MATHEMATICS PROGRAMMES OF STUDY

Nursery-Year 6

Nursery 1 **NOTE: This is a progressive guidance; each child's ZPD to be taken into account to secure progression and differentiation to be done through resources and questioning.**		
Strand	**Gradually**	**Examples of how to support this:**

Number	Can combine objects stacking blocks and cups. Can take part in finger rhymes with numbers. Can put objects inside others and take them back again. React to changes of amount in a group up to three items. Compare amounts by saying 'lots', 'more', 'many'. Develop counting behavior such as making sounds , pointing to objects, saying some numbers in sequence. Count in everyday contexts, sometimes skipping numbers – '1-2-3-5'.	*Encourage babies and young toddlers to play freely with a wide range of objects - toddlers engage spontaneously in mathematics during nearly half of every minute of free play. Suggestions: when appropriate, sensitively join in and comment on:* *• interestingly shaped objects like vegetables, wooden pegs, spoons, pans, corks, cones, balls* *• pots and pans, boxes and objects to put in them, shape sorters* *• stacking cups: hiding one, building them into a tower, nesting them and lining them up.* *Use available opportunities, including feeding and changing times for finger-play, outdoors and inside, such as 'Round and round the garden'. Sing finger rhymes which involve hiding and returning, like 'Two little dicky birds'.* *Draw attention to changes in amounts, for example, by adding more bricks to a tower, or eating things up.* *Offer repeated experiences with the counting sequence in meaningful and varied contexts, outside and indoors.* *Suggestions: count fingers and toes, stairs, toys, food items, sounds and actions.* *Help children to match their counting words with objects. Suggestions: move a piece of apple to one side once they have counted it. If children are saying one number word for each object, it is not always necessary to correct them if they skip a number. Learning to count accurately takes a long time and repeated experience. Confidence is important.*
Shape, Space and Measure	Climb and squeeze themselves into different types of spaces. Build with a range of resources. Complete inset puzzles. Compare sizes, weights etc. using gesture and language - 'bigger/little/smaller', 'high/low', 'tall', 'heavy'. Compare sizes, weights etc. using gesture and language - 'bigger/little/smaller', 'high/low', 'tall', 'heavy'.	*Describe children's climbing, tunneling and hiding using spatial words like 'on top of', 'up', 'down' and 'through'.* *Could hide a mascot in different places ('Where is the amsco?'/ 'The mascot is ….')/ 'Where is the Monkey?' song* *Provide blocks and boxes to play freely with and build with, indoors and outside.* *Provide inset puzzles and jigsaws at different levels of difficulty.* *(2 pieces, 3 pieces, 4 pieces)* *Use the language of size and weight in everyday contexts.* *Provide objects with marked differences in size to play freely with. Suggestions: dolls' and adult chairs, tiny and big bears, shoes, cups and bowls, blocks and containers (outdoors-small/ medium /large towels, cups, plates).* *Provide patterned material – gingham, polka dots, stripes etc. – and small objects to arrange in patterns. Use words like 'repeated' and 'the same' over and over.* *NOTES:* *All learning to be wrapped in words.* *Verbal communication to become a priority.* *Model in full sentences/ expect children to repeat/ answer in full sentences as well.*

Nursery 2 **NOTE: This is a progressive guidance; each child's ZPD to be taken into account to secure progression and differentiation to be done through resources and questioning.**			
Strand	**Term 1**	**Term 2**	**Term 3**

Number **Counting** **Cardinality** **Subitising**	**Develop fast recognition of up to 3 objects, without having to count them individually (‘subitising’).** *Point to small groups of two or three objects: “Look, there are two!” Occasionally ask children how many there are in a small set of two or three.* **Recite numbers past 5.** **Say one number for each item in order: 1,2,3,4,5.** *Regularly say the counting sequence, in a variety of playful contexts, inside and outdoors,* ***forwards and backwards,*** *sometimes going to high numbers. For example: hide and seek, rocket-launch countdowns.* **Demonstrate 1:1 correspondence in the range 0-5.** **Know that the last number reached when counting a small set of objects tells you how many there are in total (‘cardinal principle’).** *Count things and then repeat the last number. For example: “1, 2, 3 – 3 cars”. Point out the number of things whenever possible; so, rather than just ‘chairs’, ‘apples’ or ‘children’, say ‘two chairs’, ‘three apples’, ‘four children’.* **Conclude: There are …cars.** ***NOTE: All numbers to be explored accompanied by representations (structures/ not structured Eg: Numicon, number blocks, finger patterns, 5 frames, dice patterns).***	**Develop fast recognition of up to 5 objects, without having to count them individually (‘subitising’).** **Count up to or back from 5.** **Recognise digits to 5.** **Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.** *Ask children to get you several things and emphasize the total number in* *your conversation with the child.* *Use small numbers to manage the learning environment. Suggestions: have* *a pot labeled ‘5 pencils’ or a crate for ‘3 trucks’. Draw children’s attention* *to these throughout the session and especially at tidy-up time: “How many* *pencils should be in this pot?” or “How many have we got?” etc.* **Show ‘finger numbers’ up to 5.** **Recognise numbers in the range 0-5 when suing structured/ unstructured manipulatives/ visuals).** **Recognise when objects are put into groups of the same amount each/ when each person is given the same amount.** **Estimate small amounts and check them by moving items one at a time.** **Experiment with their own symbols and marks as well as numerals.** *Encourage children in their own ways of recording (for example) how many balls they managed to throw through the hoop. Provide numerals nearby for reference. Suggestions: wooden numerals in a basket or a number track on the fence.*	**Count reliably in the range 0-5 forwards and backwards.** **Develop fast recognition of up to 5 objects, without having to count them individually (‘subitising’).** **Can make a number track 0-5 and identify the missing numbers.** **Know that the amount should remain the same on each count (conservation of numbers).** **Recognise when objects are put into groups of the same amount each/ when each person is given the same amount.** **Know that the number will be more or less if items are added or taken away.** **Say one more/ one less than a number in the range 0-5.** **Compare quantities using language: ‘more than’, ‘fewer than’, ‘the same/ equal’.** *Discuss mathematical ideas throughout the day, inside and outdoors.* *Suggestions:* *• “I think Jasmin has got more crackers…”* *• support children to solve problems using fingers, objects and marks: “There are four of you, but there aren’t enough chairs….”* *• draw children’s attention to differences and changes in amounts, such as those in stories like ‘The Enormous Turnip’.* **Explore and represent patterns in the range 0-5.** **Start composing and decomposing numbers in the range 0-5 using manipulatives structured/ not structures) and 5 wise frames.** **Solve real world mathematical problems with numbers up to 5:** **-combine groups;** **-decompose groups of object;** **-count out;**

Shape, Space and Measure	**Talk about and explore 2D and 3D shapes. (names and properties)** *Encourage children to play freely with blocks, shapes, shape puzzles and shape-sorters. Tangram, biscuits cutters. lollipop sticks/ cotton buds to generate shapes.* **Understand position through words alone – for example, "The bag is under the table," – with no pointing.** *Discuss position in real contexts.* **Make comparisons between objects relating to size, length, weight and capacity.** *Provide experiences of size changes.* **Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc.** *Provide patterns from different cultures, such as fabrics. Provide a range of natural and everyday objects and materials, as well as blocks and shapes, for children to play with freely and to make patterns with. X-mas paper chains, fruit kebab, shapes, colours etc.* **Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then…'** *Talk about patterns of events, in cooking, gardening, sewing or getting dressed (daily lile).* *Suggestions: 'first', 'then', 'after', 'before'* *Talk about the sequence of events in stories. Use vocabulary like 'morning', 'afternoon', 'evening'.*	**Talk about and explore 2D and 3D shapes (example, circles, rectangles, triangles and cuboids).** *Encourage children to play freely with blocks, shapes, shape puzzles and shape-sorters.* *Tangram, 2D/3D Art, matching activities (real objects-shapes), Aba Colour Shapes, 'Pin and Tap'.* **Understand position through words alone.** *Use spatial words in play, including 'in', 'on', 'under', 'up', 'down', 'besides' and 'between'. Suggestion: "Let's put the troll under the bridge and the billy goat beside the stream.* **Make comparisons between objects relating to size, length, weight and capacity.** "Can you make a puddle larger?", "When you squeeze a sponge, does it stay small?", "What happens when you stretch dough, or elastic?" **Select shapes appropriately.** *Provide a variety of construction materials like blocks and interlocking bricks. Provide den-making materials. Allow children to play freely with these materials, outdoors and inside. When appropriate, talk about the shapes and how their properties suit the purpose.* **Extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern.** *Encourage children to continue patterns and spot mistakes. Engage children in following and inventing movement and music patterns, such as clap, clap, stamp.* **Describe a sequence of events, real or fictional, using words such as 'first', 'then…'** *Talk about patterns of events, in cooking, gardening, sewing or getting dressed.* *Suggestions:* *• 'First', 'then', 'after', 'before'* *• "Every day we…"* *• "Every evening we…".* *Talk about the sequence of events in stories. Use vocabulary like 'morning', 'afternoon', 'evening' and 'night-time', 'earlier', 'later', 'too late', 'too soon', 'in a minute'.*	**Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.** *Sensitively support and discuss questions like: "What is the same and what is different?" Encourage children to talk informally about shape properties using words like 'sharp corner', 'pointy' or 'curvy'. Talk about shapes as you play with them: "We need a piece with a straight edge."* **Make comparisons between objects relating to size, length, weight and capacity.** *Model more specific techniques, such as lining up ends of lengths and straightening ribbons, discussing accuracy: "Is it exactly…?"* **Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc.** *Provide a variety of construction materials like blocks and interlocking bricks. Provide den-making materials. Allow children to play freely with these materials, outdoors and inside. When appropriate, talk about the shapes and how their properties suit the purpose.* **Combine shapes to make new ones – an arch, a bigger triangle, etc.** *When appropriate, discuss the different designs that children make. Occasionally suggest challenges, so that children build increasingly more complex constructions. Use tidy-up time to match blocks to silhouettes or fit things in containers, describing and naming shapes. Suggestion: "Where does this triangular one /cylinder /cuboid go?"* **Describe a familiar route. Discuss routes and locations, using words like 'in front of' and 'behind'.** *Take children out to shops or the park: recall the route and the order of things seen on the way. Set up obstacle courses, interesting pathways and hiding places for children to play with freely. When appropriate, ask children to describe their route and give directions to each other. Provide complex train tracks, with loops and bridges, or water-flowing challenges with guttering that direct the flow to a water tray, for children to play freely with. Read stories about journeys, such as 'Rosie's Walk'.* **Extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern.**

			Encourage children to continue patterns and spot mistakes. Engage children in following and inventing movement and music patterns, such as clap, clap, stamp. **Describe a sequence of events, real or fictional.** *Countdown to forthcoming events on the calendar in terms of number of days or sleeps. Refer to the days of the week, and the day before or day after, 'yesterday' and 'tomorrow'.*

Year R-DEVELOPMENT OF MATTERS (PAGES 84-98)			
Strand	**Term 1**	**Term 2**	**Term 3**
Number **Numerical Patterns**	**Range -0-5** Can count up 5 forwards and backwards. (objects, actions, sounds) Can accurately identify the cardinal of a group in the range 0-5. Can estimate small amounts and check them by moving items one at a time. Can subitise regular and irregular patterns. (Numicon, dice, finger patterns,5 frames) Can recognise digits to 5/ link the number symbol with its cardinal value. Understand one more/ one less than a number to 5. amd the relationship between consecutive numbers. Can compare sets of objects and numbers in the range 0-5 (including sets where the numbers of item is the same). Can decompose and compose numbers in the range 0-5 (Eg: 4 is made of 1 and 3, 3 and 1 make 4)/ emphases the parts within the whole. Knows that the amount remains the same on each count (conservation of number). Can count out a smaller number from a larger group. Knows that the number will be more or less if items are added or taken away.	Link a set of objects in the range - with a variety of symbols and representations (regular/ irregular-Numicon, dice, finger patterns,5 frames). Can subitise regular and irregular patterns. (Numicon, dice, finger patterns,5 frames). Automatically recall number bonds for numbers 0-5. **Range 0-10** Can count up 10 forwards and backwards. (objects, actions, sounds) Can accurately identify the cardinal of a group in the range 0-10. Can estimate small amounts and check them by moving items one at a time. Can subitise regular and irregular patterns. (Numicon, dice, finger patterns,10 frames) Can recognise digits to10/ link the number symbol with its cardinal value. Knows that the amount remains the same on each count (conservation of number). Understand one more/ one less than a number to 10. and the relationship between consecutive numbers. Use structured images to build understanding of numbers beyond 5 (Eh: 6 is 5 and 1 more, 7 is 5 and 2 more etc). Can compare sets of objects and numbers in the range 0-10 (including sets where the numbers of item is the same). Use comparison vocabulary (more than, less than, the same as, fewer , equal). Can decompose and compose numbers in the range 0-10 (Eg: 7 is made of 5 and 2, 2 and 5 make 7)/ emphases the parts within the whole. Can count out a smaller number from a larger group. Knows that the number will be more or less if items are added or taken away. Can place objects into a five frame and talk about how many spaces are filled and unfilled. Can double number 0-10 using structured images. Begins to double/ halve by putting two equal groups together/ breaking an amount into two equal groups.	**Reinforce understanding of numbers up number 10. (see term 2 objectives)** Subitise (recognise quantities without counting) up to 5. Have a deep understanding of number to 10, including the composition of each number. Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. Explore and represent patterns within numbers up to 10, including evens and odds. Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. Can use knowledge of number bonds and apply in context (There are 5 of us and only 2 sweets. How many more do we need?/ place item on 10 frames and talk about how many we have and how many more we need for all spaces to be filled). Can count beyond ten. (Note: all counting activities to be accompanied by representations Eg: Numicon, bundles of straws, blocks). Become familiar with two-digit numbers and start spotting patterns within them. Can distribute items evenly. Can check if items are distributed fairly/ unfairly. Solve practical problems that involve all the above.

Shape, Space and Measure	Can talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. Can explore characteristics of objects and shapes and talk about them in everyday terms. Can select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. Combine shapes to make new ones – an arch, a bigger triangle, etc. Can make comparisons between objects relating to size, length, weight and capacity using comparative language (...is …than). Can estimate, measure and weigh objects using manipulation, in response to prompts. Can describe a familiar route. Discuss routes and locations, using words like 'in front of' and 'behind'. Can extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern. Describe a sequence of events, real or fictional. May use simple time related vocabulary (now, later, before).	Can select, rotate and manipulate shapes to develop spatial reasoning skills (building sets, pattern blocks, magnetic construction tiles, TANGRAM). Can compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. Investigate how shapes can be combined to make new shapes: for example, two triangles can be put together to make a square. Continue, copy and create repeating patterns. Can make patterns with varying rules (including AB, ABB and ABBC) and objects and invite children to continue the pattern. Compare length, weight and capacity. Teacher/TA to odel comparative language using 'than' and encourage children to use this vocabulary. For example: "This is heavier than that."	Can select, rotate and manipulate shapes to develop spatial reasoning skills (children to be challenged to copy increasingly complex 2D pictures and patterns with these 3D resources, guided by knowledge of learning trajectories: "I bet you can't add an arch to that," or "Maybe tomorrow someone will build a staircase.") Can compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. T/TA to encourage children to predict what shapes they will make when paper is folded. Wonder aloud how many ways there are to make a hexagon with pattern blocks. Find 2D shapes within 3D shapes, including through printing or shadow play. Continue, copy and create repeating patterns. Can make a deliberate mistake and discuss how to fix it. Compare length, weight and capacity. Can make and test predictions. "What if we pour the jugful into the teapot? Which holds more?"

Year 1			
Strand	Term 1	Term 2	Term 3
Number and Place Value	Read all numbers to 20. Count to and across 20, forwards and backwards from any given number. Write all number up to 20 using words. Understand the positional notation and use the correct vocabulary(digits). Write numbers to 10. 1 more/ less than a number to 20+. Count in 2s up to 20. Count and make up to 10 objects without needing count matching. Given a number (range 0-20) , identify one less, one more. Add three one-digit numbers. Compare and order numbers up 10/20.	Read and write and numbers to 50. Write numbers up 50 using words. Count to and across 50, forwards and backwards from any given number. Understand the positional notation and use the correct vocabulary(digits). Represent numbers to 20 using objects or pictures. Count in 2s and 10s (up to and back from 20/ 100). Find 1 more/less than any number to 50. Compare and order numbers up 50. Solve simple problems for numbers to 10.	Count on and back in 1s up to and across 100 or any multiple of 10. Count to and across 100, forwards and backwards from any given number. Write numbers up 100 using words. Given a number (range 0-100) , identify one less, one more. Count in 2s,5s,10s (to and from at least 20/50/100). Compare and order numbers up 100. Find 1 more/less than any number to 100. Use the vocabulary of comparing and ordering numbers. Represent numbers in pictorial terms and use these to solve problems.
Addition and Subtraction	Understand the meaning of the + and – symbols. Use number bonds up to number 5. Know all number bonds to number 5. Use number bonds up to number 10. Add and subtract one-digit numbers to at least 10. Solve simple addition and subtraction problems with objects and pictorial representation. Understand the meaning of 0. Know that add and subtract are different operations.	Recognise and begin to use + /- in calculations . Use numbers bonds up to number 10. Know all number bonds up to 10 Use numbers bonds up to number 20. Add and subtract one-digit numbers to 20. Understand what happens when we add 0. Solve simple addition and subtraction problems using objects and pictures. Solve missing number problems using objects. Know that add and subtract are opposite functions . Use opposite + and – to check answers.	Read and write calculations using + and –. Use number bonds to 20. Know number bonds for all numbers up to 20. Add and subtract one-digit and two-digit numbers to 20. Solve addition and subtraction problems using objects and pictures. Solve missing number problems using objects and pictures e.g. 7 = ? - 9. Understand what happens when we add or subtract 0. Know and explain how add and subtract are opposite. Use opposite + and – to check my answers.
Multiplication and division	Count in multiples of 2. Sort numbers into odd/even numbers. Use objects to solve x problems with help. Use objects to solve ÷ problems, by sharing with help. Use sharing to find answers (up to 20). Double numbers up to 5. Use object arrays to help solve x problems.	Count in multiples of 2 and 10. Sort numbers into odd/even numbers. Use objects and pictures to solve x problems with help. Use objects to solve ÷ problems with help. Use grouping to make amounts. Use sharing to find answers (to 20+). Double numbers up 10. Halve even numbers 0-10. Use object arrays to help solve x and ÷ problems.	Count in multiples of 2, 5 and 10. Sort numbers into odd/even numbers. Use objects and pictures to solve x problems with help. Use objects and pictures to solve ÷ problems with help. Use grouping to make amounts. Investigate use of sharing to find answers (to 20+). Double numbers and amounts up 10. Halve even numbers 0-20. Use various arrays to help solve x and ÷ problems.
Fractions	Know that half is one of two equal parts Find half of a shape. Put together halves make whole shapes. Calculate half of amounts to 10 (by sharing equally between two).	Recognise half of a shape. Know that a quarter is one of four equal parts(shapes only). Find half of a shape, object or amount to 10. Put together halves and quarters to make parts of shapes. Recognise different fractions of shapes and amounts (halves).	Find half of a shape, object or amount up to 20. Find half or a quarter of some numbers up to 20. Put together halves and quarters to make parts of shapes. Use halves or quarters to help solve problems.

Year 1			
Strand	Term 1	Term 2	Term 3
Measurement	Compare, describe and solve practical problems for lengths and heights [for example, long/short, longer/shorter, tall/short, taller/shorter,heavier/lighter,double/half] . Measure & begin to record lengths/heights using non-standard units. Recognise and know the value of different denominations of coins (up 10p). Compare and describe different intervals of time(daily routine). Sequence events in chronological order using language [for example, before, after, next, first, today, yesterday, tomorrow, morning, afternoon and evening . Sequence the days of the week and months of the year and reason with it.	Compare, describe and solve practical problems for mass / weight [for example, heavy/light, heavier than, lighter than]. Measure and begin to record mass/weight using standard units. Measure and begin to record time in hours and minutes (o'clock and half past). Position the hands of the clock correctly(o'clock and half past). Recognise and know the value of different denominations of coins (up 20p). Recognise and use language relating to dates, including days of the week, weeks, months and years in context and by recall. Sequence the days of the week and months of the year and reason with it.	Compare, describe and solve practical problems for capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] . Measure and begin to record capacity and volume. Recognise and know the value of different denominations of coins(up tp £2) and notes. Use knowledge of value of coins to solve simple problems in context. Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. Position the hands of the clock correctly(o'clock and half past). Solve practical time problems(1 hour later/before).
Geometry - shapes	Draw common 2D shapes (rectangles-including squares-circles, triangles). Recognise and name common 2D shapes (rectangles-including squares-circles, triangles). Expose children to the correct vocabulary(sides, angles). Recognise and name 3D shapes e.g. cuboids, pyramids and spheres in response to label prompts. Expose children to the correct vocabulary(edges, vertices, faces).	Recognise and name common 2D shapes including quadrilaterals. Sort 3D shapes according to their properties e.g. cuboids, pyramids and spheres. Recall and name 3D shapes e.g. cubes, pyramids and spheres. Expose children to the correct vocabulary(sides, angles). Expose children to the correct vocabulary(edges, vertices, faces).	Sort shapes according to their properties. Expose children to the correct vocabulary(sides, angles). Expose children to the correct vocabulary(edges, vertices, faces). Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. Identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid). Recall, name and describe 3D shapes already learnt.
Geometry – position & direction	To describe position, direction and movement, including forward, back, left and right. Use positional language correctly(between , under, on etc).	Use mathematical vocabulary to describe position, direction and movement.	Distinguish between rotation as a turn and in terms of right angles for quarter and half turns (clockwise and anti-clockwise).

Year 2			
Strand	Term 1	Term 2	Term 3
Number and Place Value	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number . Count, read and write numbers to 100 in numerals. Recognise the place value of each digit in a two-digit number (tens, ones). Make and partition two-digit numbers in a variety a ways(using structured images). Count in multiples of 2, 5 and 10. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least . Read and write numbers from 1 to 20 in words.	Count in steps of 2, 3, 5, 10 from 0 and from any multiple, forward and backward. Recognise the place value of each digit in a two-digit number (tens, ones). Make and partition two-digit numbers in a variety a ways(using structured images). Identify and represent numbers using different representations, including the number line. Identify greater and smaller and use < and > signs. Estimate position of a number on a number line. Order numbers from 0 to 100. Read and write numbers to at least 100 in numerals and in words.	Represent and estimate numbers using different representations. Compare and order numbers from 0 up to 100; use <, > and signs using dienes. Use place value and number facts to solve problems. Partition numbers into tens and ones. Use < and > to express greater and smaller Identify greater and smaller. They begin to understand zero as a place holder.
Addition and Subtraction	Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs . Represent and use number bonds and related subtraction facts within 20 . Add and subtract one-digit and two-digit numbers to 20, including zero. Solve one-step problems that involve addition and subtraction, using concrete objects . Add and subtract numbers using pictorial representations. Show that + of two numbers can be done in any order (commutative) and subtraction of one number from another cannot . Mentally add two-digit numbers and ones.	Solve problems with addition and subtraction: using pictorial representations, including those involving numbers, quantities and measures. Recall and use addition and subtraction facts to 20 fluently. Mentally add two-digit numbers and tens. Add three one-digit numbers. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations . Solve missing number problems e.g. ? + 4 = 10 - ? (using concrete resources). Add/subtract 2 two digit numbers without regrouping/ exchanging. Calculate the difference of two given numbres in various contexts.	Apply their increasing knowledge of mental and written methods to solve addition and subtraction problems. Derive and use related facts up to 100. Add and subtract numbers mentally, including: a two-digit number and ten; two two-digit numbers totalling up to 100. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations . Solve simple 2 step problems using more than one operation.
Multiplication and division	Recall multiplication facts for the 2, 5 and 10 multiplication. Derive division facts. Write mathematical statements for multiplication facts for the 2,5,10 times tables. Write mathematical statements for the 2,5,10 multiplication using the (x,=) signs . Understand that X can be done as repeated + Recognise odd and even numbers Show that X of two numbers can be done in any order (commutative), but division cannot.	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables.Derive division facts. Count in steps of 3s and 4s. Calculate mathematical statements for X and ÷ within the multiplication tables and write calculations using the multiplication (×), division (÷) and equals (=) signs . Understand that multiplication as repeated addition and division as repeated subtraction. Solve problems using multiplication and division. Recognise odd and even numbers .	Recall and use X and ÷ facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers . Solve problems involving X and division, using materials, arrays, repeated +, mental methods, and X and division facts, including problems in context. Solve simple problems involving odd and even numbers Multiply by using arrays for x 3,4,5 and 10. Solve simple 2 step problems using more than one operation.

Year 2			
Strand	Term 1	Term 2	Term 3

Fractions	Identify whole and parts as fractions. Record the whole and parts as a fractions. Recognise half and one quarter of shapes and small numbers of objects. Use the vocabulary of halves and quarters in the correct context. Double and halve numbers up 20.	Name and write fractions 1/2 , ¼ , 2/4 , ¾ , ⅓ of a length, shape, set of objects or quantity Draw models to represent fractions such as ½, ¼, ¾ , ⅓. Write simple fractions for example, ½ of 6 = 3 Through sharing objects between four people, begin to find 3/4 of a set of objects Recognize that four quarters are equivalent to one whole and that two quarters are equivalent to one half	Find 1/3 , ¼ , 2/4 , ¾, ⅓, ⅔ of a length, shape, set of objects or quantity . Compare unit fractions such as ½, 1/3 , ¼ . Add like fractions such as ¼ + ¾ and 1/3 + 2/3 using visuals. Order unit fractions in context only, using visuals. Find equivalence using models (eg: 2/4=1/2.).
Measurement	Use appropriate standard units to measure length/height in (m/cm); mass (kg/g); temperature (°C); capacity (liters/ml). Compare and order length and mass. Recognise symbols for pounds and pence. Find different combinations of coins that equal the same amounts of money. Solve simple problems in a practical context involving addition and subtraction of money of the same unit. Tell and write the time to the hour, half hour, a quarter past/to and show these on a clock face.	Choose and use appropriate standard units to measure length/height in (m/cm); mass (kg/g); temperature (°C); capacity (liters/ml) to the nearest appropriate unit, using rulers, and measuring vessels . Compare and order measurement results using the >, < and = signs. Use the symbols for pounds and pence and use this to compare different amounts of money. Find different combinations of coins to make the same amount of money up to £1 in pence (or in whole £ amounts to £100). Know the number of minutes in an hour and the number of hours in a day. Tell and write the time to quarter past/to the hour and draw then hands on a clock face to show these times. Tell and write the time to 5 minute intervals past/to the hour and draw then hands on a clock face to show these times.	To estimate and measure length, height, mass, temperature and capacity using appropriate units of measurement using scales and thermometers. Combine amounts of money to make a particular value. Solve problems in a practical context involving addition and subtraction of money of the same unit, including giving change. Be able to make totals/ change up to and including £1. Compare and sequence varying intervals of time. Tell and write the time to 5 minute intervals past/to the hour and draw then hands on a clock face to show these times. Order events according to time.
Geometry - shapes	Identify and describe the properties of 2-D shapes, including the number of sides Recognise and name common 2D shapes including quadrilaterals. Sort common 2-D shapes and everyday objects(rectangles, circles, triangles). Compare common 2-D and 3-D shapes and everyday objects.	Identify and describe the properties of 2-D shapes, including lines of symmetry and right angles. Identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid). Compare common 2-D and 3-D shapes and everyday objects.	Identify (name) and describe the properties of 3-D shapes, including the number of edges, vertices and faces. Identify right angles and lines of symmetry on a 2D shape and reason with properties of shapes. Order and arrange combinations of mathematical objects in patterns and sequences. Name and sort additional 2D shapes (pentagon, hexagon, octagon).
Geometry – position & direction	Order and arrange combinations of mathematical objects in patterns and sequences. Use mathematical vocabulary to describe position, direction and movement such as right, left, forwards, backwards. Describe direction and movement using more accurate mathematical language.	Use mathematical vocabulary to describe movement in a straight line and distinguish between rotation as a turn both clockwise and anti-clockwise. Describe position, direction and movement in terms of right angles for quarter, half and three quarter turns (clockwise and anti-clockwise). Distinguish between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).	Describe position, direction and movement in terms of right angles for quarter, half and three quarter turns (clockwise and anti-clockwise). Distinguish between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).
Statistics	Construct simple pictograms, tally charts, block diagrams and simple tables. Interpret simple pictograms, tally charts, block diagrams and simple tables. Organize data into lists and tables. Answer simple questions by counting the number of objects in each category. Recognise the importance of titles and labels when sorting data.	Construct simple pictograms, tally charts, block diagrams and simple tables . Sort objects using more than one criterion on sorting diagrams such as Carroll/ Venn diagrams. Suggest ways of answering a question. Make pictograms and block graphs where one symbol represents one unit or where one symbol represents more than one unit. Read and interpret a simple key.	Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. Ask and answer questions about categorical data. Sort objects using more than one criterion on sorting diagrams such as Carroll/ Venn diagrams. Know that symbols can represent more than one unit(1:2, 1:5, 1:10). Read bar graphs with various the scales.

Year 3			
Strand	Term 1	Term 2	Term 3
Number and Place Value	Count from 0 in multiples of 100 and find 10 more or less than a given number. Make and partition two-digit numbers using different representations/ structured images. Recognise and use the place value of each digit in a two-digit number (tens, ones). Compare and order numbers up to 100 using the correct symbols(< > =). Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). Make and partition three -digit numbers using different representations/ structured images. Compare and order numbers up to 1000. Round three digit numbers to the nearest hundred. Represent numbers on a number line. Solve number problems and practical problems involving numbers in numerals and in words.	Count from 0 in multiples of 4 and 50. Find 100 more or less than a given number. Represent numbers using different representations. Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). Read and write numbers up to 1000 in numerals and in words. Make and partition three -digit numbers using different representations/ structured image Compare and order numbers up to 1000 using the correct symbols(< > =). Round three digit numbers to the nearest hundred. Round three digit numbers to the nearest ten. Represent numbers on a number line. Solve number problems and practical problems involving numbers in numerals and in words.	Count from 0 in multiples of 8. Find 10 and 100 more or less than any given number. Identify and estimate numbers using different representations. Partition numbers in a variety of ways using manipulatives (e.g: 352=300+50+2=340+10+2=300+20+32 etc). Recognise and use the place value of each digit in a three-digit number (hundreds, tens, ones). Compare and order numbers up to 1000 . Represent numbers on a number line. Solve number problems and practical problems involving numbers in numerals and in words.
Addition and Subtraction	Add and subtract two-digit numbers mentally(a three digit number and ones . Add and subtract two and three digit numbers using columnar methods(no bridging). Estimate the answer to a calculation. Add two and three digit numbers(regroup ones only). Subtract two and three digit numbers(exchange tens only e.g: 256-129). Solve problems, including missing number problems using facts, place value and addition/ subtraction strategies.	Add and subtract numbers mentally (a three-digit numbers and whole tens/hundreds). Add and subtract numbers with up to 3 digits, using formal written methods of column addition and subtraction (without bridging/ regrouping ones only). Estimate the answer to a calculation. Add two and three digit numbers with regrouping in tens and hundreds. Subtract two and three digit numbers(exchange tens only). Solve problems, including missing number problems using facts, place value and addition/ subtraction strategies.	Add and subtract numbers mentally, including three-digit numbers and whole tens/hundreds. Add and subtract numbers with up to 3 digits using formal written methods of column addition and subtraction (with bridging). Use inverse operations to check answers. Add with regrouping in 100s, 10s and ones. Subtract two and three digit numbers(exchange tens and hundreds). Solve problems, including missing number problems using facts, place value and addition/ subtraction strategies, as well as the bar model.
Multiplication and division	Recall and use multiplication and division facts for the 3 multiplication tables. Count in multiples of 4s and 8s. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, multiplication and division facts, including problems in contexts.	Recall and use multiplication and division facts for the 4 multiplication tables . Count in multiples of 8s. 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 methods. Solve problems, including missing number problems, involving multiplication and division. Expand knowledge using known facts(2x3=6, 2 x 3tens=6 tens)	Recall and use multiplication and division facts for the 8 multiplication tables . Use formal written methods to calculate two digit numbers by a one digit number. Solve problems involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. Develop efficient mental methods, for example, using commutativity and associativity (for example, 2 x 6 × 5 = 2 × 5 × 6 = 10 × 6 = 60) and multiplication and division facts (for example, using 3 × 2 = 6, 6 ÷ 3 = 2 and 2 = 6 ÷ 3) to derive related facts (30 × 2 = 60, 60 ÷ 3 = 20 and 20 = 60 ÷ 3).

Year 3			
Strand	Term 1	Term 2	Term 3
Fractions	Write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2. Recognise that tenths arise from dividing an object into 10 equal parts . Recognise, find and write unit fractions of a discrete set of objects. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators Compare and order unit fractions with the same denominator using models. Solve problems that involve all of the above.	Count up and down in tenths and divide one digit numbers or quantities by 10. Recognise, find and write unit fractions and non-unit fractions with small denominators. Understand equivalence using models. Compare and order unit fractions and non-unit fractions with the same denominator using models. Recognise and show, using diagrams, equivalent fractions with small denominators . Solve problems that involve all of the above.	Add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7]. Compare and order unit fractions, and fractions with the same denominators. Understand equivalence using models. Compare fractions with different denominators. Solve problems that involve all of the above.
Measurement	Measure and compare lengths, mass, volume/capacity. Measure the perimeter of a simple 2-D shape. Tell and write the time from an analogue clock.. Tell and write the time to 5 minute intervals past/to the hour and draw the hands on a clock face to show these times. Compare and sequence varying intervals of time and duration of events. Use vocabulary such as o' clock, am/pm, morning, afternoon, noon/ midday, midnight. Know the number of seconds in a minute and the number of days in each month, year/ leap year.	Add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) Add and subtract amounts of money to give the correct change, inc £ and p in practical contexts. Estimate, compare and calculate different measures, including money in pounds and pence. Tell and write the time from 12-hour and 24-hour clocks, including using Roman numerals from I to XII. Read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours. Compare and sequence varying intervals of time and duration of events. Use vocabulary such as o' clock, am/pm, morning, afternoon, noon/ midday, midnight.	Estimate, compare and calculate different measures, including money in pounds and pence. Convert between different units of measure [for example, 125cm=1m and 25 cm, 65 minutes=1 hour and 5 minutes). Compare durations of events [for example to calculate the time taken by particular events or tasks].
Geometry - shapes	Identify and describe the properties of 2-D shapes, including lines of symmetry. Identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid). Compare common 2-D and 3-D shapes and everyday objects. Make 3-D shapes using modeling materials. Recognise angles as a description of turn.	Recognise 3-D shapes in different orientations and describe them. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines in real life context. Recognise angles as a property of a shape. Identify whether angles are greater than or less than a right angle. Identify right angles and recognize that two right angles make ½ a turn, three make ¾ of a turn and four a complete turn.	Identify right angles and recognize that two right angles make ½ a turn, three make ¾ of a turn and four a complete turn. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines in shapes. Draw 2-D shapes. Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.
Statistics	Construct simple pictograms, tally charts, block diagrams and simple tables . Suggest ways of answering questions. Recognise the importance of titles and labels when sorting data.	Decide the best way to represent data. Draw a simple bar chart with the vertical axis labeled in twos, fives, tens. Decide on a title for the chart and label the axes correctly.	Answer implicit and explicit questions from the graph. Classify shapes, numbers and objects onto a Venn diagram. Solve two-step questions (using information presented in scaled bar charts and pictograms and tables.

	Interpret and present data using charts, pictograms and tables. Solve one-step questions (for example, 'How many more?' and 'How many fewer?') using information presented in scaled bar charts and pictograms and tables.	Solve one-step questions (for example, 'How many more?' and 'How many fewer?') using information presented in scaled bar charts and pictograms and tables.	

Year 4			
Strand	Term 1	Term 2	Term 3
Number and Place Value	Count in multiples of 3, 6, 4 and 8. Recognise the value of each digit in a given number to four digits. Identify numbers using different representations (partition in a variety of ways). Represent numbers on a number line(within given ranges). Understand the concept of 'an integer'. Round any number to the nearest 1000. Know Roman numerals to 100.	Order and compare numbers beyond 1000. Round any number to the nearest 1000 and 100. Count in multiples of 7,9 and 1000. Count backwards through zero using negative numbers. Know Roman numerals to 100. Understand the concept of place value –including decimals up to hundredths . Count up and down in hundredths. Round decimals with one decimal place to the nearest whole value . Represent decimal values in diagrammatic form – number lines, etc. Understand the concept of zero as a cardinal and as a neutral element for the first and second grade operations.	Count in multiples of 25. Round any number to nearest 1000 , 100 and 10. Count backwards through zero using negative numbers. Estimate numbers and represent them using different approaches – symbols, diagrams, etc. Solve problems that involve a range of higher value numbers – four digits, decimals(two digits after the decimal point). Round decimal numbers (with two digits after the decimal point)to the nearest whole number. Understand the changing nature of the number system over time and read & use Roman Numerals to at least 100 (I to C).
Addition and Subtraction	Carry out four digit addition and subtraction calculations using whole numbers – with a single carry/ adjustment(regroup ones only, exchange tens only). Estimate operations to check answers to a calculation . Solve problems, including missing number problems using facts, place value and addition/ subtraction strategies. Solve two step addition and subtraction problems, in various contexts – explaining methods and choices.	Find 1000 more or less than a given number. Add and subtract values with up to four digits Understand the column method (with bridging). Use inverse operation to complete and check calculations. Solve problems, including missing number problems using facts, place value and addition/ subtraction strategies. Solve two step addition and subtraction problems, in various contexts – explaining methods and choices.	Solve two step addition and subtraction problems, in various contexts – explaining methods and choices. Accurately use the columnar method for all calculations with 3 or 4 digit numbers. Solve problems, including missing number problems using facts, place value and addition/ subtraction strategies.
Multiplication and division	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers. Use known number facts to divide and multiply mentally e.g. O x O, TOx O,TO ÷ O. Carry out division calculations with remainders using manipulatives. Multiply or divide a whole 2-3 digit number by ten. Explain the place value movement involved in multiplying/dividing by 10(within 12x12). Know and use the term 'multiple'.	Use inverse operations . Understand the associative and distributive laws. Use formal and informal methods to solve multiplication and division . Carry out division calculations with remainders. Multiply and divide a three digit number by a one digit number . Multiply and divide a one or two digit number by 100 and 10 and explain place value movement (any number in the range 0-10000 including decimals with two digits after the decimal point).	Know multiplication and division facts for all tables to x12. Use distributive rules to solve multiplication problems. Begin to solve simple algebraic relationships – i.e. n objects related to m objects. Begin to solve and understand scaling problems. Use factors/ factor pairs and commutativity in mental calculations.

Year 4			
Strand	Term 1	Term 2	Term 3
Fractions	Show equivalent fractions diagrammatically. Add and subtract fractions with same denominator. Solve problems involving non-unit fractions/extend to non -unit fractions. Match pairs/ sets of fractions with common denominators.	Recognise and show, using diagrams, families of common equivalent fractions. Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Write decimal equivalents to any value of tenths and hundredths, one quarter, one half and three quarters Find a fraction quantity of a value . Solve problems using harder fractions and use fractions to divide quantities. 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. Compare/ order numbers with the same number of decimal places up to 2 decimals. Round decimals with one decimal place to the nearest whole number.	Use more complex fractions to find quantity of a whole value. Solve measure and money problems using fractions of amounts and decimals to 2 decimal places. Compare and order decimals with different numbers of decimal place up to 2 decimals. Round decimals with one decimal place to the nearest whole number.
Measurement	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimeters and meters. Read time with increasing accuracy to the nearest minute. Read and write time between analogue and digital 12- and 24-hour clocks.	Convert between different units of measure [for example, kilometer to meter; hour to minute]. Find the area of rectilinear shapes by counting squares . Estimate, compare and calculate different measures, including money in pounds and pence. Solve simple money and measure problems that involve decimals. Read time with increasing accuracy to the nearest minute. Convert time between analogue and digital 12- and 24 hour clocks. Solve problems involving converting from hours and minutes; minutes to seconds; years to months; weeks to days.	Solve simple money and measure problems that involve decimals. Use estimation and comparison skills with measures (including money) to solve problems. Read time with increasing accuracy to the nearest minute. Solve problems involving converting from hours and minutes; minutes to seconds; years to months; weeks to days.
Geometry: Properties of shape	Identify acute and obtuse angles . Identify lines of symmetry in 2-D shapes presented in different orientations . Identify and name right angles in a shape.	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes . Complete a simple symmetric figure with respect to a specific line of symmetry. Compare and order angles up to two right angles by size (0-180 degrees).	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. Identify acute and obtuse angles and compare and order angles up to two right angles by size. Identify lines of symmetry in 2-D shapes presented in different orientations. Complete a simple symmetric figure with respect to a specific line of symmetry.

Geometry: Position & direction	Recognise and find shapes in a grid by position in the first quadrant. Plot specified points.	Describe positions on a 2-D grid as coordinates in the first quadrant. Plot specified points and draw sides to complete a given polygon. Describe movements between positions as translations of a given unit to the left/right and up/down.	Plot specified points and draw sides to complete a given polygon. Describe movements between positions as translations of a given unit to the left/right and up/down.
Statistics	Interpret and present discrete data using given graphical methods, including bar charts and time graphs. Solve comparison, sum and difference problems .	Interpret and present discrete data using appropriate graphical methods, including bar charts and time graphs. Solve comparison, sum and difference problems .	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and line graphs. Pupils begin to relate the graphical representation of data to recording change over time.

Year 5			
Strand	Term 1	Term 2	Term 3
Number and Place Value	Read, write and order numbers to 1 million and know the value of each digit. Round numbers to 10, 100, 1000, 10,000, 100,000 for any whole value up to 1 million. Count forward or backward from a given value in powers of ten from any number up to 1 million. Read Roman Numerals to 1000. Understand how to read years written in Roman Numerals.	Use negative numbers in context. Be able to count forward or backward through zero. Round numbers to 10, 100, 1000, 10,000, 100,000 for any whole value up to 1 million. Use rounding to check answers to given numerical or written problems. Use mathematical language such as prime numbers, prime factors and composite numbers. Understand how to identify prime numbers. Identify all prime numbers to 100. Know all the prime numbers to 19.	Count up or down in multiples of 25 from a given value. Be able to solve a range of problems (numeric and practical) for the concepts in emerging and developing. Solve a range of numeric and word problems that combine addition, subtraction, multiplication and division in different order .
Addition and Subtraction	Add and subtract whole numbers with more than four digits. Be secure in use of formal addition and subtraction methods – i.e. column method. Round numbers to check answers in calculations.	Use addition and subtraction skills to solve two step problems that cross through these two number operations. Solve multi-step addition and subtraction problems in context (numeric, word, practical). Know when to carry out addition/ subtraction within multi step problems across any two operations. Use mental methods to add and subtract increasingly large numbers. Round numbers to check answers in calculations.	Solve multi-step addition and subtraction problems in context (numeric, word, practical). Know when to carry out addition/ subtraction within multi step problems across any two operations. Use rounding in multi-step contextual problems to check levels of accuracy.
Multiplication and division	Identify multiples and factors . Find all factor pairs of a given number. Find common factors of two given numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19. Know and use the vocabulary of prime numbers, prime factors and composite (non prime) numbers. Multiply and divide whole numbers by 10, 100 and 1000. Use a formal written method to multiply four digit numbers by one using the formal written method. Multiply and divide numbers mentally drawing upon known facts.	Use times table knowledge to multiply and divide numbers in increasing value. *Solve multiplication of up to four digit numbers by two digit numbers using resources and the formal written method.* Divide a four-digit number by a single digit number using the formal written method –including using and interpreting remainders. Multiply and divide whole numbers, decimals by 10, 100 and 1000. Solve missing number problems e.g. ? ÷ 100 = 6.5.	Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3). Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

Year 5			
Strand	Term 1	Term 2	Term 3
Fractions, decimals and percentages	Recognise mixed numbers and improper fractions. Add and subtract fractions with the same denominator and with denominators that are multiples of the same number. Read and write decimal numbers as fractions . Compare and order fractions whose denominators are multiples of the same integer. Identify, name and write equivalent fractions from a visual representation. Find equivalent fractions to tenths and hundredths.	Convert mixed numbers to improper fractions and vice versa. Add and subtract fractions with denominators that are multiples of the same number and different denominators. Recognise thousandths and be able to relate them to tenths and hundredths. Be able to relate tenths, hundredths and thousandths to decimal equivalents and decimal values. Round decimals with two decimal places to the nearest whole number and to one decimal place. Read, write, order and solve problems with numbers up to three decimal places. Recognise the percent symbol and this it represents number of parts per hundred. Write percentages as a fraction (i.e. with denominator 100). Convert percentages to decimals and write the representation .	Create values greater than one by adding a range of fractions. Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. Solve problems which require knowing percentage and decimal equivalents of ½, ¼ , 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.
Measurement	Convert between metric units of measurement: mm, cm, m, km, g, kg, ml, l. Solve a range of problems that relate to measurement of time, seconds, minutes, hours, days, weeks, months, years, leap years, etc Measure and calculate the perimeter of rectilinear shapes in centimeters and meters. Calculate and compare the area of rectangles (including squares), and including using standard units, square centimeters (cm2) and square meters (m2) and estimate the area of irregular shapes.	Use previous and current understanding to solve a range of measure problems (length, mass, volume, money, time, etc.) including scaling. Measure the perimeter of basic composite shapes (e.g. two connected rectangles). Calculate the perimeter of rectangles and related composite shapes. Find the area of regular shapes (on squared paper) by counting squares/ fractions of squares. Calculate the area of a range of rectangles using standard units. Solve problems involving converting between units of time Use knowledge of rectangles to identify missing lengths and angle sizes.	Solve simple multiplication and division problems that involve scaling and changing rates. Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. Estimate volume and capacity using standard units. Find/ estimate the area of an irregular shape (on squared paper) in ㎠ or ㎡ using squares/ fractions of squares. Use knowledge of rectangles to identify missing lengths and angle sizes . Solve problems involving converting between units of time.
Geometry – Properties of Shapes	Identify 3-D shapes from 2-D representations. Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	Draw given angles, and measure them in degrees (o). Measure and compare obtuse, acute and reflex angles to the nearest degree. Draw a given angle to the exact degree. Identify angles that are multiples of 90 degrees. Use knowledge of sides and angles to identify irregular and regular shapes. Use the properties of rectangles to deduce related facts and find missing lengths and angles	Draw given angles, and measure them in degrees (o). Pupils become accurate in drawing lines with a ruler to the nearest millimeter, and measuring with a protractor. Pupils use angle sum facts and other properties to make deductions about missing angles and relate these to missing number problems.

	Identify angles at a point and one whole turn (total 360°), angles at a point on a straight line and ½ a turn (total 180°) other multiples of 90°.		
Geometry – Position and Direction	Identify, describe and represent the position of a shape following a translation, using the appropriate language, and know that the shape has not changed.	Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	Recognise and use reflection and translation in a variety of diagrams, including continuing to use a 2-D grid and coordinates in the first quadrant. Reflection should be in lines that are parallel to the axes.
Statistics	Recognise line graphs; understand and explain their purpose for data representation. Solve comparison, sum and difference problems using a line graph.	Solve comparison, sum and difference problems using a line graph. Complete, read and interpret information in tables, including timetables.	Solve comparison, sum and difference problems using a line graph. Complete, read and interpret information in tables, including timetables. Begin to decide which representations of data are most appropriate and why.

Year 6			
Strand	**Term 1**	**Term 2**	**Term 3**
Number and Place Value	Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit . Round any whole number to a required degree of accuracy Use negative numbers in context, and calculate intervals across zero.	Round any whole number to a required degree of accuracy. Use negative numbers in context, and calculate intervals across zero . Solve problems which require answers to be rounded to specified degrees of accuracy.	Solve number and practical problems that involve all previously learned skills.
Addition, Subtraction Multiplication and Division	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency. Identify common factors, common multiples and prime numbers. Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication . Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context . Perform mental calculations, including with mixed operations and large numbers. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. Use their knowledge of the order of operations to carry out calculations involving the four operations. Solve problems involving addition, subtraction, multiplication and division.	Practise addition, subtraction, multiplication and division for larger numbers, using the formal written methods of columnar addition and subtraction, short and long multiplication, and short and long division. Undertake mental calculations with increasingly large numbers and more complex calculations. Solve number and practical problems that involve all previously learned skills. Interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context . Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. Use written division methods in cases where the answer has up to two decimal places.

Fractions – decimals and percentages	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions . Compare and order fractions, including fractions that are > 1. Recall and use equivalences between simple fractions, decimals and percentages, with obvious connections e.g. 0.3 = 3/10 = 30%. Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places . Multiply a one digit number by a single digit decimal e.g. 8 x 0.6.	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions . Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. Calculate simple decimal/ fraction equivalents without obvious connections e.g. 2/5 = 0.4 = 40% . Multiply simple pairs of proper fractions, writing the answer in its simplest form [¼ × ½ = 1/8] . Multiply one-digit numbers with up to two decimal places by whole numbers . Divide proper fractions by whole numbers [1/3÷ 2 =1/6] . Use written division methods in cases where the answer has up to two decimal places Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [3/8] including in different contexts.	Solve number and practical problems that involve all previously learned skills. Interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. Multiply simple pairs of proper fractions, writing the answer in its simplest form [¼ × ½ = 1/8] . Divide proper fractions by whole numbers [1/3÷ 2 =1/6] . Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [3/8] including in different contexts. Multiply up to 2 digit decimals by whole numbers.
Ratio and Proportion	Recognise proportional relationships in context and discuss them using everyday language. Follow simple recipes involving basic proportions e.g. 2:1, 4:1, 10:1. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. Read a simple scale on a map e.g. 1cm = 100cm.	Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. Consolidate their understanding of ratio when comparing quantities, sizes and scale drawings by solving a variety of problems. They might use the notation a:b to record their work. Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts . Use a scale to work out the scale on a map e.g. 250:1 means that 1cm = 2.5 m. Solve problems involving similar shapes where the scale factor is known or can be found	Solve number and practical problems that involve all previously learned skills. Enumerate possibilities of combinations of two variables. Solve problems using/ finding a scale factor for shapes. Link percentages or 360° to calculating angles of pie charts.
Algebra	Use simple formulae.	Express missing number problems algebraically. Generate and describe linear number sequences. Find pairs of numbers that satisfy an equation with two unknowns . Enumerate possibilities of combinations of two variables.	Solve problems with all mathematical concepts covered so far. *Non-statutory:* *Pupils could be introduced to the use of symbols and letters to represent variables and unknowns in mathematical situations that they already understand, such as: missing numbers, lengths, coordinates and angles formulae in mathematics and science equivalent expressions (for example, a + b = b + a) generalizations of number patterns number puzzles (for example, what two numbers can add up to).*

Measurement	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate . Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places . Convert between miles and kilometers . Recognise that shapes with the same areas can have different perimeters and vice versa.	Recognise that shapes with the same areas can have different perimeters and vice versa . Recognise when it is possible to use formulae for area and volume of shapes. Calculate the area of parallelograms and triangles. Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimeters (cm3) and cubic meters (m3).	Calculate, estimate and compare volume of cubes and cuboids using standard units, including mm3 and km3. Be aware of standard using units of measure for speed; recognize and compare them.
Geometry – Properties of Shapes	Recognise and describe simple 3-D shapes . Compare and classify geometric shapes based on their properties .	Draw 2-D shapes using given dimensions and angles . Build simple 3-D shapes including making nets. Describe shape properties of simple shapes using angles. Calculate the area of parallelograms and triangles . Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	Solve problems involving similar shapes where the scale factor is known or can be found. Describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements. Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius .
Geometry – Position and Direction	Describe positions on the full coordinate grid (all four quadrants). Draw and translate simple shapes on the coordinate plane.	Describe positions on the full coordinate grid (all four quadrants). Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	Draw and label a pair of axes in all four quadrants with equal scaling. This extends their knowledge of one quadrant to all four quadrants, including the use of negative numbers. Draw and label rectangles (including squares), parallelograms and rhombuses, specified by coordinates in the four quadrants, predicting missing coordinates using the properties of shapes.
Statistics	Recognise all common data representations including bar charts, pictograms, line graphs, pie charts, Venn and Carroll diagrams. Connect their work on angles, fractions and percentages to the interpretation of pie charts. Be able to extract basic information from all of the above and solve problems.	Interpret and construct pie charts and use these to solve problems. Calculate and interpret the mean as an average. Know when it is appropriate to find the mean of a data set.	interpret and construct pie charts and line graphs and use these to solve problems. Encounter and draw graphs relating two variables. Calculate and interpret the mean as an average.