

Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
		Number - Addition and Subtraction (within 10)	<ul style="list-style-type: none"> • Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs. • Represent and use number bonds and related subtraction facts within 10. • Add and subtract one-digit and two-digit numbers to 10, including zero. • Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$. 	<ul style="list-style-type: none"> • Using a part whole model to show how numbers up to 10 can be partitioned • Using the addition and equals symbol (+ and =) when writing number sentences up to 10. • Using addition fact families up to a total of 10, using pictorials and numbers. • Finding and writing number bonds to 10, using pictorials and numbers. Working through number bonds to 10 systematically, using pictorials and numbers. • Using number bonds to 10 - Pictorials and numbers used. • Comparing number bonds up to 10, using pictorials, numbers and the symbols $<$, $>$, $=$. • Adding two numbers together to total up to 10, using pictorials and numbers. • Adding more to a given number (includes numbers up to 10). • Finding a part, by counting on from a given part to the whole within 10 (objects and numerals). • Subtracting with use of pictorial representations (up to 10). • Using fact families, linking addition and subtraction using numbers up to 10. • Counting backwards when subtracting. Using numbers up to 10. • Finding the difference between two 1-digit numbers using counters and number lines where the start and end numbers are marked. • Comparing statements using inequality symbols or inequality language. Using numbers up to 10 with some pictorial representation included. Comparing two calculations using inequality symbols or inequality language. Using numbers up to 10 with some pictorial representation included. 	part, whole, partition, addition, equals, symbol, add, fact families, adding number bonds, systematically, in order, number bonds, greater than, less than, equal to, symbol count on, part, subtract, take away, cross out, less, smaller number, taking away, subtraction, find a part, break apart, fact families, counting backwards, difference

Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
		Geometry - Shape	<ul style="list-style-type: none"> Recognise and name common 2-D for example, rectangles (including squares), circles and triangles. Recognise and name common 3-D shapes for example, cuboids (including cubes), pyramids and spheres. 	<ul style="list-style-type: none"> Identifying and naming 3D shapes. Includes cubes, spheres, cuboids, square and triangular-based pyramids, cylinders and cones where some shapes are presented in different orientations with some perspective lines visible. Identifying and sorting 3D shapes. Identifying 2D shapes on the surface of 3D shapes. 2D shapes to include circles, triangles, squares and rectangles. All shapes presented in different orientations with some perspective lines used on 3D shapes. Sorting circles, triangles, rectangles and squares of various orientations, sizes and colour into groups. Finishing patterns using 3 or 4 shapes with different orientations using all 2D or 3D shapes. Includes squares, circles, triangles, rectangles, cubes, spheres, cuboids, square and triangular-based pyramids, cylinders and cones. 	3D, cubes, spheres, cuboids, square and triangular-based pyramids, cylinders, cones, sort, 2D, circles, triangles, squares and rectangles, face, pentagons, hexagons, pattern
		Number - Place Value (within 20)	<ul style="list-style-type: none"> Count to 20, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 20 in numerals and words. 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. 	<ul style="list-style-type: none"> Counting and writing numbers up to and including 20, some numbers represented pictorially, numerically or as words. Representing numbers from 11 up to and including 20 where numbers are represented using numerals, words or images. Partitioning numbers up to 20 into tens and ones. Using Base 10 and numerals. Counting one less and one more up to 20, using numerals and images. Comparing up to 3 groups of objects using language more than, or less than, equal to, most and least, including numbers to 20. Objects arranged linearly with some use of inequality symbols. Comparing numbers to 20. Using numerals and words with some pictorial support. Ordering 3 groups of objects using the language smallest and greatest using numbers to 20 where objects arranged in groups. Ordering numbers to 20 in ascending and descending order using numbers represented by a combination of Base 10 and numerals. 	count, one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty, partition, tens, ones, count, one more, one less, compare, objects, more than, less than, equal to, most, least, order, objects, smallest, greatest, biggest to smallest.

Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary

Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
1	2	Number - Addition and Subtraction (within 20) Number - Place Value within 50	<ul style="list-style-type: none"> • 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 0. • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$. • Count to 50, forwards and backwards, beginning with 0 or 1, or from any given number. • Count, read and write numbers to 50 in numerals and words. • Given a number, identify one more and one less. • Identify and represent numbers using objects and pictorial representations 	<ul style="list-style-type: none"> • Using pictures and objects to count on to complete addition to 20. • Counting forward on a number line to complete addition to 20. • Making links between number bonds to 10 and number bonds to 20. • Working systematically to find number bonds to 20. • Adding numbers to 20 by making 10. • Children to work with adult support to add by making 10. • Completing subtraction calculations below 20. • Completing subtraction calculations below 20 on a number line. • Answering subtraction word problems. • Completing subtraction below 20 when crossing 10. • Children to complete subtraction, crossing 10- e.g. $13 - 5$, with concrete objects and pictorial representations. • Completing subtraction, crossing 10, by partitioning. • Children to work with support to complete subtraction, crossing 10, by partitioning. • Counting in ones and tens to 50. • Completing number tracks to 50. • Using objects to represent numbers to 50. • Using partitioning to represent any number up to 50 in a part whole model. • Using pictures to identify one more and one less than any number to 50. Identifying one more and one less than any number to 50. • Using the words greater and less to compare numbers to 50. • Using $<$, $>$ and $=$ to compare two numbers to 50. • Ordering three numbers up to 50. • Counting in multiples of 2 and 5 up to 50. 	<p>Addition, total, equals, counting, forward, bar model, number line, number bond, systematically partition, subtraction, take way, minus, less, representation, crossing 10 links/ relationship subtraction.</p> <p>forwards, backwards, counting, fifty, tens ten frame, organise fifty, Base Ten, partition, represent, part whole model one more, one less more, less, greater/ less than, equal, compare</p>

		<p>Measure – Length and Height</p> <p>Measure – Weight and Volume</p>	<p>including the number line, and use the language of: equal to, more than, less than (fewer), most, least.</p> <ul style="list-style-type: none"> Compare, describe and solve practical problems for: lengths and heights (for example, long/ short, longer/ shorter, tall/ short, double/ half) Measure and begin to record the following: lengths and heights Measure and begin to record the following: weight and volume. Compare, describe and solve practical problems for: Weight and volume (for example, heavy/ light, full/ empty.) 	<ul style="list-style-type: none"> Counting in 5s to complete statements. Using the vocabulary taller and shorter to compare heights. Using the vocabulary longer and shorter to compare lengths. Comparing the length and height of different objects. Using cubes to measure classroom objects Comparing lengths by measuring with non-standard units Using a ruler to measure classroom objects. Recording the length of objects. Adding two lengths together and subtracting lengths. Using balance scales to weigh a variety of classroom objects. Using non-standard units of measure such as cubes to weigh the mass of an object. Using the vocabulary heavy, light, heavier, lighter and equal to, to compare the mass of objects. Using a variety of different containers to measure capacity using the language full, nearly full, empty and nearly empty. Measuring capacity using non-standard units of measure such as bowls and buckets. Comparing capacity units non-standard units of measure and using more, fewer and equal to words and symbols. 	<p>multiples, patterns</p> <p>length, height, longer, shorter, taller shortest, tallest, longest measure, non-standard units compare ruler, centimetres add, subtract/ take away</p> <p>Mass, weight, capacity, heavy, light, heavier, lighter, equal to, full, nearly full, empty, nearly empty, more, fewer, inequality symbols.</p>
Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
1	3	Number-Multiplication and Division	<ul style="list-style-type: none"> Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial 	<ul style="list-style-type: none"> Counting in multiples of 2s to find a total. Counting two more and two fewer. Counting forwards and backwards in 2s. Noticing patterns when counting in 2s. 	<p>Multiples, counting, forwards, backwards, more, fewer, pattern, odd, even, similarities</p>

		<p>representations and arrays with the support of a teacher.</p> <ul style="list-style-type: none"> • Make links between arrays, number patterns and counting in twos, fives and tens. 	<ul style="list-style-type: none"> • Counting in multiples of 5s to find a total. • Counting forwards in 5s to 50. • Noticing patterns when counting in 5s. • Using the language of odd and even to differentiate between multiples of 2 and 5. • Counting in multiples of 10s to find a total. • Counting forwards in 10s. • Noticing patterns and similarities when counting in 10s. • Using the language of odd and even to differentiate between multiples of 2 and 5. • Using pictures and concrete resources to identify whether groups are equal/unequal. • Noticing whether groups are equal/unequal when arranged differently. • Using concrete resources to make equal groups and find the total. • Counting in groups of 2, 5 and 10 within 50. • Using stem sentences to link to repeated addition. • Using resources to make arrays in columns and rows. • Noticing how many they have in each column and row. • Using resources to double numbers to 20. • Recording their work using sentence stems. • Recognising different representations of doubled numbers. • Using concrete resources to build groups for given numbers. • Recording their work using sentence stems. <ul style="list-style-type: none"> • Using 1-1 correspondence to share into equal groups. • Recognising when numbers cannot be shared into equal groups. • Using shapes and objects to find half. • Using the language of half and parts • Using resources to find half of a quantity by sharing equally into 2. • Noticing what happens when you half an even/odd number. • Using shapes and objects to find quarters. • Using the language of quarters and parts. 	<p>Equal, unequal, groups, same, different, addition, total, arrays, rows, columns, Double, repeated, addition,</p> <p>Half, whole, equal, non-equal, parts, share, odd, even, quarters,</p>
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		<p>Geometry- Position and Direction</p>	<ul style="list-style-type: none"> Describe position, direction and movement, including whole, half, quarter and three-quarter turns. 	<ul style="list-style-type: none"> Using resources to find half of a quantity by sharing equally into 4. Noticing what happens when you half an even/odd number. Using the language of full, half, quarter and three-quarter to describe turns made by shapes and objects. Giving instructions using the key vocabulary. Using the language left, right, forwards and backwards to describe position and direction. Describing the position of shapes from different starting points. Describing position using the language top, in between, bottom, above and below. 	<p>Position, turns, full, half, quarter, three-quarter, direction, left, right, forwards, backwards, top, in between, bottom, above, below.</p>
		<p>Number- Place value within 100.</p>	<ul style="list-style-type: none"> Count to 100, forwards and backwards, beginning with 0 or 1, or from any given number. 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. 	<ul style="list-style-type: none"> Using resources such as hundred squares to count forwards and backwards to 100. Completing missing number sequences to 100. Using concrete resources to group objects into tens and ones. Using place value charts to record how many tens are within a number to 100. Comparing the value of numbers to 100 using resources and place value knowledge. Using the language more than, fewer than and equal to, to compare numbers. Representing numbers using concrete resources. Ordering sets of objects from smallest and largest to largest and smallest. Using the language of most, bigger, biggest, larger, largest, smaller, smallest and least to compare numbers. Using concrete resources to find one more/one fewer on numbers to 100. Using number tracks and hundred squares to find one more/one fewer on numbers to 100. 	<p>Counting, forwards, backwards, tens, ones, place value, more than, fewer than, equal to, ordering, smallest, largest, most, bigger, biggest, larger, largest, smaller, smallest, least.</p>

		<p>Measure – Money</p>	<ul style="list-style-type: none"> Recognise and know the value of different denominations of coins and notes. 	<ul style="list-style-type: none"> Recognising and naming each coin. Looking at and discussing the features of different notes. Recognising and naming each note. Investigating different ways to make a given amount. Counting in 2s, 5s and 10s to find a total. Using <, > and = to compare different amounts. 	<p>money, coin, pence, pounds, 1p, 2p, 5p, 10p, 20p, 50p, £1, £2, £5, £10, £20, £50, <, >, =, compare</p>
		<p>Measure- Time</p>	<ul style="list-style-type: none"> Sequence events in chronological order. Recognise and use the language relating to dates, including days of the week, weeks, months and years. Tell the time to the hour and past the hour and draw the hands on a clock face to show these times. 	<ul style="list-style-type: none"> Using the language before, after, next, first, today, yesterday, tomorrow, morning, afternoon and evening, to sort and order events. Using the language of the days of the week and months of the year, children talk about events such as their birthday. Using an analogue clock to tell the time to the hour and half hour, using language such as o'clock and half past. Looking at clocks and recognising the minute and hour hand. Using stopwatches and sand timers to measure durations of time. Comparing units of time using the language faster, slower, earlier and later. 	<p>Time, chronological order, before, after, next, first, today, yesterday, tomorrow, morning, afternoon and evening, days of the week, months of the year, clock, o'clock, half past, minute, hour, second, faster, slower, earlier, later.</p>

Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
2	1	Number - Place Value	<ul style="list-style-type: none"> Count objects to 100 and read and write numbers in numerals and words. Represent numbers to 100 Tens and ones with a part-whole model Recognise odd and even numbers Compare objects and numbers Count in 2s, 5s, 3s and 10s. 	<ul style="list-style-type: none"> Reading and writing numbers to 100, identifying which numbers are missing and filling them in correctly, making sure that they have correct number formation. Writing numerals in words. Using arrow cards to make two digit numbers and identifying which digit represents tens and ones Answering reasoning and problem solving questions using a variety of representations to help. Using the part whole model to help them find number bonds to 10 and 20 independently. Counting in 2's, 5's, 10's and 3's, using this skill to solve sequences and complete number patterns. Knowing which digits are odd and which ones are even and begin to answer reasoning and problem solving skills based on this. Confidently ordering any given numbers to 100 from smallest to largest etc. 	<p>numbers, numerals, formation, partition, arrow cards, two digit numbers, digit, tens, ones, place value, more than, less than, equal to, reasoning, number bonds, whole, count, twos, word problems. times tables, fives, odd, even. largest, smallest, digit.</p>
		Number – Addition and Subtraction	<ul style="list-style-type: none"> Fact families – addition and subtractions bonds to 20. Check calculations. Compare number sentences. Related facts. Bonds to 100 (facts). Add and subtract 1s. 10 more and 10 less. Add and subtract 10s. Add 2 digit and 1 digit – crossing 10s. Add 2 digits – crossing 10s. 	<ul style="list-style-type: none"> Making different totals using a variety of concrete resources to aid them. Identifying 10 more and 10 less than a given number to 100 and explain what has happened to the number. Adding and subtracting a 2 digit and 1 digit number as well as a 2 digit by 2 digit number crossing the 10s. Add or subtract multiples of ten from any given number within 100. Use addition and subtraction bar model and in columns. Add three on digit numbers. Understanding of what a fact family is and identifying and give all 4 facts when given a family. Using a fact family to find an inverse. Solving addition and subtraction sums/reasoning and problem solving questions with accuracy. Having the skillset to be able to check if calculations are correct. 	<p>total, odd, even, addition, fact families. add, equals, subtract, multiples, ones, tens column method, one digit, number sentence, reasoning, inverse, missing number, difference, check, related facts, part,</p>

		<p>Measure – Money</p>	<ul style="list-style-type: none"> • Add ones and add tens • Subtract a 2 digit number from a 2 digit number – not crossing tens. • Subtract a 2 digit number from a 2 digit number – crossing tens. Subtract ones and subtract tens. • Bonds to 100 (tens and ones). • Add three 1 digit numbers. • Count money – pence. • Count money – pounds and notes. • Count money – notes and coins. • Select money. • Make the same amount. • Compare money. • Find the total. • Find the difference. • Find change. • Two step problems. 	<ul style="list-style-type: none"> • Comparing number sentences, knowing that both sides of the equals sign must be balanced. • Using their number bonds and related facts to 100. • Reading and answering reasoning and problem solving questions linked to addition and subtraction. • Recognising coins to £2 and some notes, putting them into the correct order. • Comparing coins using more than, less than and equal to. • Adding different coins together to get to a given total. • Finding some different combinations of how to make 5p, 10p, 20p and 50p. • Giving change from 20p using coins to help them where needed. • Having a good knowledge of money worded problems and be able to identify all the key information they need in order to answer 1 and 2 step problems. • Beginning to use their reasoning skills and language to explain how they know answers. • Using the bar method in order to find the total of 3 given coins. • Finding the difference between prices up to £1. 	<p>whole, problem solving, reasoning.</p> <p>recognise, order, compare, value, coins, add, combinations, key information, word problems. money, add, subtract, total, amount, bar model, difference, cost, amount, problem solving, reasoning, more than, less than, equal to.</p> <p>repeated addition, objects, number, multiplication, number sentence, array, represent, reasoning, word problems, division,</p>
		<p>Number – Multiplication and Division</p>	<ul style="list-style-type: none"> • Recognise equal groups. • Make equal groups. • Add equal groups. • Multiplication sentences using x symbol. • Multiplication sentences from pictures. 	<ul style="list-style-type: none"> • Using repeated addition and making the link to multiplication. • Creating arrays for any given multiplication sum and writing both the repeated addition number sentence and multiplication number sentence for each array. • Reading and understanding arrays and therefore be able to answer questions about them, understanding what each part represents. 	

		<p>Geometry – Properties of Shape</p>	<ul style="list-style-type: none"> • Interpret pictograms (1-1) (2,5,10) • Block diagrams <ul style="list-style-type: none"> • Recognise 2D and 3D shape • Count side on a 2D shape • Count corners on a 2D shape • Draw 2D shapes • Lines of symmetry • Sort 2D shapes • Make patterns with 2D shapes • Count faces on 3D shapes • Count edges on 3D shapes • Count vertices on 3D shapes • Sort 3D shapes • Make patterns with 3D shapes. 	<ul style="list-style-type: none"> • Completing missing boxes in a tally chart. • Understanding what pictograms are and be able to transfer information from a tally chart to a pictogram when looking at 1-1 and 2,5,10 data. • Answering a selection of questions about different pictograms. • Understanding how pictograms work and always taking note of the key. • Understanding what a block diagram is, answering questions and creating one. • Answering questions using the data to help them, including identifying whether statements are true or false. <ul style="list-style-type: none"> • Recognising and naming the necessary 2D shapes with ease. • Naming a cube, cuboid, cone, sphere, trapezium, square based pyramid and a triangular based pyramid. • Counting the sides and corners of 2D shapes. • Drawing basic 2D shapes but will need a little extra support when trying to draw more complex shapes. • Finding line/s of symmetry and use the line of symmetry to help them create patterns or finish drawing a shape • Sorting 2D shapes and think of subheadings to match. • Completing a pattern using 2D shapes. • Having knowledge of 3D shape and their properties, in parts of their learning, they may need to use concrete resources to aid them with their work. • Sorting 3D shapes when given appropriate sub headings and also completing 3D patterns. <ul style="list-style-type: none"> • Understanding of how to recognise and find a half, quarter, third, $\frac{2}{4}$ and $\frac{3}{4}$ of a shape and a number. • Working practically in order to find some of these fractions, which will help them to understand and consolidate their learning. 	<p>gate, same, different, least, difference between, key, pictogram, true, false, block diagram, statements, true, false.</p> <p>square, circle, triangle, pentagon, hexagon, octagon, rectangle, tally, corners, sides, geoboard, line of symmetry, mirror line, 2D shapes, patterns, cube, cuboid, cone, sphere, cylinder, triangular prism, square based pyramid, triangular based pyramid. faces, trapezium, cylinder pattern, rotate.</p> <p>shapes, quarter, denominator, numerator, equal parts, fraction,</p>
		<p>Number - Fractions</p>	<ul style="list-style-type: none"> • Make equal parts • Recognise a half • Find a half • Recognise a quarter 	<ul style="list-style-type: none"> • Understanding of how to recognise and find a half, quarter, third, $\frac{2}{4}$ and $\frac{3}{4}$ of a shape and a number. • Working practically in order to find some of these fractions, which will help them to understand and consolidate their learning. 	<p>shapes, quarter, denominator, numerator, equal parts, fraction,</p>

			<ul style="list-style-type: none"> Find a quarter Recognise a third Find a third Fractions of shape Unit fractions Non unit fractions Equivalent fractions $\frac{1}{2}$ and $\frac{2}{4}$ Find $\frac{3}{4}$ Count in fractions 	<ul style="list-style-type: none"> Understand that unit fractions are fractions where one part is shaded and that non-unit fractions are fractions where there is more than one part shaded. Completing investigations on these unit fractions and be able to explain what they have found out. Having a basic understanding through completing an investigation that the bigger the denominator the smaller the fraction. Starting to explore equivalent fractions using practical resources and have a basic understanding that $\frac{1}{2}$ is the same as $\frac{2}{4}$. Having a good knowledge of how to count up in fractions, again the children will use concrete resources to aid their understanding where needed. 	<p>bigger, smaller, whole, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, unit fractions, non-unit fractions, $\frac{2}{4}$, $\frac{1}{2}$, equivalent, same, equal parts, identical, $\frac{3}{4}$, sharing, bar model, whole, pattern.</p>
Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
2	3	<p>Measure – Length and Height</p> <p>Geometry – Position and Direction</p>	<ul style="list-style-type: none"> Compare lengths and heights Measure lengths (1) Measure lengths (2) Measure length (cm) Measure length (m) Compare lengths Order lengths Four operations with lengths Describe position (1) Describe position (2) Describe movement Describe turns Describe movement and turns Making patterns with 	<ul style="list-style-type: none"> Comparing pictures of objects using taller and shorter with confidence. Measuring the length of given objects. Using cubes to measure the length of given objects around the classroom and writing a sentence to describe each length. Choosing a variety of objects and practice measuring them using a cm ruler. Understanding what is measured in metres and using this knowledge to help them sort objects into groups. Comparing lengths using $< > =$. Ordering lengths (5) from shortest to longest using learnt vocabulary. Reading, understanding and solving one step problems. Using left, right, forwards and backwards to describe positional direction. Using prepositional language to describe where an object is placed: above, below, in between. Using the words: 'top', 'middle', 'bottom', 'above' and 'below' to describe the position of objects. Using the language 'forwards', 'backwards', 'up', 'down', 'left' and 	<p>length, height, shorter, taller, same, longer, unit of measure, measure, ruler, accuracy, tallest, shortest, cm, metre, more than, less than, equal to, estimate, compare, order, add, subtract, divide, multiply, word problems.</p> <p>position, direction, left, right, forwards, backwards, route. top, in between, bottom, above, below, instructions, up, down, left and right, full turn, half</p>

		shapes	<ul style="list-style-type: none"> • 'right' to describe movement in a straight line. • Describe different turns: full turn, half turn, quarter turn, clockwise and anticlockwise and be able to show their understanding by matching turns to the description. • Using the words forwards, backwards, left and right, children are able to give more accurate instructions to follow when moving around the classroom/playground. • Marking out a route and describing the route using the correct directional language. • Completing a shape pattern by adding in the missing shapes; taking note of the pattern and which way to turn the shape. • Writing down sentences to describe what has happened in each pattern. 	<p>turn, quarter turn, three-quarter turn, clockwise, anticlockwise. direction, rectangle, triangle, square.</p>
	Measure – Time	<ul style="list-style-type: none"> • Telling time to the hour • Telling time to the half hour • O'clock and half past • Quarter past and quarter to • Telling time to 5 minutes • Writing time • Hours and days • Find durations of time • Compare durations of time 	<ul style="list-style-type: none"> • Telling the time to the hour and to the half past and show this by completing sentences to show the correct time. • Describing and telling the time to o'clock and half past accurately. Understanding quarter past and quarter to and be able to use this knowledge to help them read and match up times to the correct analogue clock. • Understanding the difference between seconds, minutes and hours. Using this knowledge to sort activities into three groups. • Understanding that there are 60 minutes in an hour and 24 hours in a day. • Solving problems finding and comparing durations of time, using o'clock, half past, quarter past and quarter to. 	<p>clock, o'clock, hour, minutes, hand, quarter to, quarter past, half past, clockwise, seconds, true, false, find the difference, duration of time, shortest, longest, order.</p>
	Measure – Mass, Capacity and Temperature	<ul style="list-style-type: none"> • Introduce weight and mass • Measure mass • Compare mass • Measure mass in grams • Measure mass in kilograms • Introduce capacity and 	<ul style="list-style-type: none"> • Comparing the weight of objects using words lighter and heavier, as well as comparing mass using more than, less than and equal to. • Using non units of measure to help them compare the mass of two objects. • Comparing picture representations about weight using the words 	<p>heavier than, lighter than, mass, weight, scales, balance, equal to, balance, non-standard units, more, less, grams,</p>

			<p>volume</p> <ul style="list-style-type: none"> • Measure capacity • Compare volume • Millilitres • Litres • Temperature 	<p>‘heavier than’ and ‘lighter than’ to describe the mass.</p> <ul style="list-style-type: none"> • Using scales to record the mass of objects in grams and compare grams. Measuring capacity and using their knowledge of 2s, 5s and 10s to read the different scales. Using this knowledge to help them compare sets of containers with different amounts of liquid in using ‘more, equal to or ‘less’ Identifying which container would have the largest capacity. • Understanding what is measured in ml and l and the difference between the two. Being able to sort objects into things that are measured in litres and things that are measured in millilitres. • Knowing that temperature is measured using thermometers and using their knowledge of counting in 2s, 5s and 10s to read thermometers. 	<p>heaviest, lightest, order, compare, kilograms, measure, double, find the difference, half, empty, full, more, less, nearly full, nearly empty, compare, volume, largest, capacity, one quarter full, half full, three quarters estimate, investigate, capacity, ml, l, order, sort, temperature, thermometers, Celsius.</p>
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Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
3	1	Number – Place Value	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Understanding that 10 tens make a hundred, and that ten hundreds make a thousand. Counting in 10s and 100s up to 1000, with support can extend further. Using base ten and place value counters to create 3 digit numbers. Beginning to understand importance of 0 as a place holder. Placing numbers on a number line when intervals are given. Estimating where numbers are on a number line when they are close to an interval or half way between. Finding 1, 10 and 100 more/less. Comparing sets of objects and using < and >. Ordering 3 digit numbers in ascending and descending order. Solving reasoning and problem solving questions, using models to support in their explanation. Beginning to work methodically to record solutions to problems with multiple answers. Using knowledge of the 5 times tables to being to count up and down in multiples of 50. 	<p>ones, ten, hundreds, thousands, place value, represent place holder, numerals, words, representations, number line, interval, value, estimate, base ten/dienes, place value, counters, greater, less, equal, compare, ascending, descending, ordering, multiple, patterns.</p>
		Number – Addition and subtraction	<ul style="list-style-type: none"> add and subtract numbers mentally, including: a three-digit number and ones three-digit number and tens a three-digit number and hundreds add and subtract numbers with up to three digits, using formal written methods of 	<ul style="list-style-type: none"> Using mental strategies and the written column method to add and subtract numbers. Using concrete resources to understand the principle of exchanging, but are not reliant on them. Understanding the term multiple and knowing that when adding multiples of ten or hundred, mental strategies can be used. Being able to exchange twice in a calculation when they have a number more than ten whilst adding. In subtraction, knowing 'more on the floor, go next door'. 	<p>multiple, counting on, counting back, addition, subtraction, more, less, increase, decrease ones, number bonds, exchanging, place holder, mental</p>

		<p>Number – Multiplication and Division</p>	<p>columnar addition and subtraction</p> <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 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 and progressing to formal written methods = Lent Term] 	<ul style="list-style-type: none"> Solving missing number questions. Estimating and knowing its uses in real life. Creating sensible estimates and spotting patterns in calculations to support with this. Understanding that addition and subtraction are the inverse of each other, so can be used to check. Using the inverse to check answers for accuracy. <ul style="list-style-type: none"> Using mental recall to multiply and divide in groups of 3, 4 and 8. They may be supported by pictorial scaffolding when solving these calculations. Understanding the terms multiply and divide and knowing that multiplying makes a number bigger and dividing generally makes a number smaller. Solving problems using their knowledge of multiplying and dividing groups of 3, 4, and 8. Understanding that division is the inverse of multiplication, and knowing how to create families of number sentences related to multiplications facts Discussing problems in groups in order to solve them. Solving 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. 	<p>calculations, patterns tens, addition, subtraction. pattern, bridging, crossing, estimating, method, subtract, column method, digit, inverse, written method, estimate, guess, sensible, error.</p> <p>groups, lots of, multiply, equal, altogether, inverse, opposite, array, division, divide, share, commutative law, half, share, lots of, altogether, strategy, method, trial and error, repeated addition.</p>
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Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
3	2	Number – Multiplication and Division	<ul style="list-style-type: none"> recall and use multiplication and division facts for the 2, 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 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. 	<ul style="list-style-type: none"> Writing out the 2 and 4 times tables and begin to answer questions at speed. Finding the multiples of 8 (by using what I know about the 2 and 4 times tables) and can use them to complete missing numbers on a number line. Writing multiplication number sentences to match arrays to support understanding of multiplying by 8. Writing division statements to match arrays to support understanding of dividing by 8. Answering questions on the 2, 4 and 8 times tables. Answering word problems using 2 and 4 times tables. Writing $< > =$ to compare calculations e.g. $4 \times 3 \dots\dots 2 \times 6$. Writing related calculations using understanding of the 4 times tables e.g. using the column method. Multiplying using the column method (with an exchange where answers are less than 100) Using picture support to partition tens and ones then group to divide in order to answer word problems Understanding what a place value grid is and how it can be used to divide and answer questions. Using a place value grid to answer questions linked to dividing where the answer has a remainder. Answering questions about scaling when the scale is twice / three times as many. Working out an investigation to answer a how many ways question. 	<p>multiply, times, lots of, equal groups divide, equal, share, group, multiplication, time tables, missing, word problems same, different, greater, less ones, tens, total digit, column method, exchange, grouping, equally, how many, equally, remainder combinations, different each time, change, working systematically</p>
		Measure - Money	<ul style="list-style-type: none"> To add and subtract amounts of money to give change, using both £ and p in practical contexts 	<ul style="list-style-type: none"> Counting in pounds and pence using coins and pictures. Converting pounds to pence / pence to pounds using coins. Adding pounds and pence together using coins and pictures to answer word problems. Subtracting pounds and pence to answer word problems. 	<p>pounds, pence, most, least, how much, order, add, subtract, change</p>

		<p>Statistics – Bar charts, pictograms and tables</p>	<ul style="list-style-type: none"> interpret and present data using bar charts, pictograms and tables solve one-step and two-step questions [for example ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts and pictograms and tables 	<ul style="list-style-type: none"> Answering questions about a tally chart. Drawing a pictogram using a key that equals 10, and know how to represent 5 on the pictogram. Making their own pictogram linked to a given topic. Choosing their own key and give reasons. Saying if a statement is true / false questions when interpreting pictograms. Using data from a pictogram to draw a bar chart. Answering questions about bar charts. Saying if they agree with statements made about bar charts and giving their reasons. Completing a table by asking questions of their friends on a topic of their choosing. Talking about what is the same/different when comparing two tables. Saying if they agree with statements made about tables and give their reasons. 	<p>count, tally, total, pictogram, key, scale, half, topic, altogether, more, less, most/least common, true/false, same/different, bar chart, information, data, giving reasons, information, recording.</p>
		<p>Measure: Length and Perimeter</p>	<ul style="list-style-type: none"> measure, compare, add and subtract: lengths (m/cm/mm) measure the perimeter of simple 2-D shapes 	<ul style="list-style-type: none"> Measuring in cm chosen using a ruler. Using a metre tape / ruler to measure. Writing in the measurements to match cm to m and m to cm. From a list of lengths, writing the longest / shortest length then ordering. Comparing two lengths using < >. Answering always/sometimes/never questions. Adding together two lengths given in different unit of measurements. Calculating the difference between two given measurements. Talking about what perimeter is and how to find out the perimeter. Making predictions about which shapes will have the longest / shortest perimeter. Using a ruler to measure the perimeter of more complex 2D shapes (more than 4 sides). Calculating the perimeter of a rectangle using repeated addition where two lengths are given. Calculating the perimeter of a rectangle by making links to multiplication where two lengths are given. 	<p>ruler, measuring, how long, how tall, end of the ruler metre, centimetre, longer than, shorter than, equal to, how long, twice as long order, add, total, altogether, total length, total height, convert how much less? difference, take away, subtract, total length around the edge, perimeter.</p>

Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
				<ul style="list-style-type: none"> Working out what is the length of the missing side of a rectangle where one side and the perimeter is given. Investigating the perimeter of the classroom. 	
3	3	Number – Fractions	<ul style="list-style-type: none"> connect tenths to place value, decimal measures and to division by 10. begin to understand unit and non-unit fractions as numbers on the number line, and deduce relations between them, such as size and equivalence. understand the relation between unit fractions as operators (fractions of), and division by integers. continue to recognise fractions in the context of parts of a whole, numbers, measurements, a shape, and unit fractions as a division of a quantity. How to add and subtract fractions with the same denominator 	<ul style="list-style-type: none"> Completing given whole part models within 100. Sharing a given quantity into given groupings and write matching whole / parts. Ticking given shapes that show $\frac{1}{2}$ and colouring shapes to show $\frac{1}{2}$. Halving, finding a third and quartering a given quantity within 50, linking to sharing by 2, 3 or 4. Ticking given shapes that show a unit fraction. Writing and drawing their own unit fractions. Writing non-unit fractions to match given pictures. Writing and drawing their own non-unit fractions. Writing tenths as fractions and matching decimals in to maths books. Matching bar models to decimals, drawing bar models and writing matching decimals. Completing fractions on a number line. Finding the unit fraction of an amount through division for $\frac{1}{2}$ $\frac{1}{4}$ of amount, using arrays. Finding fractions of given amounts through division. Working out $\frac{2}{3}$, $\frac{2}{5}$ and $\frac{3}{4}$ of a number (less than 100) using practical resources where needed. Solving word problems about fractions. Begin to notice the equivalent fractions through shading bar models to show equivalent fractions. Looking at fractions equivalent to $\frac{1}{2}$. Completing missing number problems linked to fractions – using a fractions wall. 	whole, part, equal, same, half, sharing by 2, quarter, sharing by 4, third, sharing by 3, non-unit fraction, tenths, decimals, non-unit fractions, problem solving, equivalent same, bar model, number rods, missing number problems, decimals, arrays, fractions wall.
		Measure – Time	<ul style="list-style-type: none"> Understand O'clock and half past 	<ul style="list-style-type: none"> Drawing hands on clock faces and writing the matching times in numbers and words. Writing the months of the year in order with correct spellings. 	O'clock, half past, quarter past, quarter

		<p>Geometry – Properties of Shape</p>	<ul style="list-style-type: none"> • Understand quarter past and quarter to • Know the months and years • Know how many hours in a day • Telling the time to 5 and 1 minute(s) • Using a.m. and p.m. • Understanding a 24-hour clock • Finding the duration • Comparing durations • Understanding start and end times • Measuring time in seconds <ul style="list-style-type: none"> • Understand turns and angles • Understand right angles • To be able to compare angles • To draw angles accurately • To know the difference between horizontal and vertical • To understand parallel and perpendicular • To recognise and describe 2-D shapes 	<ul style="list-style-type: none"> • Knowing how many days there are in each month of the year. • Ordering events • Knowing hours in a day, know days in a week and know about working / school week. • Draw hands on to clock faces to show how many minutes to / past the hour. • Reading a clock face telling the time to the minute. • Converting time between 24 hr and 12 hr • Calculating the difference between two times (full, half and quarters of an hour) • Calculating start or end times when given one and the duration to include reading from analogue clocks. • Solving time problems to include word problems, missing number problems and investigations. <ul style="list-style-type: none"> • Using the hands of the clock, answering questions about quarter / half / whole turns. • Using elastic bands on peg boards, making right angles from different given starting lines. • Using a right angle checker, finding obtuse and acute angles around the classroom. • Measuring straight lines accurately in cm and mm. • Sorting shapes/symbols/letters depending on whether they have a horizontal line of symmetry, a vertical line of symmetry or both. • Writing the letters of the alphabet in capital and writing if they use parallel or perpendicular lines. • Describing how many angles, right angles, obtuse angles, acute angles, lines of symmetry a shape has to give clues. • Writing to describe given shapes stating number of faces, edges, vertices, curved surfaces. 	<p>to, names of months, hours in a day, days in a week, counting in 5s, minutes, digital, analogue, am, pm, 12 hour, 24 hour morning, noon, afternoon, evening, night, duration, how long it lasts, start time, end time, compare.</p> <p>quarter turn, half turn, whole turn, north, south, east, west, angle, created when 2 straight lines meet at a point right angle, 90 degrees, acute, obtuse, cm, mm, accurately, rounding, horizontal, vertical, symmetry, parallel, perpendicular, right describe, number of faces, edges,</p>
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		<p>Measure – Mass and Capacity</p>	<ul style="list-style-type: none"> • To recognise and describe 3-D shapes • Make 3-D shapes • Compare mass • Measure mass • Add and subtract mass • Compare volume • Measure capacity • Compare capacity • Add and subtract capacity • Temperature 	<ul style="list-style-type: none"> • Creating 3-D shapes using playdough, describe the shape they have made stating number of faces, edges, vertices, curved surfaces. • Using data from a table. • Ordering and comparing the mass of a selection of objects. • Reading scales in g and kg. Drawing each out as a number line and marking the missing intervals. • When given a mixed measurement, can record the mass on scales by calculating the intervals and identifying where the arrow will go. • Weighing a selection of objects then record in mixed measurements (kilograms and grams) compare using ‘lighter’, ‘heavier’ and the inequality symbols. • Using whole part models, add and subtract given mixed measurements (kilograms and grams). • Exploring the capacity of three containers and record using mixed measures with litres and millilitres together e.g. ___ l and ___ ml • Comparing simple numerical measures, including mixed measurements using the inequality symbol. • Adding and subtracting using place value counters to represent ml and l. • Drawing on the given temperature on to pictures of thermometers and comparing. • Investigating scales on a selection of thermometers and pictures of thermometers. 	<p>vertices, curved surfaces.</p> <p>Mass, scales, weight, balance, compare, heavier, lighter, kg, g, intervals, missing intervals, volume, full, l, ml, capacity, temperature, thermometer, degrees Centigrade.</p>
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Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
4	1	Number – Place Value	<ul style="list-style-type: none"> 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) Identify, represent and estimate numbers using different representations Round any number to the nearest 10, 100 or 1000 Read Roman numbers to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value 	<ul style="list-style-type: none"> Understanding Roman Numerals and being able to add or subtract 10/ 1 to any Roman Numeral to 100. Rounding 3 digit numbers to the nearest 10/ 100. Rounding 4 digit numbers to the nearest 1000. Noticing patterns when counting in steps of 1000 and using full sentences to explain their thoughts. Having a good understanding of the value of each digit in a 4 digit number. Partitioning 4 digit numbers in more than one way. Making estimations/ place numbers on a number line up to 10 000. Ordering and compare numbers beyond 1000. Being able to find 1000 more and 1000 less than any 4 digit number. Understanding the meaning of the symbols <, > and = and using these to compare 4 digit numbers. Placing whole numbers and negative numbers on a number line. Identifying the use of negative numbers in real life situations. Reading negative numbers on a thermometer and gathering information. Solving number and practical problems that involve all of the above and with increasingly large positive numbers. 	<p>Rounding, to nearest, value, digit, estimate, solve, partition, place value, negative, place holder compare, Roman numeral symbols, patterns, positive, thermometers, real life situations.</p>
		Number – Multiplying and Dividing (mental strategies)	<ul style="list-style-type: none"> Recall and use multiplication and division facts for the 3, 6, 7, 9 multiplication tables. Multiply and divide by 10, 100 Multiply by 1 and 0 Divide by 1 and itself 	<ul style="list-style-type: none"> Knowing their 3, 6, 7 and 9 times tables and recalling them at speed. Multiplying and dividing by 10 and 100. Know the associated division facts and be able to solve simple problems that are best solved using mental strategies. Using reasoning techniques to answer questions with verbal explanations. 	<p>Multiply, divide, share equally, groups of, equals, is the same as, greater than, less than, equal to, multiple addition.</p>
				<ul style="list-style-type: none"> Using mental strategies and the written column method to add and 	<p>Place value,</p>

		<p>Number – Addition and Subtraction</p>	<ul style="list-style-type: none"> • add and subtract numbers with up to 4 digits using the formal written methods of column 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. 	<p>subtract numbers.</p> <ul style="list-style-type: none"> • Being able to use concrete resources to understand the principle of exchanging, but not being reliant on them. • Understanding the term multiple and know that when adding multiples of ten or hundred or thousand, mental strategies can be used. • Exchanging twice in a calculation when they have a number more than ten whilst adding. • In subtraction, knowing ‘more on the floor, go next door’. • Understanding how to make an estimate and its uses in real life. • Creating sensible estimates and spotting patterns in calculations to support with this. • Knowing that addition and subtraction are the inverse of each other, and using this knowledge to check. 	<p>partition, negative, estimate, placeholder, add, addition, sum, more, subtract, subtraction, column method, exchanging, ones, tens, hundreds, thousands, digit, difference, inverse, check, mental strategies, patterns.</p> <p>Rectilinear, right angle, millimetre, centimetre, metre, kilometre, perimeter, convert, measurements, longer, shorter, greater than, less than.</p>
		<p>Measure – Length and Perimeter</p>	<ul style="list-style-type: none"> • Convert between different units of measure • Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • Find the area of rectilinear shapes by counting squares 	<ul style="list-style-type: none"> • Adding and subtracting lengths. • Converting between different units of measure using mm, cm, m and km using their knowledge of multiplication to convert from larger to smaller units. • Measuring and calculating the area of rectilinear shapes. • Using reasoning skills to solve problems with shapes, involving missing side measurements. • Measuring accurately with a ruler to the nearest mm. 	

Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
4	2	Measure - Area	<ul style="list-style-type: none"> Find the area of rectilinear shapes by counting squares 	<ul style="list-style-type: none"> Understanding that area is the amount of space taken up by a 2D shape or surface. Counting squares and half squares to calculate areas in squares and ordering shapes according to their areas. Drawing rectilinear shapes with a given area. Understanding that shapes can be a different shape but still have the same area. Discussing the area of shapes with correct vocabulary and use correct symbols to compare them. 	Area, squares, whole surface, measure, larger, smaller, same, different.
		Number – Multiplication and Division	<ul style="list-style-type: none"> recall multiplication and division facts for multiplication tables up to 12×12 use place value, known and derived 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 formal written layout solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by 1-digit number 	<ul style="list-style-type: none"> Knowing their 11 and 12 times tables and improving their times tables generally throughout the unit of work. Recalling 'factor pairs' with some speed. Multiplying three numbers. Completing multiplication using the formal method, including multiplying two and three-digit numbers by a one-digit number. Setting out a 'short division' question' and finding the answer to it, including the remainder. Beginning to use their place value knowledge in situations where it becomes more efficient to work mentally. 	Multiply, times, product, method, estimate, total, repeated addition, divide, division, share, group, each, equally, remainder.

		<p>Number Fractions –</p>	<ul style="list-style-type: none"> • 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 100 and dividing tenths by 10 • solve problems involving increasingly harder fractions to calculate quantities • add and subtract fractions with the same denominator • solve simple measure and money problems involving fractions 	<ul style="list-style-type: none"> • Explaining what a fraction is and knowing the difference between a unit fraction and a non-unit fraction. • Understanding that the same amount can be represented by a different fraction (equivalent fractions) and using some families of equivalent fractions such as $\frac{2}{4}$ and $\frac{1}{2}$. • Adding and subtracting fractions with the same denominator. • Subtracting fractions from whole amounts. • Finding fractions of amounts. • Solving simple problems involving fractions, including of money and measures. 	<p>Unit fraction, non-unit fraction, numerator, denominator, tenths, hundredths, equivalent, add/subtract, quantities, solve, money, length</p>
		<p>Number Decimals –</p>	<ul style="list-style-type: none"> • 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 100 and dividing tenths by 10 • add and subtract fractions with the same denominator • recognise and write decimal equivalents of any number of tenths or hundreds • find the effect of dividing a one- or two-digit number by 10 and 	<ul style="list-style-type: none"> • Understanding that tenths are bigger than hundredths and that 10 tenths make 1 whole. • Matching representations to the correct fraction and identifying the odd one out. • Representing decimals in different ways and translating these into a place value grid, including the use of place holders. • Using a place value grid to divide numbers by 10 and 100 and beginning to do this without a place value grid. • When increments are given, placing decimals (tenths) onto a number line including above 1 and when the increments vary are not just 0.1. • Explaining whether statements using decimals on a number line are correct. • Applying this knowledge to reasoning questions and begin to find multiple solutions to a question. 	<p>Decimals, decimal point, tenths, hundredths, place value grid, divide, place holder, representation, equivalent, equal, fractions, part, whole, number line, statements.</p>

			<p>100, identifying the value of the digits in the answer as ones, tenths and hundredths</p> <ul style="list-style-type: none"> • solve simple measure and money problems involving fractions and decimals to 2 decimal places 		
Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
4	3	Number – Decimals	<ul style="list-style-type: none"> • recognise and write decimal equivalents of any number of tenths or hundreds • recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ • 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 1 decimal place to the nearest whole number • compare numbers with the same number of decimal places up to 2 decimal places • solve simple measure and money problems involving fractions and decimals to 2 decimal places 	<ul style="list-style-type: none"> • Using their number bonds to ten and 100 to create a whole number (using tenths and hundredths). • Identifying the value of digits in decimals. • Writing confidently decimals with tenths and hundredths and sometimes use a place holder. • Using <, > and = to compare decimals and using these skills to order them. • Using a partially completed number line to round decimals with one decimal place to the nearest whole. • Writing fractions equivalent to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ • When solving reasoning and problem solving questions, using supporting images to help them find multiple solutions where appropriate. 	<p>Decimals, decimal point, tenths, hundredths, place value grid, divide, place holder, representation, equivalent, equal, fractions, part, whole, number line, half, quarter, rounding, compare, order, greater than, less than.</p>

	Measure Time –	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Confidently recalling basic facts for conversions between seconds, minutes, hours, days, weeks, months and years and solve questions based on this knowledge. Reading and drawing times on analogue, digital and 24 hour clocks. Reading and showing o’ clock, half past and quarter past/to and 5 minute intervals whilst developing confidence in 1 minute intervals. Converting between 12-hour and 24-hour time and using am and pm. 	Analogue, digital, seconds, minutes, hours, days, months, years, decade, century, millennium, interval, past, to.
	Measure Money –	<ul style="list-style-type: none"> solve simple measure and money problems involving fractions and decimals to two decimal places. estimate, compare and calculate different measures, including money in pounds and pence 	<ul style="list-style-type: none"> Identifying coins and notes and giving amounts of money in pounds and pence, or using decimal notation. Comparing and ordering amounts of money that may be given in different forms. Using a partially completed number line to aid in rounding money to the nearest pound and using this to estimate how much items will cost. Using column addition and subtraction methods to add/subtract amounts of money, ensuring that they have lined up the columns correctly. Using their known times table skills as well as the formal written methods to multiply and divide amounts of money. Moving between these methods to solve worded money problems. 	Estimating, money, pounds, pence, bronze, silver, notes, coins, rounding, number line
	Statistics – Bars and Charts	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Interpreting what pictograms and bar charts are showing and work confidently with a scale of 1, 2 or 10. Comparing and calculating the sum or difference between data points. Identifying which information can be shown on a bar chart and which can be shown on a line graph, using the terms discrete and continuous. Answering reasoning and problem solving questions based on a range of graphs. Creating pictograms/bar charts deciding on a sensible scale and 	statistics, data, discrete, continuous, bar chart, tally chart, pictogram, interpret, plot, axis, label, title, line graph, comparison, sum, difference.

		<p>Geometry - Shapes and their properties</p>	<p>charts, pictograms, tables and other graphs</p> <ul style="list-style-type: none"> • 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 symmetrical figure with respect to a specific line of symmetry. 	<p>plot line graphs.</p> <ul style="list-style-type: none"> • Identifying acute, right, obtuse and reflex angles when they are presented in different ways and identifying the type of angle from the number of degrees. • Naming and identifying regular polygons up to 10 sides. • Beginning to identify three types of triangles (including those that are right angle triangles) and identifying 5 different quadrilaterals, explaining some of the defining features of them including parallel lines. • Accurately drawing on multiple lines of symmetry on regular polygons and reflecting patterns to create a symmetrical figure. 	<p>regular, irregular, polygon, 2d shape, acute, right, obtuse, straight, reflex, parallel, perpendicular, horizontal, vertical, symmetry, compare, ascending, descending.</p>
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Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
5	1	Number – Place Value	<ul style="list-style-type: none"> • Read, Write order and compare numbers to 100000 and determine the value of each digit. • Count forwards and 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 0. • Solve number problems and practical problems that involve all of the above. • Read Roman Numerals up to 1000 (M) and recognise years written in Roman Numerals. 	<ul style="list-style-type: none"> • Reading, writing, ordering and comparing numbers to 100,000 and determining the value of each digit. • Counting forwards or backwards in powers of 10 for any number up to 1 million. • Rounding any number up to 100000 to the nearest 10, 100, 1000, 10000 and 1000000. • Interpreting negative numbers in context, counting forwards and backwards through 0. Rounding numbers to the nearest 10,100 and 1000. • Solving number and practical problems that involve all of these skills. • Recognising Roman Numerals up to 1000 and some years. 	Place Value, Greater than, Less than, Equals, Biggest, Smallest, Place Value, Ones, Tenths, Hundreds, Thousands, Ten Thousands, Hundred Thousands, Partitioning, Rounding, Justify, Reasoning, I, II, III, IV V VI, X L C D M
		Number – Addition and Subtraction	<ul style="list-style-type: none"> • Add and subtract numbers mentally with increasingly large Numbers • Add and subtract whole numbers with more than 4 digits, including using formal methods (column addition and subtraction) 	<ul style="list-style-type: none"> • Knowing how to add and subtract whole numbers with more than 4 digits. • Understanding the term exchange and representing these calculations in place value grids and other diagrams. • Understanding how rounding can make calculations easier and that, linked with approximating and estimating, they can check the suitability of their answers. • Understanding the inverse and how this can be used to solve 	Addition, Sum, Exchanging, Place Value, Total, Subtraction, Minus, Less than, Difference, Exchanging, Rounding, Estimate,

		<p>Statistics – Graphs and Tables</p> <p>Number – Multiplication, Division, factors, multiples, squares and primes</p>	<ul style="list-style-type: none"> ● Use rounding to check answers to calculations and determine, in the context of the problem, levels of accuracy. ● Solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why. ● Read and interpret Line Graphs ● Draw line Graphs ● Use line graphs to solve problems ● Read and interpret tables ● Two Way tables ● Timetables ● Multiply and Divide numbers mentally drawing upon known facts. ● 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 numbers. ● Recognise and use square numbers and cube numbers 	<p>problems.</p> <ul style="list-style-type: none"> ● Developing knowledge of the language and vocabulary involved in word problems, the importance of identifying the key vocabulary and how to differentiate between steps involving addition and steps involving subtraction. ● Having an understanding of charts and their purpose. ● Answering simple questions about line graphs with a scale of 1, 2 and 5. ● Drawing a line graph on a blank grid and labelling the different axes. ● Solving problems using line graphs with 2 lines. ● Interpreting graphs, tables and timetables and understanding why they are used. ● Finding multiples of whole numbers. ● Understanding the meaning of factor and identifying common factors of different whole numbers. ● Identifying prime numbers and composite numbers using factors. ● Calculating square and cube numbers. ● Multiplying and dividing whole numbers and decimals by 10,100 and 1000. ● Solving problems involving multiplying multiples of 10, 100 and 1000. ● Solving problems involving multiplication and division including using knowledge of factors and multiples, squares and cubes. ● Using the vocabulary of Prime Numbers, Prime Factors and composite numbers. 	<p>RUCSAC, underlining Key Vocabulary, Operations.</p> <p>x axis, y axis, RUCSAC, total, scale, line. accuracy, more than, less than, row, column, difference, interpret, 2 way, time interval</p> <p>Multiple, Common Multiple, Factors. Factor Pairs, Divisible, Square Numbers. Divisible, Square Numbers. Prime, Product, Square Number, Cube Number, Product.</p>
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		Measure – Area and Perimeter	<p>and the notation for squared and cubed.</p> <ul style="list-style-type: none"> • Measure Perimeter • Calculate Perimeter • Area of Rectangles • Area of compound shapes • Area of irregular Shapes 	<ul style="list-style-type: none"> • Establish whether a number up to 100 is prime and recall prime numbers to 19. • Understanding what perimeter means. • Measuring perimeter of rectangles and compound shapes with ruler to the nearest centimetre. • Using the terms compound and composite shape. • Finding missing lengths in the perimeter of compound shapes through the use of the Inverse. • Finding the area of rectangles by using LxW and using this knowledge to find the area of compound shapes by partitioning them into two rectangles. • Estimating the area of irregular shapes and using this skill to solve problems. 	Perimeter, Compound shape, Inverse, Missing lengths, Opposite side, Area, LxW, space inside shape, cm ² , Formula, Partitioning, Calculating, Accuracy.
Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
5	2	Number – Multiplication and Division. Number Fractions -	<ul style="list-style-type: none"> • Multiplication of 4 digits by 1 Digit. • Multiply by 2 digits (Area Model) • Multiply 2 digits by 2 digits • Multiply 3 digits by 2 digits • Multiply 4 digits by 2 digits • Divide 4 digits by 1 digit • Divide with remainders • Improper fractions to mixed numbers • Mixed numbers to improper fractions • Add and subtract fractions • Add mixed numbers 	<p>Multiplying numbers up to 4 digits by 1 digit. Multiplying numbers up to 4 digits by 2 digits using place value and having a clear understanding of the process using different representations. Using the ‘bus stop method’ to divide, understanding the importance of remainders. Expressing remainders as numbers and fractions.</p> <ul style="list-style-type: none"> • Understanding what a fraction is and finding equivalents by making the denominators the same. • Converting improper fractions and mixed numbers and understanding fractions that are greater than 1. • Adding fractions with different denominators that are multiples and factors of each other, including 3 different fractions. • Subtracting fractions by finding common denominators and using 	<p>Multiplication, Times tables, Partitioning, Place Value, Zero in the ones column, Reasoning, Explain, Remainder, Rounding the remainder, Fractions as remainders.</p> <p>Equivalent fractions, Numerator, Denominator, greater than, less than, comparing, common denominator,</p>

		Number – Decimals and Percentages	<ul style="list-style-type: none"> Subtract fractions Subtract mixed numbers Multiply fractions by an integer Calculate fractions of a quantity and an amount <ul style="list-style-type: none"> Building on previous knowledge of tenths and hundredths, apply this to understanding thousandths Understand that per cent relates to numbers of parts per hundred. 	<p>this knowledge to add and subtract mixed numbers, choosing the method that suits them best.</p> <ul style="list-style-type: none"> Multiplying unit, non-unit and mixed numbers by whole numbers. Finding a fraction of an amount by dividing by the denominator and multiplying by the numerator. Using these skills to solve fraction problems where fractions are the operator. <ul style="list-style-type: none"> Reading and writing decimal numbers, understanding the value of each digit. Exploring the relationships between decimals and fractions, including on a grid. Representing more complex decimals as fractions as well as decimals. Recognising that percentages, decimals and fractions are different ways of expressing proportion. Use decimal equivalents to fractions. 	<p>common numerator, integer, reasoning, improper fraction, mixed numbers, operators.</p> <p>Tenths, hundredths, partition, fractions, decimals, percentages, thousandths, place value, conversion, equivalent</p>
Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
5	3	Number – Decimals	<ul style="list-style-type: none"> Children add decimals within one whole. They use place value counters and place value charts to support adding decimals and understand what happens when we exchange between columns. Use reasoning and understanding to check the feasibility of an answer. <ul style="list-style-type: none"> How to identify and angles Compare angles 	<ul style="list-style-type: none"> Adding and subtracting decimals within 1. Find complements (up to 3dp) within 1. Adding decimals, crossing whole numbers. Adding and subtracting decimals with the same number of decimal places. Adding and subtracting decimals with a different number of decimal places. Adding and subtracting wholes and decimals. Extending decimal sequences. Multiplying and dividing decimals by 10, 100 and 1000. <ul style="list-style-type: none"> Using an angle tester, deciding if angles are acute or obtuse. Measuring and drawing angles using a protractor. 	<p>Digits, tenths, hundredths, thousandths, number bonds, complements, bridging, columns, estimation, place holder, integers.</p> <p>Angle, acute, obtuse, reflex,</p>

		<p>Geometry – angles and polygons</p>	<p>(ascending and descending)</p> <ul style="list-style-type: none"> ● How to measure an angle with the aid of a protractor ● The properties of ‘isosceles’, ‘scalene’ and ‘equilateral’ triangles ● What makes a particular quadrilateral (angles) ● Regular and irregular polygons (their properties and the mathematical language) ● Understanding of language associated with the properties of 3-D shapes, for example, faces, curved surfaces, vertices, edges etc. 	<ul style="list-style-type: none"> ● Understand and can draw reflex angles. ● Using their knowledge of right angles to estimate the size of acute angles e.g. “It’s close to a right angle, so about 80°.” ● Calculating angles on a straight line. ● Classifying triangles using the names ‘isosceles’, ‘scalene’ and ‘equilateral’, using rulers to measure the sides in order to classify them correctly. ● Naming quadrilaterals including a square, rectangle, rhombus, parallelogram and trapezium. ● Describing the properties of the above quadrilaterals and highlighting the similarities and differences between them. ● Drawing quadrilaterals accurately using knowledge of their angular properties. ● Distinguishing between regular and irregular polygons. ● Identifying and accurately constructing nets of 3-D shapes. ● Understanding and using language associated with the properties of 3-D shapes, for example, faces, curved surfaces, vertices, edges etc. 	<p>rotation, degrees, estimate, compass, protractor, ascending, descending, polygon, isosceles, scalene, equilateral, quadrilaterals, rhombus, parallelogram, trapezium, perpendicular, regular, irregular, 2-D shape, 3-D shape, face, vertices, prism, pyramid</p>
		<p>Geometry – Position and Direction</p>	<ul style="list-style-type: none"> ● Plotting and reading coordinates ● Describing position ● Translation and reflection ● Completing a symmetric figure ● How to write coordinates ● Children can describe translations of coordinates. ● Children use their knowledge of symmetry to complete 2-D shapes and patterns. 	<ul style="list-style-type: none"> ● Describing position, being familiar with reading and recording notation within brackets. ● Plotting points on the grid lines. ● Reading, writing and using pairs of coordinates ● Translating shapes on a grid, focussing on one vertex at a time when translating. ● Translating coordinates and describing translations of coordinates (observing what happens to the x and y coordinates.) ● Exploring symmetry in shapes of different sizes and orientations. ● Finding lines of symmetry, using mirrors and tracing paper. ● Using knowledge of symmetry to complete 2-D shapes and patterns. 	<p>Plotting, coordinates, translation, symmetry, symmetrical, x-axis, y-axis, axes, plot, quadrant, represent, dimension, vertex, orientation, parallel, reflection.</p>

		<p>Measure – converting units</p>	<ul style="list-style-type: none"> ● Reinforce the idea of the prefix 'kilo-' meaning 'thousand'. ● They understand that milli-means 1/1,000 . ● Children are introduced to imperial units of measure. ● Children divide by different multiples of 10 to convert between the different measurements. 	<ul style="list-style-type: none"> ● Converting from metres to kilometres (km), grams to kilograms (kg) and vice versa. In addition, metres to millimetres (mm), litres to millilitres (ml) and vice versa. ● Choosing which unit of measure would be best to measure: the height of a door frame, the length of a room, the width of a book etc. ● Using approximate equivalences between metric units and common imperial units such as inches, pounds (lbs) and pints. ● Converting between different units of time including years, months, weeks, days, hours, minutes and seconds. ● Using timetables to retrieve information. Converting between different units of time in order to solve problems using the timetables. 	<p>Kilo, kilometre, milli, millimetre, centi-, centimetre, metre, convert, measure, calculate, units, mass, milligram, millilitre, imperial, metric</p>
		<p>Measure - Volume</p>	<ul style="list-style-type: none"> ● Volume is the amount of solid space something takes up. ● Volume is recorded as cm³ and m³ ● Volume is the amount of solid space taken up by an object ● Capacity is the amount a container can hold. 	<ul style="list-style-type: none"> ● Understanding how capacity is different to volume - volume is the amount of solid space taken up by an object, whereas capacity is the amount a container can hold. ● Comparing and ordering the volumes of different solids that are made of cubes ● Estimating volume and capacity of different solids and objects. ● Understanding that we often use the word capacity when referring to liquid, rather than volume. 	<p>Capacity, volume, estimate, ml, cm³, compare, order</p>

Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
6	1	Number – Place Value	<ul style="list-style-type: none"> • Read, write and interpret numbers up to 10,000,000 • Compare and order any numbers • Round any number • Use negative numbers 	<ul style="list-style-type: none"> • Using pictorial representations of numbers from 10,000 upwards to read and write numbers up to 10,000,000 in words and figures. • Adding and subtracting powers of ten. • Partitioning numbers to show understanding of place value and using part-whole models and bar models. • Placing numbers on number lines and ordering and comparing numbers up to 10,000,000 with the numbers represented in different ways. • Using greater than, less than and equals to symbols. • Using ascending and descending order. • Rounding numbers from the nearest 10,000 up to 10,000,000 and using their knowledge of place value to decide which two numbers their number sits between. • Justifying which numbers it is best to round to and understand the purpose of rounding for estimation. • Counting forwards and backwards in intervals through zero, using horizontal and vertical number lines and use negative numbers in context. • Adding and subtracting through zero using number lines and more than and less than. T • Solving number problems involving negative numbers. 	Ten thousand, hundred thousand, one million, ten million, place value, column, part-whole model, partition, bar model, figures, digit order, compare, ascending, descending, greater than, less than, equal to integer, rounding, estimation, justify zero.
		Number – Four operations	<ul style="list-style-type: none"> • Add and subtract integers • Solve multi-step problems in a range of contexts • Use short division, focusing on the grouping structure of division • Division using factors 	<ul style="list-style-type: none"> • Being confident in column addition and subtraction, including the language of ‘exchanging’, progressing to multi-digit calculations. • Considering whether the column method if always appropriate. • Dividing up to 4 digits by 1 digits and up to dividing by 2 digits. • Using remainders. • Using number sense to see relationships between dividend (number being divided) and divisor (number dividend being 	Place value, column, exchange, digits, methods, remaining, rounding, multiples, divisors, dividend, quotient, short/long division,

		<p>Number Fractions -</p>	<ul style="list-style-type: none"> • Use long division • Common factors • Common multiples • Primes to 100 • Square and Cube numbers • Order of Operations • Mental calculations <ul style="list-style-type: none"> • Identify and find equivalent fractions • Simplify fractions • Turn improper fractions to mixed numbers • Turn mixed numbers to improper fractions • Identify fractions on a number line • Compare and order fractions • Add and subtract fractions • Add mixed numbers • Subtract mixed numbers • Multiply fractions by integers 	<p>divided by), beginning with multiples of 10</p> <ul style="list-style-type: none"> • Using long division as a different method of dividing by a 2 digit number – dividing 3 digit by a 2 digit number without remainders, starting with a more expanded method (with multiples shown) before progressing to the more formal long division method. • Dividing 4 digit numbers by 2 digits using the long division method, using knowledge of multiples and multiplying and dividing by 10 and 100 to calculate more efficiently. • Using long division where there are remainders, including rounding in word problems, understanding when rounding is appropriate to use for interpreting the remainder and when the context means that it is not applicable. • Finding the common factors and multiples of two numbers. • Work out whether numbers up to 100 are prime or not prime. • Exploring general statements about square and cube numbers. • Consider how the order of operations affects the answer. • Using efficient calculations and sensible estimations. <ul style="list-style-type: none"> • Finding common equivalent fractions using models where needed. • Using multiplication and division to find equivalent fractions for given fractions. • Identify highest common factor (HCF) to simplify fractions. Understand that some fractions cannot be simplified. Showing equivalence using a bar model. • Converting improper fractions by dividing by the denominator using bar models when necessary. Solving problems involving improper fractions. • Converting mixed numbers to improper fractions by multiplying by the denominator using pictorial representations as necessary. • Placing fractions on a number line where the denominators are simple multiples • Comparing and ordering fractions where the denominator is the same using bar models where necessary. Comparing and order fractions where the numerator is the same using bar models 	<p>remainder, context, sum, prime, common factor, common multiple, prime, not prime, square/cube numbers, efficient, estimations.</p> <p>denominator, numerator, equivalent, multiply, divide factor, highest common factor, fraction wall, bar model, simplify, simplest form, improper fraction, mixed number, convert, mixed number, order, number line, equivalent fraction, simplify, negative fractions, compare,</p>
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		<p>Geometry - Position and Direction</p>	<ul style="list-style-type: none"> • Multiply fractions by fractions • Divide fractions by integers • Find fractions of an amount <ul style="list-style-type: none"> • Read and plot coordinates in the first quadrant • Read and plot coordinates in four quadrants • Translate shapes • Reflect shapes • Draw shapes using positive coordinates 	<p>where necessary.</p> <ul style="list-style-type: none"> • Finding equivalent fractions to aid comparison and ordering. • Finding the lowest common multiple and convert to equivalent fractions then add. Using this method to work out problems involving addition of fractions. • Adding whole numbers then fractions, converting to equivalent fractions when necessary. Converting to improper fractions and then expressing in the simplest form. Using both methods to solve problems. • Subtracting the whole numbers then the fractions, converting to equivalent fractions when necessary. Expressing answer in the simplest form. • Multiplying proper fractions and mixed numbers by partitioning. Match multiplication to repeated addition of fractions. Solving problems involving multiplication. • Using pictorial representations where necessary. Multiplying by a variety of fractions. • Using pictorial representations as necessary to support the understanding of dividing fractions by integers. Dividing by flipping the fraction and multiplying. • Finding fractions of amounts by dividing by the denominator and multiplying by the numerator. Using bar models as needed to help with understanding. <ul style="list-style-type: none"> • Plotting points from given positive coordinates. • Identifying coordinates in the first quadrant. • Identifying coordinates for missing vertices of a given shape on a grid. • Plotting points from given positive and negative coordinates. • Identifying coordinates in the four quadrants. • Identifying coordinates for missing vertices of a given shape on a grid in all four quadrants. • Describing two step translation in all four coordinates. 	<p>greater than, less than, equal to, lowest common multiple (LCM) denominator, addition, simplest form, repeated addition, partition, integer, multiply, divide fraction of amount, single unit fractions.</p> <p>grid, x axis, y axis, axes, vertices, vertex, positive coordinate, plot, first quadrant, polygon second, third and fourth quadrants, negative coordinates,</p>
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			<ul style="list-style-type: none"> • Draw shapes using positive and negative coordinates • Translate shapes and describe translations • Reflect shapes in given mirror lines 	<ul style="list-style-type: none"> • Drawing shapes in their new positions after two step translations and giving their coordinates. • Identifying more complex shapes that have been reflected. • Reflecting more complex shapes in the x and y axes using accurate drawings. Giving coordinates of the new shapes. 	translation, translate, units up, down, right and left reflect, reflection, mirror line, diagonal mirror line.
Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
6	2	Number – Decimals	<ul style="list-style-type: none"> • Read decimals up to 2 decimal places • Understand thousandths • Understand decimals up to three decimal places • Multiply by 10, 100 and 1,000 • Divide by 10, 100 and 1,000 • Understand how to multiply decimals by integers • Understand how to divide decimals by integers • Be able to use division to solve problems • Understand how to convert decimals to fractions • Understand how to convert fractions to decimals 	<ul style="list-style-type: none"> • Reading and interpreting diagrams with place value counters and a place value grid to make numbers with up to two decimal places. • Reading and writing decimal numbers and understanding the value of each digit. Showing understanding of place value by partitioning decimal numbers in different ways. • Developing understanding of thousandths through the use of pictorial representations. Exploring the relationships between tenths, hundredths and thousandths, including mixed numbers • Looking at the value of each place value column and describing its value in words and digits. • Multiplying decimal numbers by 10. Discovering the rule-all digits move 1 place to the left. • Understanding why zero is needed as a placeholder. • Investigating what happens when you multiply by 100 and 1000. • Dividing decimal numbers by 10. Discovering the rule-all digits move 1 place to the right. • Investigating what happens when you divide by 100 and 1000. • Using place value diagrams to represent multiplying decimals to explore what happens when you exchange with decimals. • Progressing to written methods (decimal multiplied by a single digit) making sure the decimal point is in the correct place in the answer. • Solving problems involving money and measurement. • Using place value diagrams to represent dividing decimals to 	decimal, place value, tenths, hundredths, decimal point, partitioning thousandths, hundred, decimal places, tenths, hundredths, thousandths, digits, placeholder, powers of 10, digits, written method, pounds, pence, one-step/multi-step problems, convert, simplify, relationship, find decimals for common fractions, such as thirds, quarters, fifths and eighths, denominator,

		<p>Number – Percentages</p>	<ul style="list-style-type: none"> • Understand percentages • Fractions to percentages • Equivalent FDP (fractions, decimals, percentages) • Order FDP • Percentage of an amount based on fractions • Percentages of amounts based on multiples of 10 • Percentages – missing values • Recognise the ‘per cent’ symbol and understand that ‘per cent’ relates to ‘number of parts per hundred’. 	<p>explore what happens when you exchange with decimals.</p> <ul style="list-style-type: none"> • Progressing to written methods (decimal divided by a single digit) making sure the decimal point is in the correct place in the answer. • Starting with tenths and hundredths, converting into fractions. • Converting from a decimal to a fraction, they simplify the fraction to show patterns. Converting fractions out of 100 to percentages. <ul style="list-style-type: none"> • Finding common equivalent fractions, decimals and percentages. • Converting between FDP and then order them. • Using fractional equivalents to find percentages of amounts. • Finding fractions of amounts using knowledge of multiples of 10. • Using understanding of percentages to find the missing whole or a missing percentage when the other values are given. • Using ‘number of parts per hundred’ alongside the % symbol. • Finding equivalent percentages of common fractions and decimals using diagrams. Extra attention given to the misconception that 0.1 is equivalent to 1%. • Converting between fractions, decimals and percentages to enable them to order and compare them. • Using known fractional equivalences to find percentages of amounts (50%, 25%, 10% and 1% only). Bar models and other visual representations will be used. • Using understanding of percentages to find the missing whole or a missing percentage when the other values are given, using bar models. • Exploring the idea that there may be more than one way to solve a problem and that some methods are more efficient than others. 	<p>numerator, equivalent</p> <p>percent, parts of a whole, representation, hundredths, denominator, equivalent, fraction, percentage, decimal, percentage, order, compare, equivalent, fractional equivalence, percentage of an amount, divide, denominator, multiply, numerator, efficient, efficient, strategies, missing, whole, bar model</p>
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	<p>Number- Algebra</p> <p>Measure – Converting Units</p>	<ul style="list-style-type: none"> • Understand units and conversions with regard to: <ul style="list-style-type: none"> a. Metric measures b. Converting metric measures c. Calculate with metric measures d. Miles and kilometres e. Imperial measures 	<ul style="list-style-type: none"> • Reading, writing and recognising all metric measures for length, mass and capacity. • Using skills of multiplying and dividing by 10, 100 and 1,000 when converting between units of length, mass and capacity. • Applying conversion skills to solve measurement problems in context. • 5 miles is approximately equal to 8 km. Using this fact to find approximate conversions from miles to km and from km to miles. • Understanding and using '≈' as "is approximately equal to". • Performing related conversions, both within imperial measures and between imperial and metric. • Choosing the most appropriate unit of measure to measure items. • Selecting an accurate estimate for the length, mass and capacity of items. • Converting in both directions between different units of length, mass and capacity. • Comparing measurements given in different units, identifying which measurement is larger. • Solving problems involving mixed units and compare measures, making decisions about which unit of measure they should convert all measures into to solve the problem. • Solving problems that involve finding fractions of amounts of measures. 	<ul style="list-style-type: none"> • Drawing shapes using squared paper. • Using formulae to calculate area and perimeter 	<p>Unit of measure, capacity, mass, length, tonnes, litres, kilograms decimal places, convert units, approximate, km imperial, metric, appropriate.</p> <p>area, centimetre squares, rectilinear shape, compound shape, factor, even,</p>
	<p>Measure – Area and Perimeter</p>	<ul style="list-style-type: none"> • Understand how to:- <ul style="list-style-type: none"> a. Draw shapes with the same area 			

		<p>b. Calculate area and perimeter</p> <p>c. Area of a triangle</p> <p>d. Area of parallelogram</p>	<ul style="list-style-type: none"> Counting squares and half squares to calculate the area of a triangle. Discovering the relationship between area of a rectangle and a triangle and use formula to calculate area. (base x height ÷2) Dividing parallelogram into a rectangle and two triangles to discover the formula for area. Using the formula (base x perpendicular height) to calculate the area of parallelograms. Finding and drawing rectilinear shapes that have the same area.. Calculating area and perimeter of rectilinear shapes using l x w. Calculate the perimeter using 2l + 2w. Exploring that shapes with the same area can have the same or different perimeters. Counting the number of whole and half squares for given diagrams. Encouraging marking the squares to avoid repetition. Drawing triangles with a given area. Dividing given rectangles into two triangles and calculate the area of the rectangle and triangles. Discovering the formula for the area of a triangle and use this to calculate the area of given triangles. Drawing rectangles and triangles inside a parallelogram. Calculating the area of each by counting squares. Discovering the formula for area of a parallelogram Calculating the area of a variety of given parallelograms using the formula. 	<p>odd, formula, formulae, area, perimeter, whole, half squares, isosceles, right angle, scalene triangles, relationship, pattern, formula, perpendicular height, parallelogram, triangle.</p>
	Measure Volume -	<ul style="list-style-type: none"> define volume as the amount of solid space something takes up and capacity as the amount a container can hold understand that volume is measured in cubes and 	<ul style="list-style-type: none"> Making cuboids using a given number of cubes. Entering details of height, length, breadth on a table. Using scales on diagrams to measure capacity. Measuring the volume of shapes by counting the cubes seen on diagrams. Calculating the volume of cuboids using the formula and find missing measurements in a table. 	<p>volume, capacity, length, breadth, height, layer, centimetre cubes, millilitres, litres compound shapes, difference, greater, volume.</p>

		<p>measure volume by counting cubes</p> <ul style="list-style-type: none"> • formula for calculating volume of cuboids-$l \times b \times h$ 		
	Number Ratio –	<ul style="list-style-type: none"> • understand that ratio is about the relationship between two values and use the language of ratio • know the difference between ratios and fractions • understand that the colon means for every... there are... • understand how to calculate ratios and use diagrams to explain • use scale factors to enlarge amounts or shapes • know how to calculate scale factors using multiplication and division facts. • use ratio and proportion to solve a variety of problems 	<ul style="list-style-type: none"> • Writing sentences based on models and text. • Using colon for ratios with two parts and simplifying into lowest terms. • Finding fractions and ratios from word problems, comparing two parts. • Writing ratios, using colons, based on models and word questions comparing two parts. • Simplifying ratios. • Calculating quantities from ratios using bar models and from word problems with two parts. • Using scale factors of 2 and 3 to enlarge given more complex 2D shapes. • Calculating scale factors of 2 or 3 from diagrams and tables of measurements. • Solving more complex problems using ratio and proportion. 	<p>ratio, whole, part, simplified, for every...there are..., fraction, denominator, value, part, whole, ratio, whole, simplify, lowest terms, quantities, bar models, ratio, whole, part, scale factor, enlargement, perimeter, angle, area, double, triple, quadruple how many, altogether, how much, what proportion</p>
	Statistics – Data handling	<ul style="list-style-type: none"> • Understand different ways to display data • Read and interpret tables including two way tables 	<ul style="list-style-type: none"> • Explaining why we use different graphic forms to display certain data. • Reading data from the bar charts, pictograms and Venn diagrams. • Reading information from two way tables and completing missing information using the data already provided. 	<p>bar chart, pictogram, scale, Carroll diagram, Venn diagram, statistics, column, row, total, heading,</p>

			<ul style="list-style-type: none"> • Read and interpret line graphs • Read and understand intervals on line graphs • Interpret data from line graphs • Draw axis and plot line graphs • Read and interpret timetables • Label parts of a circle understanding the relationship between different parts • Read and interpret pie charts • Draw pie charts • Calculate the mean 	<ul style="list-style-type: none"> • Interpreting the data in a table and giving answers as fractions/ percentages of amounts (probability). • Calculating the sum and difference with 5 columns and 5 rows. • Labelling the intervals on a line graph. • Reading data from a line graph that goes into negative numbers (4 quadrants) and interpreting the data to answer sum and difference questions. • Plotting data (positive numbers). Pupils to select appropriate intervals. • Comparing of journey times. • Answering retrieval and prediction questions. • Labelling circles with key vocabulary. • Draw circles and semi circles using compasses using given radii and diameters. • Reading pie charts with simple percentages given in intervals of 10 and 5. Answering retrieval questions. • Calculating the mean from a set of positive data including temperature and decimals. Find missing values if given the mean. 	<p>combined, probability sum, difference, heading, probability, fraction, trend, intervals, axes, negative numbers, data.</p> <p>Extended- discrete and continuous data.</p> <p>timetable, finding difference in time, number lines, row column radius, diameter, circumference, quadrant, concentric percentage, sector, pie chart, degrees, compass, sector, circumference, radius, mean average, maximum, minimum, data.</p>
Y	T	Topic	Core Topic Knowledge	Skills	Vocabulary
6	3	Geometry – Properties of Shape	<ul style="list-style-type: none"> • Understanding angles are measured in degrees • Knowing angles on a straight line add up to 180 degrees 	<ul style="list-style-type: none"> • Using a protractor correctly to accurately measure angles • Drawing lines and angles accurately using a protractor and ruler • Exploring the relationships between right angles, straight line, quarter and half turns • Exploring the relationships between right angles, a point and a full turn 	<p>angle, acute, obtuse, reflex, right angle, straight line, protractor, scale, degrees – estimate, measure, protractor, scale, quarter turn,</p>

			<ul style="list-style-type: none"> • Knowing angles around a point add up to 360 degrees • Calculating vertically opposite angles • Knowing angles inside a triangle add up to 180 degrees • Calculating missing angles in a triangle • Understanding the relationship between angles in special quadrilaterals • Understanding angles in regular polygons 	<ul style="list-style-type: none"> • Calculating missing angles using the knowledge that vertically opposite angles are equal • Discovering the fact that the internal angles of a triangle always equal 180 degrees • Using the knowledge of angles in a triangle to calculate missing angles • Understanding that the internal angles of a quadrilateral add up to 360 degrees and the relationship between angles in special quadrilaterals • Using their knowledge of angles in quadrilaterals to calculate missing angles • Calculating the internal angles of regular polygons by working out the number of internal triangles x 180 degrees • Drawing shapes accurately using a protractor and ruler from given angles and side lengths • Recognising acute, obtuse and reflex angles. Using knowledge of angles to predict then measure acute and obtuse angles accurately, using protractors. • Calculating missing angles on a straight line when one or more details are given. Exploring reflex angles and how to measure them. Relate the quarter and eighth turns to the 8 compass points. Calculate missing angles when 2 or more angles are given. • Using the knowledge of opposite angles to find missing angles in diagrams • Calculating the missing angles in a triangle including decimals. • Understanding the properties of the different types of triangles. Using this knowledge to calculate missing angles in all types of triangles. • Naming all the special quadrilaterals and know their features. • Discovering that all the interior angles of a quadrilateral add up to 360 degrees. Using this knowledge to calculate missing angles. • Investigating the internal angles of polygons using the number of internal triangles from one vertex. 	<p>straight line, half turn, missing angle, given information, 8 compass points, eighth, quarter, half and complete turn, opposite angles, intersect, internal, interior, sum, difference isosceles, equilateral, scalene, right angle triangles parallelogram, rhombus, trapezium, kite, opposite, adjacent, polygon, regular, vertex, vertices.</p>
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