Long Term Individual Subject Curriculum Plan 2025-2026

Subject - Maths

Links between our school vision and mathematics

Belonging:

- **Inclusivity**: The curriculum ensures all students have access to quality mathematics education, fostering a sense of belonging.
- **Collaborative Learning**: Encouraging teamwork and peer discussions in mathematics helps students feel part of a community.
- **Personalised Support**: Adaptive teaching allows students to progress at their own pace, reinforcing inclusion.

Serving:

- **Practical Application**: Mathematics is used to solve real-world problems, empowering students to serve their communities.
- **Responsibility**: Students learn to solve problems independently, building skills to contribute positively to society.
- **Helping Others**: Mastery in mathematics enables students to assist others and apply knowledge for the greater good.

Succeeding:

- **Clear Progression**: The curriculum sets clear goals, helping students succeed academically.
- **Problem-Solving Confidence**: Students build resilience and confidence through tackling mathematical challenges.
- **Celebrating Achievement**: Success is measured by progress, encouraging a growth

Maths in EYFS.

Characteristics of Effective Learning (CofEL)

Playing and Exploring
Plan and think ahead about how they will explore or play with objects.
Guide their own thinking and actions by referring to visual aids or by talking to themselves whilst playing.
Respond to new experiences that you bring to their attention.

Active Learning
Participate in routines.
Begin to correct their mistakes themselves.
Keep on trying when things are difficult.

Creating and Thinking Critically
Take part in simple pretend plan.
Sort materials.
Review their progress as they try to achieve a goal. Check how well they are doing.
Solve real problems.
Know more, so feel confident about coming up with their own ideas. Make more links between those ideas.

Birth to 5 Matters.	Development Matters.
Range 3 and 4 (Nursery) **Range 3:** **Number** • Develops an awareness of number names through their enjoyment of action rhymes and songs that relate to numbers. • Has some understanding that things exist, even when out of sight (developing early counting and problem-solving skills). • Begins to organize and categorize objects, e.g., putting toys into groups or stacking blocks. **Shape, Space, and Measures** • Enjoys filling and emptying containers, developing concepts of volume and size. • Notices simple shapes and patterns in pictures and the environment. • Begins to use words like *big* and *small* to describe size and compare objects.	3 &4 year olds (Nursery) Develop fast recognition of up to 3 objects, without having to count them individually ('subitising') (M). Recite numbers past 5. (M) Say one number for each item in order: 1,2,3,4,5. (M) Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). (M) Show 'finger numbers' up to 5. (M) Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. (M) Experiment with their own symbols and marks as well as numerals. Solve real world mathematical problems with numbers up to 5. (M) Compare quantities using language: 'more than', 'fewer than'. (M)

Range 4: **Number** • Recites some number names in sequence, developing early counting skills. • Begins to make comparisons between quantities, using words like *more* or *a lot*. • Notices changes in numbers of objects/images when something is added or taken away. **Shape, Space, and Measures** • Understands some talk about immediate past and future, e.g., *before*, *later*, or *soon*. • Anticipates specific time-based events such as *dinnertime* or *bedtime*, developing an early sense of time. • Begins to use the language of size, shape, and position, such as *tall*, *short*, *circle*, or *under*. • Shows interest in shapes in the environment and may begin to identify them.	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'. (M) Understand position through words alone – for example, "The bag is under the table," – with no pointing. Describe a familiar route. (M) Discuss routes and locations, using words like 'in front of' and 'behind'. (M) Make comparisons between objects relating to size, length, weight and capacity. (M) 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. (M) 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. (M) Extend and create ABAB patterns – stick, leaf, stick, leaf. (M) Notice and correct an error in a repeating pattern. (M) Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'
Range 5 & 6 (Reception) **Range 5:** **Comparison** - Compares two small groups of up to five objects, saying when there are the same number of objects in each group, e.g. 'You've got two, I've got two. Same!'. **Counting** - Enjoys reciting numbers from 0 to 10 and back from 10 to 0. Has fun counting as far as they can go and is fascinated with large numbers. Shows interest in meaningful numbers. 'Tags' (reliably points or touches each item), saying one number for each item, using the stable order of 1,2,3,4,5 at first, and then later, to 10. Uses some number names and number language within play. Begin to recognise	Children in Reception Learn new vocabulary. Use new vocabulary through the day. Ask questions to find out more and to check they understand what has been said to them. Describe events in some detail. Use new vocabulary in different contexts. Learn rhymes, poems and songs. (C&L). Count objects, actions and sounds. Subitise. Link the number symbol (numeral) with its cardinal number value. Count beyond ten. Compare numbers. Understand the 'one more than/one less than' relationship between consecutive numbers. (M).

numerals 0 to 10 and some beyond. Cardinality Subitises: e.g. instantly recognising under 5 objects without counting. Recognises that the last number said represents the total counted so far (cardinal principle) with numbers to 5 and maybe beyond. Shows 'finger numbers', up to 5 and maybe beyond. Links numerals with amounts up to 5 and maybe beyond. Explores using a range of marks and signs to which they ascribe mathematical meanings. **Composition** - In their play and exploration children are beginning to learn that numbers are made up (composed) of smaller numbers. Beginning to recognise that each counting number is one more than the one before. Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same. **Spatial Awareness** - Responds to and uses language of position and direction. What does Maths look like in Early Years? cumberland.gov.uk 7 Development Matters Birth to 5 Matters Explores from different viewpoints and points to things that are far away. Predicts, moves and rotates objects to fit the space or create the shape they would like. **Shape** - Chooses items based on shape so they are appropriate for specific tasks. Responds to both informal language and common shape names. Shows awareness of similarities and differences between natural and manufactured shapes in the environment. Partitions and combines shapes to make new shapes with 2D and 3D shapes. Creates arches and enclosures when building, using trial and improvement to select blocks. **Pattern** - Creates their own spatial patterns showing some organisation or regularity. Adds to simple linear patterns of two or three repeating items (AB or ABC). Join in with simple patterns in sounds, objects, games and stories dance and movement, predicting what comes next. **Measures** - Finds the longer or shorter, heavier or lighter and more/less full of two items. Sequences a small number of familiar events and beginning to respond to and use words such as 'before', 'after', 'soon' or 'later'. Communication and Language Shows	Explore the composition of numbers to 10. Automatically recall number bonds for numbers 0–10. (M). Select, rotate and manipulate shapes in order to develop spatial reasoning skills. Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. (M). Continue, copy and create repeating patterns. Compare length, weight and capacity. (M).

understanding of prepositions such as ‘under’, ‘on top’, ‘behind’ by carrying out an action or selecting correct picture. **<u>Range 6:</u>** **Comparison** - Compares number names and symbols, showing interest in large numbers. Makes reasonable estimates of numbers of things, showing understanding of relative size. **Counting** - Counts items beyond 10. Puts numerals in order, 0 to 10 and sometimes beyond. Counts verbally from 20, beginning to spot repeating patterns. **Cardinality** - Subitises numbers to 4 or 5. Having counted, says the total (cardinal principle). Counts out up to 10 objects from a larger group. Selects the correct numeral for up to 10 objects. **Composition** - Shows awareness that numbers are made up (composed) of smaller numbers. Conceptually subitises larger numbers by subitising smaller groups within the number, e.g. sees 6 raisins on a plate as 3 and 3. Partitions a number of things in different ways, including when problem solving and talks about the ways a number can be made. Adds one and subtracts one, with numbers to 10 and uses some addition and subtraction vocabulary in practical activities. Children begin to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and “+” or “-“. **Spatial Awareness** - Uses spatial language, including relative terms depending on viewpoints. Follows and gives directions. Turns and flips objects in order to make shapes fit and create models; predicting and visualising how they will look (spatial reasoning). Explores what can be seen from different viewpoints. Engages with 3D & 2D map-making in familiar environments, sequencing landmarks and designing small worlds. **Shape** - Uses informal language and analogies, (e.g. heart-shaped and hand-shaped leaves), as well as mathematical terms to describe shapes. Composes and decomposes shapes, learning which shapes	

combine to make other shapes. Builds complex compositions including repeating units and selecting shapes to solve a problem. Plans to make models, selecting blocks needed and visualising what they will build. **Pattern** - Spots patterns in the environment, identifying the pattern 'rule'. Uses familiar objects to create and recreate repeating patterns beyond AB to ABC and perhaps ABB and ABBC. Begins to identify the core unit in a repeating pattern and beginning to use symbols. Makes border patterns where the repeating pattern continues around an object or frame. **Measures** - Solves problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy. Becomes familiar with measuring tools in everyday experiences and play. Orders and sequences events using everyday language related to time. Beginning to experience measuring time with timers and calendars.	

Early Learning Goals (ELG).

Have a deep understanding of number to 10, including the composition of each number.

Subitise (recognise quantities without counting) up to 5;

Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

(M: N).

Verbally count beyond 20, recognising the pattern of the counting system. Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.

Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
(M: NP).

Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.
(PSED: MS).

What Maths Looks like in Nursery	By the End of Nursery, a Child at the Expected Level of Development Will Know.
In our nursery, mathematics is embedded into everyday life through playful, hands-on experiences that foster curiosity and confidence. Children explore numbers by counting objects during play, singing rhymes like *"Five Little Ducks,"* and recognising numerals in the environment. They investigate shapes, patterns, and spatial relationships through puzzles, construction activities, and creative play, using language such as *big*, *small*, *under*, and *next to* to describe their observations. Problem-solving is encouraged through sorting, matching, and open-ended challenges, while activities like sand and water play introduce concepts of capacity and volume. Outdoor learning enhances these experiences, with nature-based maths activities like counting leaves or comparing sticks. Daily routines and activities provide opportunities to measure, compare, and understand time concepts, while practitioners model mathematical language and incorporate stories like *The Very Hungry Caterpillar* to make maths engaging and meaningful. By following children's interests and offering rich opportunities for exploration, we nurture their early numeracy skills and set the foundation for a lifelong love of learning.	By the end of Nursery, a child at the expected level of development in mathematics will be able to verbally count to at least 5, recognise numerals 1–5 in meaningful contexts, and accurately count up to three or four objects using one-to-one correspondence. They will compare small quantities, using terms like *more* and *fewer*, and begin to solve simple problems involving addition and subtraction, such as combining or removing objects. Children will recognise and copy simple patterns, instantly recognise small groups of up to three or four objects (subitising), and identify common shapes like circles, squares, and triangles, describing their properties with terms like *round* or *corner*. They will confidently use positional language such as *under*, *on*, and *next to*, and compare objects by size, using words like *bigger*, *smaller*, or *longer*. Additionally, they will explore measures through hands-on activities, understanding concepts like full/empty and heavy/light, developing a strong foundation for further mathematical learning in Reception.
What Maths Looks like in Reception.	**By the End of Reception, a Child at the Expected Level of Development Will Know.**
In Reception, mathematics is an integral part of the daily routine, woven into various activities that foster a rich learning environment. Children engage in sequencing events from stories, enhancing their understanding of order and time. Role-play scenarios, such as handling money at a shop, enable learners to apply mathematical concepts in real-life contexts. Throughout the week, children are encouraged to use language connected with sequencing and the passing of time, practical activities, such as matching shapes to complete inset puzzles and jigsaws, develop spatial awareness and problem-solving abilities. Exploratory play in the water tray allows pupils to experiment with capacity and measurement, whilst dough/malleable incorporate weighing and measuring, solidifying their understanding of these crucial concepts. Children express their mathematical thinking through marks, drawings, and numbers, providing insight into their learning processes. Following	At the end of Reception, children will have developed a solid foundation in mathematical concepts and skills. They will confidently count beyond 10 and back from 10 and demonstrate good numerical understanding. Children will understand that the number of objects remains unchanged regardless of their arrangement and will be able to recognise groups of up to 5 objects without counting, showcasing their ability to subitise. They will articulate concepts of one more and one less, as well as compare different sets of objects effectively. Additionally, children will understand that numbers can be composed of two or more other numbers, and they will discuss their preferred methods of sorting collections of objects.

positional or directional instructions to locate objects encourages spatial reasoning, while sharing fruit and counting items at snack time reinforces basic counting skills. Sorting, counting, and classifying collections of objects, including natural resources, help develop critical thinking. Additional activities include creating shapes using construction kits, producing repeating patterns in art, and recognising shapes indoors and outdoors. Working alongside adults, who scaffold their learning, children begin to incorporate mathematical language into context, enriching their understanding and application of mathematics in everyday life.	

Mathematical Specific Vocabulary Nursery

Number names: one, two, three, four, five (extend to ten and beyond as appropriate), count, more, less, none, same, different, total

2d shapes, rectangle, circle, square, triangle

Over, under, behind, next to, beside, above, on top of, down, in, out, in front of, around, near, far

Big, small, tall, short, long, high, low, wide, narrow, same, different

Pattern, repeat, match, sort, pair

Heavy, light, full, empty, too much, too little, enough

Day, night, morning, afternoon, evening, today, tomorrow, yesterday, now, soon, later, quick, slow, fast

Coin, penny, note, buy, cost

Add, take away, share, altogether, estimate, count on, count back

Mathematical Specific Vocabulary Reception

As above plus:
Subitise, order, compare, forwards, backwards, numerals, one more/one less, many, equal to/same as

Plus, altogether, total, minus, number bond, part, whole.

Double, half, share, group, odd, even.

Measure, compare, long/er, short/er, length.

Weight, heavier, lighter

Time, quick/er, slow/er, early, late, before, after, first, next, yesterday, today, tomorrow, morning, afternoon, evening, day, week, hour, minute.

Property, 3d, cube, cuboid, flat, round, curved, straight, edge, cone, sphere.

Maths in Key Stages 1 and 2						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Y 1	**Number and Place Value** • Recognise and create repeating patterns using three numbers. • Count to at least 50 from 1 or 0 forwards and backwards. • Count in 2s, 5s and 10s from 0. • Read and write numbers to 20 in numerals. • Read and write 'tens' numbers to 100. • Understand the difference between 'teens' numbers and multiples of tens. • Read numbers in words from 1-20. • Identify the value of tens and ones in a two-digit number. • Compare two groups of objects (up to 20). • Using concrete materials, identify one more and one less.	**Sequencing and sorting** • Recognise and create a repeating pattern using three objects and shapes. **Fractions** • Use concrete materials to split the whole into equal parts and recognise that each part is a unit fraction of the whole. • Split 2-D shapes into equal parts and recognise that each part is a unit fraction of the whole shape. • Find a half of a shape. • Find a half of an object. • Find a quarter of a shape. **Capacity and Volume** • Measure and record capacity and volume	**Number and Place Value** • Count to 100 from any number forwards and backwards. • Count objects in 2s, 5s and 10s. • Read and write numbers to 100. • Correctly place a number from 1 to 20 on the number line with partial demarcation. • Compare three or more groups of objects (up to 20). • Identify numbers on a number track and identify one more and one less. • Using concrete materials, add and subtract ten from the group, recognising that the ones digit does not change.	**Length** • Measure and record lengths and heights using rulers and metre rules with manageable standard units (m/cm) within children's range of counting competence. **Addition and Subtraction** • Write mathematical statements involving addition (+), subtraction (-) and equals (=) signs when representing a simple problem, including where the = sign is at the start of the calculation, and identify which groups in the number sentence	**Number and Place Value** • Count to and across 100, forwards and backwards, from any given number. • Count in multiples of 2, 5 and 10. • Read and write numbers to 100 in numerals. • Read and write numbers from 1 to 20 in numerals and words. • Begin to recognise the place value of numbers beyond 20 (tens and ones). • Correctly place a number from 1 to 20 on the number line with start and end demarcation only. • Identify and represent numbers using objects and pictorial representations	**Time** • Measure and record time using hours. • Solve practical problems for time. • Recognise and use the language related to dates. • Know that two weeks is called a fortnight. • Use language of today, yesterday and tomorrow. • Sequence events in chronological order using language (for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. • Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

	• Using concrete materials and jottings, represent two-digit numbers. • Using concrete materials, arrange any amount into groups of two. • Identify that the numbers that are even are those used when counting in twos from zero and the rest are odd. **Length and Mass/weight** • Measure and record lengths and heights using uniform non-standard units within children's range of counting competence. • Measure and record mass/weight using uniform non-standard units within children's range of counting competence. • Describe a length using the language of long and short and a height using tall and short. • Compare two lengths using the language of longer and shorter and a height using taller and shorter. • Describe a mass/weight using the language of heavy and light.	using uniform non-standard units within children's range of counting competence. • Describe a capacity or volume using the language of full, empty, half full, nearly full, nearly empty. • Compare two capacities or volumes using the language of more and less including when different containers are used. **Money** • Recognise 1p, 2p, 5p, 10p and 20p coins by colour, shape, size and/or numerals/words. • Exchange a 2p, 5p, 10p and 20p coin for the correct number of 1p coins. **Time** • Measure and record time using seconds. • Compare the duration of two events using the language of quicker and slower. • Know and use the days of the week and how many days there are in one week.	• Compare two numbers (up to 50) represented using concrete materials saying which is more and which is fewer. **Mass/Weight** • Measure and record mass/weight using balance scales with manageable standard units (kg/g) within children's range of counting competence. **2D and 3D Shape** • Identify common 2-D shapes from within a wider selection that includes a full range of shapes e.g. finding all the squares within a selection of quadrilaterals. • Identify common 3-D shapes from within a wider selection that includes a full range of shapes e.g. finding all the cuboids within a selection of 3-D shapes. **Counting and Money** • Recognise and know the value of 50p, £1 and £2 coins by colour,	are the parts and which is the whole. • Use concrete materials to represent addition facts for twenty. • Use concrete materials to explore the relationship between addition and subtraction number sentences for 20. • Add a one- and two-digit number using an appropriate strategy. • Subtract a one-digit from a two-digit number using an appropriate strategy. • Use concrete materials to create linked calculations. • Use concrete materials to solve a missing number problem where a digit is given first. **Fractions** • Split quantities into equal parts and recognise that each part is a unit fraction of the whole quantity.	including the number line. • Use the language of: equal to, more than, less than (fewer), most, least. • Given a number, identify one more and one less. • Identify the number in a 100 square and recognise that the number below is ten more and the number above is ten less. • Given a number identify ten more or less. • Use a labelled number line to order numbers to 50. • Recognise and create a repeating pattern using more than three numbers. • Identify odd and even numbers linked to counting in twos from 0 and 1. • Solve problems and practical problems involving all of the above. **Addition and Subtraction** • Read, write and interpret mathematical statements involving	**Multiplication and Division** • Recall and use doubles of all numbers to 10 and corresponding halves. • Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. **Subtraction- Difference** • Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. • Use concrete materials to represent subtraction facts from twenty. • Represent and use number bonds and related subtraction facts within 20.

	• Compare two masses/weights using the language of heavier and lighter. **Addition and Subtraction** • Identify whether one-step problems are addition or subtraction and solve accordingly. • Interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs and model them using pictures or practical equipment, including where the = sign is at the start of the calculation. • Use concrete materials to represent addition facts for ten. • Use concrete materials to explore the relationship between addition and subtraction number sentences. • Use concrete materials to represent subtraction facts from ten. • Add using a counting on method and subtract using a take away method. **2D and 3D Shape**	• Know and use the months of the year and how many months are in one year. • Use language of before, after, next and first. • Use language of morning, afternoon and evening.	shape, size and/or numerals/words. • Recognise and know the value of £5, £10 and £20 notes. **Multiplication and Division** • Recall doubles for six to ten. • Recall halves for even numbers from 12 to 20.	• Find a half of an even quantity. • Find a quarter of an object. **Position and Direction** • Describe turning movements for whole and half turns. • Describe turning movements using left and right. • Describe position using the terms top, middle and bottom. • Describe position using the terms on top of, in front of, above, below, between, around, inside and outside. • Describe direction using forwards, backwards, up, down, sideways, left and right. **Time** • Measure and record time using minutes. • Compare two events using the language of earlier and later. • Tell the time to the hour.	addition (+), subtraction (-) and equals (=) signs. • Use concrete materials to represent subtraction facts from twenty. • Represent and use number bonds and related subtraction facts within 20. • Add and subtract one-digit and two-digit numbers to 20, including zero (using concrete objects and pictorial representations). • Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. **Capacity and Volume** • Measure and record capacity and volume using measuring vessels with manageable standard units (litres/ml) within children's range of counting competence.	• Add and subtract one-digit and two-digit numbers to 20, including zero (using concrete objects and pictorial representations). • Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. **Measurement – Length and Mass/Weight** • Measure and record mass/weight using weighing scales with a simple scale and manageable standard units (kg/g) within children's range of counting competence. • Solve practical problems for length and height. • Solve practical problems for mass/weight. **Sorting/Statistics** • Sort objects, numbers and shapes to a given

	• Name common 2-D shapes including when presented in different orientations. • Name common 3-D shapes including when presented in different orientations.			• Tell the time to the half hour recognising that the hour hand will not be exactly on the hour. • Draw the hands on a clock to show times to the hour.	• Solve practical problems for capacity and volume. **<u>Fractions</u>** • Understand that a fraction can describe part of a whole. • Understand that a unit fraction represents one equal part of a whole. • Recognise, find and name a half as one of two equal parts of an object, shape or quantity (including measure). • Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity (including measure). **<u>Position and direction</u>** • Describe turning movements for three-quarter turns including using left and right. • Describe movement, including whole, half, quarter and three-quarter turns. • Describe position and direction using the terms near, close, far, before, after and the ordinal numbers.	criterion and their own. • Present and interpret data in block diagrams using concrete materials. • Ask and answer simple questions by counting the number of objects in each category. • Ask and answer questions by comparing categorical data.

					• Recognise and create a repeating pattern using more than three objects and shapes. **<u>2D and 3D Shape</u>** • Recognise and name common 2-D shapes, including rectangles (including squares), circles and triangles. • Recognise and name common 3-D shapes, including cuboids (including cubes), pyramids and spheres.	
Mastering Number	Pupils will have an opportunity to consolidate the Early Learning Goals and continue to explore the composition of numbers within 10, and the position of these numbers in the linear number system. Pupils will: • subitise within 5, including when using a rekenrek, and re-cap the composition of 5 • develop their understanding of the numbers 6 to 9 using the '5 and a bit' structure • compare numbers within 10 and use precise mathematical language when doing so • re-cap the order of numbers within 10 and connect this to '1 more' and '1 less' than a given number • explore the structure of even numbers (including that even numbers can be composed by doubling any number, and can be composed of 2s) • explore the structure of the odd numbers as being composed of 2s and 1 more • explore the composition of each of the numbers 6, 8, and 10 • explore number tracks and number lines and identify		Pupils will continue to explore the composition of numbers within 10 and explore addition and subtraction structures and the related language (without the use of symbols). Pupils will: • explore the composition of each of the numbers 7 and 9 • explore the composition of odd and even numbers, seeing that even numbers can be made of two odd or two even parts, and that odd numbers can be composed of one odd part and one even part • identify the number that is two more or two less than a given odd or even number, identifying that two more/ less than an odd number is the next/ previous odd number, and two more/ less than an even number is the next/ previous even number • explore the aggregation and partitioning structures of addition and subtraction through systematically partitioning and re-combining numbers within 10 and connecting this to the part-part-whole diagram, including using the language of parts and wholes		Pupils will explore the composition of numbers within 20 and their position in the linear number system. They will connect addition and subtraction expressions and equations to 'number stories'). Pupils will: • explore the composition of the numbers 11 to 19 as '10 and a bit' and compare numbers within 20 • connect the composition of the numbers 11 to 19 to their position in the linear number system, including identifying the midpoints of 5, 10 and 15 • compare numbers within 20 • understand how addition and subtraction equations can represent previously explored structures of addition and subtraction (aggregation/ partitioning/ augmentation/ reduction) •practise retrieving previously taught facts and reason about these	

Y 1		• explore the augmentation and reduction structures of addition and reduction using number stories, including introducing the 'first, then, now' language structure	

Year 1 Vocabulary

Number and place value

number, count, more (than), less (than), fewer, greater, most, least, units, ones, tens, hundreds, exchange, digit, equal to, estimate, guess, roughly, about the same as, multiple, odd, even

Measurement

measure, compare, more (than), less (than), equal to, estimate, guess, roughly, about the same as, length, width, height, depth, long, short, tall, high, low, wide, narrow, deep, shallow, thick, thin, longer, shorter, taller, higher, longest, shortest, tallest, highest, far, near, close, metre, ruler, metre stick, weigh(s), balances, heavy, light, heavier, lighter, heaviest, lightest, balance, scales, mass/weight, double, half, full, half full, empty, holds, container, size, nearly, close to, just over, just under, more than , less than

Multiplication and Division

add, addition, repeated addition, multiplication, multiply, lots of, groups of, times, double, array, row, column, rectangle, number pattern, multiple, twice, three times, four times… as long/wide/heavy/much etc., divide, division, equal sharing, subtract, subtraction, repeated subtraction, equal grouping, lots of, groups of, halve, array, row, column, rectangle

Position and Direction

position, over, under, underneath, above, below, top, bottom, side, on, in, outside, inside, around, in front, behind, front, back, before, after, beside, next to, opposite, apart, between, middle, edge, centre, direction, journey, left, right, up, down, forwards, backwards, sideways, across, close, far, near, along, though, to, from, towards, away from, half, quarter, three-quarter(s), turn

Time

time, days of the week, months of the year, seasons, day, week, month, year, weekend, birthday, holiday, morning, afternoon, evening, night, midnight, bedtime, dinnertime, playtime, today, yesterday, tomorrow, before, after, next, first, last, now, soon, early, earlier, late, later, quick, quicker, quickest, quickly, fast, faster, fastest, slow, slower, slowest, slowly, old, older, oldest, new, newer, newest, takes longer, takes less time, day, hour, minute, second, clock, watch, hands, face

Addition and Subtraction

+, add, more, plus, make, sum, total, altogether, put together, score, double, near double, one more, two more… ten more, subtract, take (away), minus, leave, one less, two less… ten less, difference between, distance between, half, halve, =, equals, sign, is the same as

Statistics

count, block graph, represent, group, set, same, different, most popular, most common, least popular, least common

Shape

shape, 2-D, flat, side, straight, curved, circle, triangle, square, rectangle, oblong, pentagon, hexagon, octagon, 3-D, solid, face, edge, vertex (vertices), point, flat, curved, end, cube, cuboid, pyramid, sphere, cone, cylinder, surface

Sequencing and Sorting

pattern, sequence, repeat(ing), match, symmetrical, order, first, second, third etc., last, before, after, next, between, above, below, odd, even, every other, sort, count in 2s, group, set, same, different, table, diagram, numbers, shapes (and properties)

Fractions

fraction, part, equal parts, one whole, one half, two halves, one quarter, two… three… four quarters, (numerator, denominator)

Money

money, coin, note, penny, pence (p), pound (£), price, cost, buy, sell, spend, spent, pay, change, dear, costs more, cheap, costs less, cheaper, costs the same as, total, amount, value, exchange, double, half						
Y 2	**Number and Place Value** • Count in steps of 10 forwards and backwards. • Identify and discuss patterns on a 100 square when counting in steps of 2 or 5 from 0 and tens from any number. • Read and write numbers up to 100 in words. • Make and identify a two digit number up to 100 using concrete materials. • Say what each digit represents in a two-digit number. • Partition a two-digit number (represented using base 10 apparatus) into two groups in different ways where one group is a multiple of 10. • Compare three or more 2-digit amounts when represented using the same practical equipment saying which amounts have more/most and fewer/less/ fewest/least. • Identify the number 1 more and 1 less than a given number where the tens digit might change.	**Counting, Multiplication and Sorting** • Represent doubling using concrete materials Understand that doubling is adding a number to itself and multiplying by 2. • Write two different number sentences to represent a doubling situation. • Represent adding the same number three or more times using concrete materials arranged in groups and then in more structured form as an array and link this to multiplication. • Model multiplication number sentences using concrete materials. • Create an array and identify the two multiplication statements that are represented to show that multiplication of two numbers can be done in any order.	**Number and Place Value** • Count in steps of 3 using practical equipment and a number line. • Correctly place a number from 1 to 100 on a number line with multiples of 10 labelled. • Order three or more 2-digit amounts when represented using the same practical equipment. • Identify what changes and what stays the same when 10 is added or removed from a two-digit number. • Recognise that if a number is exactly half way between two multiples of 10, then the number rounds to the higher multiple of 10. • Recognise the correspondence between ones and tens. • Describe the rule in a number sequence counting on and back in fives, tens or twos from any number. **Mass/Weight** • Choose and use the correct equipment to measure mass e.g. balance scales, kitchen scales (with appropriate scale).	**Length and Volume/Capacity** • Choose and correctly use the appropriate equipment to measure lengths and heights e.g. ruler, metre rule, tape measure, trundle wheel. • Choose and use the correct equipment to measure volume / capacity e.g. measuring cylinders / jugs with appropriate scales. • Order the values of three or more: lengths, volumes/capacities. **Addition and Subtraction** • Recognise calculations that require mental partitioning and use this strategy where appropriate (this should be supported by concrete materials, pictures or jottings).	**Number and Place Value** • Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. • Read and write numbers to at least 100 in numerals and in words. • Recognise the place value of each digit in a two-digit number. • Correctly place a number from 1 to 100 on a number line with multiples of 10 marked but not labelled (with start and end labelled 0 and 100). • Partition numbers in different ways. • Compare and order numbers from 0 up to 100; use and = signs. • Find 1 or 10 more or less than a given number. • Round numbers to at least 100 to the nearest 10.	**Time** • Know the number of minutes in an hour and the number of hours in a day. • To enable comparison between different units of time, use appropriate calculation strategies to convert between units. • Compare and sequence intervals of time. • Count in fives anticlockwise starting at 12 (for zero) to 6 (for thirty) progressing to counting in times. • Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. **Multiplication and Division** • Understand multiplication as

	• Identify the number 10 more and less than a given number. • Identify the multiples of 10 immediately before and after a given number (not ending in 5), count to each of these multiples of 10 and say which multiple of 10 is closest. • Know that our number system is organised using groups of 10 and what each digit represents in a two-digit number. • Describe the rule in a number sequence counting on and back in tens or twos from any number. • Extend number sequences counting on and back in tens or twos from any number. **Length and Mass/weight** • Choose the correct standard units to measure length and height (m/cm). • Choose the correct standard units to measure mass (kg/g). • Compare the values of two: lengths, masses.	• Use the fact that multiplication of two numbers can be done in any order to derive one multiplication statement from another. • Recall and use multiplication and division facts for the 2x, 5x and 10x tables. • Use base 10 equipment to explore the relationship between the doubling of a single digit number to the doubling of its related multiple of 10. • Use the previously identified relationship to recall and use doubles of all multiples of 10 up to 50. • Represent adding the same number three or more times using concrete materials. • Create an array to represent a given multiplication fact. **Statistics** • Use everyday language to compare two objects, numbers or shapes by	• Order the values of three or more masses. **2D and 3D Shape** • Describe 2-D shapes according to the number of sides and vertices, and whether any of the sides or vertices are the same size as each other. • Identify a vertical line of symmetry in a shape. • Describe 3-D shapes according to the number and shape of the faces, the number of edges and vertices and whether any of the faces are the same as each other. **Counting and Money** • Recognise that p in the context of money stands for pence and use this symbol correctly. • Recognise that £ in the context of money stands for pounds and use this symbol correctly (whole pounds only). • Recognise that amounts of money can be partitioned in different ways (using coins). • For a given value, identify how much more can be spent following the purchase of one item. • Identify combinations which can be bought for a specific amount of money.	• Recognise calculations that require counting on mentally to find the difference and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Model subtraction as 'difference' number sentences using concrete materials. • Recognise subtraction as 'difference' in different contexts by understanding and interpreting the language involved. • Use ten frames to explore addition and subtraction facts for all numbers up to 20. • Derive and use addition and subtraction facts of multiples of 5 or 10 totalling 60. • Add and subtract a two-digit number to/from another two-digit number including crossing a	• Understand the connection between the 10 multiplication table and place value. • Extend number sequences counting on and back in fives, tens or twos from any number. • Describe and extend simple sequences involving counting on or back in different steps. • Use place value and number facts to solve problems. **Addition and Subtraction** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting). • Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently and use this strategy where	repeated addition and arrays. • Make equal sized groups from an amount where there is a remainder. • Understand division as sharing and grouping and that a division calculation can have a remainder. • Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. • Use partitioning to double simple two-digit numbers (numbers in which the ones total less than 10). • Derive and use doubles of simple two-digit numbers (numbers in which

	Addition and Subtraction • Recognise and solve calculations that involve known facts. • Recognise that the numbers in addition calculations can be reordered to make counting on more efficient and use this strategy where appropriate. • Recognise calculations that require counting on or back mentally and use this strategy where appropriate. • Model addition number sentences using concrete materials and identify which groups in the number sentence are the parts and which is the whole. • Use the fact that addition of two or more numbers can be done in any order to reorder calculations for efficiency. • Model subtraction number sentences using concrete materials and identify which groups in the number sentence are the parts and which is the whole.	identifying properties that they both share and properties that make them different. • Construct and interpret simple tables. • Use given data to construct and interpret a block graph on squared paper. • Use given data to construct and interpret a pictogram in which each symbol is worth 1. • Construct and collect data using a tally chart and interpret tally charts. • Answer questions which ask 'How many…?' in a given data category. • Understand and use the language of most and least common / popular. • Answer questions which ask 'How many more…?' or 'How many fewer…?' when comparing two categories in a data set. • Answer questions which ask 'How many	• Exchange different coins for other coins of the same value. **Multiplication** • Write two different number sentences to represent repeated addition situations. • Identify odd and even numbers by looking at the ones digit and relating even numbers to multiples of 2. • Recall and use doubles of all multiples of 10 up to 100. • Write two different number sentences to represent an array. • Represent and solve a problem using concrete materials and pictorial representations. **Division** • Share an amount equally across sets where there is no remainder. • In real life contexts, share an amount equally across sets where there is a remainder. • Make equal sized groups from an amount where there is no remainder. • Model division number sentences using concrete materials. • Recognise that (in practical situations) the division of one number from another cannot	tens boundary (Practically then pictorially). • Recognise that ? + 3 = 11 can be solved by calculating 11 – 3 = ? because 11 is the whole which is made of two parts one of which is 3. • Recognise that ? – 5 = 9 can be solved by calculating 9 + 5 = ? because two parts which are 9 and 5 go together to create the whole. • Represent and solve a problem using structured pictorial representations such as the bar model. **Fractions** • Find $2/4$ of an object, set of objects / quantity and length. • Recognise and name ¾ as any three of four equal parts of an object or shape and write the fraction ¾.	appropriate (This should be supported by concrete materials, pictures or jottings). • Recognise calculations that require a mental compensation method and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Select a mental strategy appropriate for the numbers involved in the calculation. • Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. • Understand subtraction as take away and difference (how many more, how many less/fewer). • Recall and use addition and subtraction facts to 20 fluently, and	the ones total less than 10). • Derive and use halves of simple two-digit even numbers (numbers in which the tens are even). • Select from grouping or sharing strategies depending on the context. • Calculate mathematical statements for multiplication (using repeated addition) and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. • Understand what a remainder means in the context of a problem and how this may affect the answer. • Solve problems involving multiplication and division (including those with remainders), using materials, arrays,

	• Recognise that (in practical situations) the subtraction of one number from another cannot be done in any order. • Know that 'take away' is removal of an amount (a part) from within another amount (the whole). Identify subtraction as 'take away' in different contexts by understanding and interpreting the language involved. • Know that 'difference' is comparing two amounts and finding how many more or how many less/fewer. • Recall and use addition and subtraction facts of all numbers up to 10 and totalling 20 for addition and subtraction. • Derive and use addition and subtraction facts of multiples of 10 totalling 100. • Partition and combine multiples of tens and one. • Add and subtract a one-digit number to/from a two-digit number (not crossing tens boundary).	in total…?' in given data categories. **Fractions** • Use concrete materials and pictorial representations to explore and recognise that the denominator is the number of equal parts into which a whole has been split. • Use concrete materials and pictorial representations to explore and recognise that the numerator is the number of parts required in the given fraction. • Recognise that one 'whole' could be one whole group of items. • Split the same shape or set into different numbers of equal parts and compare the sizes of the denominators. • Find ¼ of a shape, object, set of objects / quantity and length and write the fraction ¼. • Recognise and name $2/4$ as any two of four equal parts of an	be done in any order because they give different answers. • Use base 10 equipment to explore the relationship between the halving of a single digit even number to the halving of its related multiple of 10. • Use the previously identified relationship to recall and use halves of all multiples of 10 up to 100 with an even tens digit. • Use partitioning to halve simple two-digit even numbers (numbers in which the tens are even). • Use concrete materials to represent division as grouping by creating equal groups of a given size from an amount. • Write a number sentence to represent the amount being grouped, the number in each group and how many groups are created. • Using an array, show how many groups of a given size can be made from the total (using the rows or columns). • Write a number sentence to represent the total and the number of groups of a given size. • Represent and solve a problem using concrete materials or pictorial representations.	• Find ¾ of a shape, object, set of objects / quantity and length. • Count on or back in steps of ¼. **Position and Direction** • Know that a full turn is the same as a turn through four right angles. • Know that half a turn is the same as a turn through two right angles. • Know that a quarter turn is the same as a turn through one right angle. **Time** • Know that there are 60 minutes in 1 hour. • Count in fives clockwise starting at 12 (for zero) to 6 (for thirty) progressing to counting in times. • Tell the time to the nearest five minutes past the hour (up to 25 minutes past).	derive and use related facts up to 100. • Recall and use number bonds for multiples of 5 totalling 60. • Add a two-digit number to another two-digit number including crossing the hundreds boundary (Practically then pictorially). • Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: - a two-digit number and ones - a two-digit number and tens - two two-digit numbers - adding three one-digit numbers. • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	repeated addition, mental methods, and multiplication and division facts, including problems in contexts. **Statistics** • Identify the property / properties by which a set of objects, numbers or shapes has been sorted. • Compare and sort objects, numbers and common 2-D and 3-D shapes and everyday objects. • Construct and interpret data as a pictogram in which each symbol is worth 10, 5 or 2. • Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. • Order the amounts for each category in a data set. • Ask and answer simple questions by counting the number of objects in each category and sorting

	• Add three single digit numbers including bridging through 10 and/or 20. • Add and subtract a multiple of 10 to/from a two-digit number (not crossing hundreds boundary). • Add and subtract a one-digit number to/from a two-digit number including crossing a tens boundary. • Add and subtract a two-digit number to/from another two-digit number (not crossing any boundaries). • Recognise and use the knowledge that 4 + 5 = 9 can be checked by using the inverse operation 9 – 4 = 5 or 9 – 5 = 4. • Recognise and use the knowledge that 12 – 4 = 8 can be checked by using the inverse operation 8 + 4 = 12 or 4 + 8 = 12. • Recognise that 4 + ? = 9 can be solved by calculating 9 – 4 = ? because 9 is the whole which is made of two parts one of which is 4. • Recognise that 12 – ? = 8 can be solved by	object or shape and write the fraction $2/4$. • Use equations to represent the fractions of amounts being calculated. • Find ½ and $2/4$ of an object, set of objects / quantity and length and recognise that these are the same. • Count forwards and backwards in halves. **Capacity and Volume** • Choose the correct standard units to measure volume / capacity (litres/ml). • Compare the values of two volumes/capacities. **Money** • Add two prices together to find the total cost. • Exchange 2p, 5p and 10p coins for the correct number of 1p coins. • Exchange 20p, 50p and £1 coins for the correct number of 10p coins. **Time**			• Solve problems with addition and subtraction including with missing numbers: - using concrete objects and pictorial representations, including those involving numbers, quantities and measures - applying their increasing knowledge of mental and written methods. **Capacity and Volume and Temperature** • Know common points of reference for volume / capacity such as a teaspoon / medicine spoon has a capacity of 5ml and a large bottle of fizzy drink is 2 litres. • Use the common points of reference they know to estimate the volume in / capacity of other vessels. • Choose and use appropriate standard units to	the categories by quantity. • Ask and answer questions about totalling and comparing categorical data. **Measurement – length and weight/mass** • Know common points of reference for length / height such as a ruler is 30cm and a doorway is 2m tall. • Use the common points of reference they know to estimate the lengths and heights of other objects. • Know common points of reference for mass such as a small packet of crisps has a mass of between 25g and 30g and a bag of sugar has a mass of 1kg. • Use the common points of reference they know to estimate the mass of other objects.

	calculating 12 – 8 = ? because 12 is the whole which is made of two parts one of which is 8. • Represent and solve a problem using concrete materials or pictorial representations. **2D and 3D Shape** • Know that a vertex in a 2-D shape is where two sides meet (and the plural is vertices). • Identify the number of sides and vertices of 2-D shapes and recognise that this is the basis for naming them. • Know that a face is a flat surface of a 3-D shape. • Identify the number and shape of the faces or curved surfaces of 3-D shapes and recognise that this is the basis for naming them. • Know that an edge on a 3-D shape is where two faces / curved surfaces meet Know that a vertex on a 3-D shape is where three or more edges meet. • Find the face on a 3-D shape that is a specified 2-D shape.	• Know that there are 24 hours in 1 day. • Put units of time (second, minute, hour, day, week, month, year) in order from shortest to longest and vice versa. • Tell the time for quarter past and to the hour and draw hands on a clock to show the time, recognising that the hour hand will not be exactly on the hour.			estimate and measure temperature (°C); capacity and volume (litres/ml) to the nearest appropriate unit, using scales, thermometers and measuring vessels. • Know that temperature is measured in degrees Celsius (°C). • Know that temperature is measured using a thermometer and read the temperature on a thermometer. • Know that average room temperature is between 18°C and 20°C. • Use the knowledge of average room temperature to say whether the temperature outside is hotter / warmer or colder / cooler. • Estimate and read the temperature on a partially marked thermometer scale where the reading is a multiple of 5.	• Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g) to the nearest appropriate unit, using rulers, scales. • Use and = to compare the values of lengths, masses. • Compare and order lengths, mass and record the results using >, < and =.

					• Estimate and read the temperature on a partially marked thermometer scale, using the labelled marks to read to the nearest degree. • Use and = to compare the values of volumes / capacities. • Compare and order lengths, mass, volume/capacity and record the results using >, < and =. **<u>Fractions</u>** • Understand and use the terms numerator and denominator. • Understand that a fraction can describe part of a set. • Understand that the greater the denominator is, the more pieces it is split into and therefore the smaller each part will be. • Recognise and name $1/3$ as any one of three equal parts of an object or	

					shape and write the fraction $1/3$, • Find $1/3$ of a shape, object, set of objects / quantity length. • Recognise, find, name and write fractions ¼, $2/4$ and $3/4$ of a length, shape, set of objects or quantity. • Write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of $2/4$ and $1/2$,. • Use concrete materials or pictorial representations to change the counting sequence from $1/4$, $2/4$, $3/4$, $4/4$, $5/4$ … to $1/4$, $1/2$, $3/4$, 1, 1 $1/4$ … • Count on and back in steps of $1/4$ and ½. **Position and direction** • Know that a three-quarter turn is the same as a turn through three right angles. • Understand and use the language	

					clockwise and anti-clockwise. • Order/arrange combinations of mathematical objects in patterns /sequences. • Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise). **<u>2D and 3D Shape</u>** • From a set of shapes, identify those with a vertical line of symmetry and those without. • Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. • Identify similarities and differences	

					between pairs / sets of 3-D shapes. • 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].	
Mastering Number	Pupils will have an opportunity to consolidate their understanding and recall of number bonds within 10; they will re-cap the composition of the numbers 11 to 20 and reason about their position within the linear number system. Pupils will: • review the composition of the numbers 6 to 9 as '5 and a bit' • compare numbers using the language of comparison and use the symbols < > = • review the structure of even numbers (including exploring how even numbers can be composed of two odd parts or two even parts) and the composition of each of 6, 8 and 10 • review the structure of odd numbers (including exploring how odd numbers can be composed of one odd part and one even part) and the composition of each of 7 and 9 •consolidate their understanding of the numbers 10 and 20 as '10 and a bit' • consolidate their understanding of the linear number system to 20 and reason about midpoints		Pupils will have an opportunity to use their knowledge of the composition of numbers within 10 to calculate within 20; they will explore the links between the numbers in the linear number system within 10 to numbers within 100, focusing on multiples of 10 and the midpoint of 50. Pupils will: • explore how the numbers 6 to 9 can be doubled using the '5 and a bit' and '10 and a bit' structure • use doubles to calculate near doubles • use bonds of 10 to reason about bonds of 20, in which the given addend is greater than 10 • use known number bonds within 10 to calculate within 20, working within the 10-boundary • use their knowledge of bonds of 10 to find three addends that sum to 10 • use their knowledge of the composition of numbers within 20 to add and subtract across the 10-boundary • use their understanding of the linear number system to 10 to position multiples of 10 on a 0 - 100 number line and reason about midpoints		Pupils will have further opportunities to use their knowledge of the composition of numbers within 10 to calculate within 20 and to reason about equations and inequalities. Pupils will: • continue to explore a range of strategies to subtract across the 10-boundary • review bonds of 20 in which the given addend is greater than 10, and reason about bonds of 20, in which the given addend is less than 10 • practise previously explored strategies to support their reasoning about inequalities and equations • review doubles and near doubles and transform additions in which two addends are adjacent odd/ even numbers into doubles • consolidate previously taught facts and strategies through continued, varied practice

Y 2			

Year 2 Vocabulary

Number and place value

number, count (on, back, to, from), more (than), less (than), fewer, greater, most, least, units, ones, tens, hundreds, exchange, digit, place, place value, represents, partition, equal to, estimate, guess, roughly, about the same as, round, exact(ly), multiple of, sequence, continue, predict, rule

Measurement

size, compare, estimate, guess, roughly, about the same as, exact(ly), measuring scale, length, width, height, depth, long, short, tall, high, low, wide, narrow, deep, shallow, thick, thin (add –er and –est to all of these), ruler, metre stick, tape measure, metre, centimetre, mass, weigh, balance, heavy, light (add –er and –est to these), kilogram, half-kilogram, gram, scales, capacity, volume, measure accurately, order, standard unit(s), litre (l), millilitre (ml), half full, quarter full, three quarters full, empty, full, contains, sequence, steps, pattern, temperature, thermometer, degree(s) °C (Celsius), warmer/hotter, cooler/colder, hot, cold, increase, decrease, less (than), more (than), equal to

Multiplication and Division

number, count (on, back, to, from), units, ones, twos, threes, fives, tens, exchange, digit, place, place value, represents, equal to, repeated addition, array, row, column, lots of, groups of, times, …times as long/wide/tall/heavy/much, multiply, multiplied by, multiple of, sequence, continue, predict, rule, sort, group, set, divide, divided by, divided into, share (equally), how many… in…?, left (over), remainder, halve, odd, even

Addition and Subtraction

+, add, addition, more, plus, make, sum, total, altogether, -, subtract, subtraction, take (away), minus, leave, how many left (over)?, difference, inverse, units, ones, tens, hundreds, place, place value, partition, exchange, represents, equal, equal to, makes, is the same as

Position and Direction

sequence, patterns, order, position, first, second, third…, over, under, underneath, above, below, top, bottom, side, on, in, outside, inside, around, in front, behind, front, back, before, after, beside, next to, opposite, apart, between, middle, edge, centre, direction, journey, left, right, up, down, forwards, backwards, sideways, across, close, far, near, along, through, to, from, towards, away from, half, quarter, position, direction, movement, over, three-quarter(s), turn, clockwise, anti-clockwise

Time

time, days of the week, months of the year, seasons, day, week, fortnight, month, year, weekend, birthday, holiday, morning, afternoon, evening, night, midnight, bedtime, dinnertime, playtime, today, yesterday, tomorrow, before, after, next, last, now, soon, early, late, quick (-er, -est, -ly), fast (-er, -est), slow (-er, est, -ly), old (-er, -est), new (-er, -est), takes longer, takes less time, how long ago/how long will it be to…?, hour, minute, second, o'clock, half past, quarter past, quarter to, past, to, clock, watch, hands, clockwise, anti-clockwise

Money

money, coin, note, penny, pence (p), pound (£), price, cost, buy, bought, sell, sold, spend, spent, pay, change, dear, costs more, expensive, cheap, costs less, cheaper, how much…?, how many…?, total, value, combinations

Statistics

diagram, table, graph, block graph, pictogram, tally (chart), most/least popular/common, compare, total, sum, altogether, add, difference, how many more/less/fewer…

Fractions

fraction, numerator, denominator, part, equal parts, one whole, one half, two halves, one quarter, two…, three…, four quarters, equivalence, the same as, equal to, unit fraction, non-unit fraction

Geometry

shape, flat, curved, straight, solid, side, face, edge, vertex (vertices), end, surface, three dimensional (3-D), prism, cube, cuboid, pyramid, sphere, cone, cylinder, base, square-based, two dimensional (2-D), polygon, quadrilateral, circle, circular, triangle, triangular, square, oblong, rectangle, rectangular, pentagon, hexagon, octagon, symmetry, symmetrical, fold, mirror line, compare, sort						
Y 3	**Place Value** • Count in steps of 100 from 0 to 1000. • Count in steps of 50 from 0. • Count in steps of 4 from 0. • Read and write numbers up to 1000 in numerals and in words. • Identify and represent numbers up to 1000 using concrete materials or models. • Correctly place multiples of 100 on a number line with multiples of 100 marked but not labelled (with start and end labelled 0 and 1000). • Make and identify a three-digit number up to 1000 using concrete materials or models. • Make a three-digit number using concrete materials, e.g. base 10 apparatus, bundles of straws, place value counters. • Partition a three-digit number (represented using base 10 apparatus) into hundreds, tens and ones.	**Multiplication** • Use partitioning to derive doubles of all numbers to 50. Use known facts to derive doubles of all multiples of 100 to 500. • Use an array to represent a teens number multiplied by a single digit number and partition the array into ten and ones to support calculating the product. • Use partitioning to calculate a teens number multiplied by a single digit number (mental jotting or grid method). **Multiplication tables (3X, 4X)** • Use arrays to understand the multiplication and division facts for the 3 multiplication table. • Use arrays to understand the multiplication and division facts for the 4 multiplication table.	**Place Value** • Count in steps of 8 from 0. • Correctly place multiples of 10 on a number line with multiples of 100 marked but not labelled (with start and end labelled 0 and 1000). • Recognise the place value of each digit in a three-digit number. • Partition a three-digit number (represented using base 10 apparatus) into hundreds, tens and ones in different ways. • Partition a three-digit number using base 10 apparatus into two groups in different ways where one group is a multiple of 10. • Partition a three-digit number without the use of practical equipment into two groups in different ways where one group is a multiple of 10. • Order numbers up to 1000 when represented using the same concrete materials saying which numbers are greater or less. Pay particular attention to numbers that have the same digits. • Order numbers up to 1000 saying which numbers are greater or less. Pay particular	**2D and 3D Shape including Sorting** • Recognise angles as a description of a turn and identify objects in the classroom that turn. • Recognise where sides meet at a vertex in a shape that an angle is created. • Recognise a quarter turn (as one right angle) from different starting points. • Recognise a drawn right angle when presented in any orientation. • Recognise a half-turn (as two right angles) from different starting points and that the start and end points will be facing in opposite directions. • Recognise a three quarter-turn (as three right angles) from different starting points. • Recognise a full turn (as four right	**Statistics** • Use sorting diagrams to compare and sort objects, numbers and common 2-D and 3-D shapes. • 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. **Addition and Subtraction** • Add more than two numbers with three digits using formal written methods of columnar addition with exchange from ones into tens, including when the 'carried' amount has more than one ten.	**Place Value** • Count from 0 in multiples of 4, 8, 50 and 100. • Count up and down in tenths. • Read and write numbers with one decimal place. • Identify, represent and estimate numbers using different representations (including the number line). • Identify, represent and estimate numbers using different representations (including the number line). • Partition numbers in different ways. • Compare and order numbers up to 1000. • Compare and order numbers with one decimal place. • Round numbers to at least 1000 to the nearest 10 or 100.

	• Compare two numbers up to 1000 when represented using the same concrete materials saying which number is greater or less and use and = correctly. Pay particular attention to numbers that have the same digits. • Compare three or more numbers up to 1000 when represented using the same concrete materials saying which numbers are greater or less and use and = correctly. Pay particular attention to numbers that have the same digits. • Identify the number one more and one less than a given number with up to three-digits, where the tens and hundreds digit stays the same. • Identify the number ten more and ten less than a given number with up to three-digits, where the hundreds digit stays the same. • Identify the number one hundred more and one hundred less than a given number with up to three-digits.	• Recall and use multiplication and division facts for the 3 multiplication table. • Derive the 4 multiplication table from the 2 multiplication table. • Recall and use multiplication and division facts for the 4 multiplication table. **Written and Mental Division** • Use concrete materials or pictorial representations to derive the division facts related to the multiplication facts that they know. • Understand division as sharing. • Understand division as grouping, e.g. recognise contexts that relate to finding how many groups of a particular size there are in a given amount. • Use concrete materials to show division as repeated subtraction for numbers beyond the	attention to numbers that have the same digits. • Find 1, 10 or 100 more or less than a given number. • Identify the multiples of 100 immediately before and after a given number. • Round numbers with up to three-digits to the nearest hundred. • Use concrete materials to model the effect of multiplying a two-digit number by 10. • Describe the effect of multiplying a two-digit number by ten. **Mental addition and Subtraction** • Recognise calculations that require counting on mentally to find the difference and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Recognise calculations that require a mental compensation method and use this strategy where	angles) from different starting points and that the start and end points will be the same. • Identify pairs of perpendicular lines as lines that are at right angles to each other, or will be if they are continued, irrespective of orientation. • Identify parallel lines as lines that are always the same distance apart irrespective of length (NB parallel lines can also be curved or concentric circles), irrespective of orientation. **Addition and Subtraction** • Add and subtract a three-digit number and ones mentally, crossing a hundreds boundary. • Add and subtract a three-digit number and tens mentally crossing a hundreds boundary. • Add two numbers with three digits	• Add more than two numbers with up to three digits using formal written methods of columnar addition with exchange from ones into tens and tens into hundreds, using the place value columns to set the calculation out correctly. • Subtract numbers with different numbers of digits up to three digits, using formal written methods of columnar subtraction with exchange from tens into ones and hundreds into tens, using the place value columns to set the calculation out correctly. • Subtract numbers using formal written methods of columnar subtraction where the greater number has 0 as a place holder in the tens column with exchange from	• Find the effect of multiplying a one- or two-digit number by 10 and 100, identify the value of the digits in the answer. • Describe and extend number sequences involving counting on or back in different steps. • Read Roman numerals from I to XII. • Solve number problems and concrete problems involving these ideas. **Mental Calculation** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). • Select a mental strategy appropriate for the numbers involved in the calculation. • Understand and use take away and

	• Use concrete materials to model the effect of multiplying a one-digit number by 10. • Describe the effect of multiplying a one-digit number by ten. • Identify and describe the rule (addition or subtraction) in a number sequence by calculating the difference between two adjacent numbers. • Extend number sequences by using the identified rule. **2D Shape** • Accurately draw 2-D shapes on dotty paper (squared and isometric). • Draw 2-D shapes with specific properties on dotty paper. • Identify horizontal lines as lines that are parallel to the horizon. • Identify vertical lines as lines that are at right angles to the horizon. **Length including Perimeter** • Measure lengths (m/cm/mm). • Compare the lengths of different objects.	multiplication facts that they know. • Use concrete materials to show division as repeated subtraction for numbers beyond the multiplication facts that they know using greater multiples of the divisor. **Time** • Tell and write the time on an analogue clock to the nearest minute for times past the hour. • Tell and write the time on an analogue clock to the nearest minute for times to the hour. • Know common points of reference for time such as the length of break time is 15 minutes, the time for teeth brushing is 2 minutes, the school day lasts for six hours. • Compare two time intervals which are in the same unit. • Record time in terms of seconds, minutes, hours.	appropriate (This should be supported by concrete materials, pictures or jottings). • Recognise that when numbers are close together, even when the context suggests that it is a 'take away', a counting on strategy is most efficient and use this correctly. • Recognise and use a counting up strategy when the difference between two numbers can be calculated using three or fewer jumps, • Recall and use addition and subtraction facts for 100 with multiples of 5. • Use addition and subtraction facts for 100. • Use addition and subtraction facts for multiples of 100 totalling 1000. **Fractions** • Show practically and pictorially that a fraction is one whole number divided by another. • Understand that finding a fraction of an amount relates to division. • Where a fraction of an amount cannot be found by using known division facts, use concrete materials to find unit fractions (with	using formal written methods of columnar addition with exchange from ones into tens and tens into hundreds. • Subtract numbers with three digits using formal written methods of columnar subtraction with exchange from tens into ones and hundreds into tens. • Use rounding to estimate the answer to a calculation. • Use inverse to check the answer to a calculation. **Position and Direction** • Know that squares in the same vertical column will all have the same letter reference (but a different number reference). • Know that squares in the same horizontal row will all have the same number reference (but a different letter reference).	hundreds into tens then tens into ones. • Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. • Estimate the answer to a calculation and use inverse operations to check answers. • Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. **(Measures)** • Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). • Continue to estimate and measure temperature to the nearest degree (°C) using thermometers.	difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context. • Recall/use addition / subtraction facts for 100 (multiples of 5 and 10). • Derive and use addition and subtraction facts for 100. • Derive and use addition and subtraction facts for multiples of 100 totalling 1000. • Add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds. **Fractions** • Show practically or pictorially that a fraction is one whole number divided by another. • Recognise that tenths arise from

	• Add values of length (m/cm/mm). • Find the difference between the lengths of objects and say by how much an object is longer or shorter (m/cm/mm). • Use concrete materials to create a 2-D shape; deconstruct the straws into a straight line to show that the perimeter is a measure of length around the boundary. • Use counting to measure the perimeter of a polygon, either using a trundle wheel to measure large polygons drawn in chalk on the playground where the lengths of the sides are in whole metres, or shapes drawn on squared centimetre paper. **Statistics** • Use single set Venn diagrams to compare and sort objects, numbers and shapes including items that do not fit the criteria and placing these in the universal set (area outside the circles). • Use one criterion Carroll diagrams to compare	• Know that there are 60 seconds in a minute. • Know the number of days in each month. **3D Shape** • Use construction materials such as Clixi or Polydron to make 3-D shapes. • Make the skeletons of 3-D shapes using straws and Playdoh.	denominators of ten or less) of a set of objects. • Use concrete materials to find non-unit fractions (with denominators of ten or less) of a set of objects. • Where a fraction of an amount cannot be found by using known division facts, use pictorial representations, e.g. bar model, to find unit fractions of a set of objects. • Use pictorial representations, e.g. bar model, to find non-unit fractions of a set of objects within multiplication table knowledge. • Use concrete materials such as multilink to create equivalent fractions. • Use pictorial representations such as fraction walls to recognise where fractions are equivalent. • Use pictorial representations, such as fraction strips, to add and subtract fractions with the same denominator within one whole. • Add and subtract fractions with the same denominator within one whole by adding or subtracting the numerators. • Use pictorial representations, such as fraction strips, to compare and order fractions with the same denominators.	**Time** • Know that when reading and writing the time on a digital clock, the hours and minutes are separated by a colon. • Tell the time on a digital clock to the nearest minute and know whether this is before or after midday. • Use the common points of reference they know to estimate the time of various events. • Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon, midnight. • Know that there are 365 days in a year but 366 in a leap year; know that a leap year occurs every 4 years when the year is divisible by 4. • Solve time problems working within the hour boundary. • Solve time problems that involve the start	• Measure the perimeter of simple 2-D shapes. **Multiplication and Division (Measures)** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). • Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. • Derive and use doubles of all numbers to 100 and corresponding halves. • 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	dividing objects into 10 equal parts and in dividing one-digit numbers or quantities by 10. • Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. • Recognise and show, using diagrams, equivalent fractions with small denominators. • Add and subtract fractions with the same denominator within one whole. • Compare and order unit fractions, and fractions with the same denominators (including on a number line). • Count on and back in steps of 1/2, ¼ 1. • Solve problems that involve all of the above. **Measures** • Tell and write the time from an analogue clock,

	and sort objects, numbers 3-D shapes and shapes. • Interpret and present data using bar charts with a scale in ones. • Interpret and present data using bar charts with a scale in twos. • Interpret and present data using tables. • Use and interpret information in scaled bar charts and pictograms and tables to solve one-step questions such as 'How many more?' and 'How many fewer?' **Mental Calculation** • Recognise and solve calculations that involve known facts. • Recognise that the numbers in addition calculations can be reordered to make calculating more efficient and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Recognise calculations that require counting on or back mentally and use this strategy where appropriate (This should		• Compare and order fractions with the same denominator by placing them on a number line. • Use pictorial representations, such as fraction strips, to compare and order unit fractions. • When comparing fractions, understand that when the numerators are the same, the greater the denominator, the smaller the fraction; when the denominators are the same, the greater the numerator, the greater the fraction. • Count on and back in steps of $1/3$ in the form $1/3, 2/3, 3/3, 4/3$. **Division** • Understand how multiplication and division statements can be represented using arrays. • Use a vertical number line to show division as repeated subtraction for numbers beyond the multiplication facts that they know using greater multiples of the divisor. **Volume and Capacity/Mass** • Measure mass (kg/g). • Compare the mass of different objects. • Add values of mass (kg/g). • Find the difference between the masses of objects and	time and duration where the end time is to be calculated, (within the hour). • Solve time problems that involve the end time and duration where the start time is to be calculated, (within the hour). • Solve time problems working across the hour boundary. • Solve time problems that involve the start time and duration where the end time is to be calculated, (beyond the hour). • Solve time problems that involve the end time and duration where the start time is to be calculated, (beyond the hour).	formal written methods. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. • Solve problems, including missing number problems, involving multiplication and division (and interpreting remainders), including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. **2D and 3D Shape including Sorting** • Recognise and describe 3-D shapes in different orientations. • Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D	including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. • Estimate/read time with increasing accuracy to the nearest minute. • Record/compare time in terms of seconds, minutes, hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon, midnight. • Know the number of seconds in a minute and the number of days in each month, year and leap year. • Compare durations of events [for example to calculate the time taken by particular events or tasks]. **Statistics** • Use sorting diagrams to compare and sort objects, numbers and common 2-D and 3-D shapes. • Interpret and present data using

	be supported by concrete materials, pictures or jottings). • Recognise calculations that require mental partitioning and use this strategy where appropriate (This should be supported by concrete materials, pictures or jottings). • Use knowledge of number bonds to 10 to recall the complement of any two-digit number to the next multiple of 10. • Derive the complement of any two-digit number to 100. • Recall and use addition and subtraction facts for 100 with multiples of 10. • Derive and use addition and subtraction facts for 100 with multiples of 5 using bead strings, a blank 10 by 10 grid etc. • Recognise that, when calculating addition facts to 100, the two 5s total 10 and the tens total 90. • Derive and use addition and subtraction facts for 100 using bead strings, a blank 10 by 10 grid etc. • Recognise that, when calculating addition facts		say by how much an object is heavier or lighter (kg/g). • Measure volume/capacity (l/ml). • Compare the volume/capacity of different objects. • Add values of volume/capacity (l/ml). • Find the difference between the volumes/capacities of vessels and say how much more or how much less one vessel contains than another (l/ml). **Multiplication including 8X Table** • Use arrays to understand the multiplication and division facts for the 8 multiplication table. • Understand how multiplication and division statements can be represented using arrays. • Derive the 8 multiplication table from the 4 multiplication table. • Recall and use multiplication and division facts for the 8 times table. • Use partitioning to derive doubles of all numbers to 100. • Use partitioning to derive and use halves of multiples of 10 where the tens digit is odd. • Use partitioning to derive and use halves of all numbers to 100.		shapes in different orientations and describe them. • Recognise angles as a property of shape or a description of a turn. • Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. **Decimals Addition and Subtraction (Money)** • Recognise that when an amount of money is in pounds and pence it can be written with a £ sign and a decimal point separating the whole pounds and the pence. • Continue to recognise and use	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.

	to 100, the ones total 10 and the tens total 90. • Use related facts to derive addition and subtraction facts for multiples of 100 totalling 1000. **Written Addition and Written Subtraction** • Add and subtract a three-digit number and ones mentally with no boundaries crossed. • Add and subtract a three-digit number and tens mentally with no boundaries crossed. • Add and subtract a three-digit number and hundreds mentally. • Add and subtract a three-digit number and ones mentally, crossing a tens boundary. • Add two numbers with three digits using formal written methods of columnar addition with no exchange from ones into tens. • Add two numbers with three digits using formal written methods of columnar addition with exchange from ones into tens.		• Use partitioning or known facts to derive doubles of all multiples of 50 to 500. • Use known facts to multiply a multiple of 10 by a single digit number. • Use partitioning to calculate a two-digit number multiplied by a single digit number using grid method. **Measures, Money** • Recognise that pence is a fraction of a whole pound. • Recognise that when writing amounts of money, either £ or p are used but never together. • Recognise that ten 10p coins equal £1. • Solve a one-step problem that involves adding two amounts of money. • Solve a one-step problem that involves subtracting an amount of money. **Statistics** • Use Venn diagrams with two non-intersecting sets to compare and sort objects, numbers and shapes including items that do not fit the criteria and placing these in the universal set (area outside the circles). • Use Venn diagrams with two intersecting sets to compare and sort objects, numbers		the symbols for pounds (£) and pence (p) and understand that the decimal point separates pounds/pence. • Recognise that each 10p coin is 1 10 of £1, hence 10p being written as £0.10 which is consistent with the columns in a place value chart. • Recognise that ten 10p coins equal £1 and that each coin is 1/10 of £1. • Solve a two-step problem that involves adding and then subtracting an amount of money. • Add and subtract amounts of money to give change, using both £ and p in practical contexts. • Solve problems involving money and measures and simple problems involving passage of time.	

	• Subtract numbers with and subtraction three digits using formal written methods of columnar subtraction with no exchange from tens into ones. • Subtract numbers with three digits using formal written methods of columnar subtraction with exchange from tens into ones. • Represent and solve a problem using concrete materials. • Represent and solve a problem using pictorial representations of the items in the context. • Represent and solve a problem using structured pictorial representations such as the bar model.		and shapes including items that do not fit the criteria and placing these in the universal set (area outside the circles). • Use two criteria Carroll diagrams to compare and sort objects, numbers and shapes (understanding that Carroll diagrams are labelled 'is' and 'is not'). • Interpret and present data using bar charts with a scale in fives or tens. • Select the most appropriate scale when representing data in a bar chart or pictogram. • Use and interpret information in scaled bar charts and pictograms and tables to solve two-step questions such as those involving addition of two or more categories to compare with another one, or those to identify a missing category number when given the other category totals and the overall amount.			

Year 3 Key Vocabulary

Place Value

number, base 10, grouping, more (than), less (than), fewer, greater, most, least, compare, order, units, ones, tens, hundreds, thousands, exchange, digit, place, place value, represents, partition, equal to, estimate, guess, roughly, about the same as, round, exact(ly), multiple

Addition and Subtraction

multiple of, sequence, continue, predict, rule, add, plus, sum, total, altogether, subtract, take (away), minus, more/fewer, difference between, efficient, place value, units/ones, tens, hundreds, exchange, estimate, round, inverse

Multiplication and Division

count (on, up, back, down), sequence, step, continue, predict, multiple, multiplication, multiply, lots of, product, repeated addition, array, … times as …, scale up, estimate, efficient, division, inverse, row, column, share equally, group in …, equal groups of, divide, divided by, divided into, left (over), remainder, partition

Shape

draw (accurately), describe, recognise, angle, property, 2-D, flat, curved, straight, corner, side, right angle, circle, semi-circle, triangle, square, rectangle, oblong, pentagon, hexagon, octagon, quadrilateral, horizontal , vertical , parallel, perpendicular, 3-D, 3 dimensional, polyhedron, cube, cuboid, pyramid, sphere, hemisphere, cone, cylinder, prism, face, curved, flat, surface, edge, vertex, vertices, right angle, greater than, less than, symmetrical, non-symmetrical, measure, compare, length, width, height, distance, perimeter, unit, quarter-turn, three-quarter turn, complete turn, measure, turn, sort, Venn Diagram, Carroll Diagram

Statistics

graph, tally, block graph, pictogram, bar chart, frequency table, axis/axes, label, title, popular, common, total, altogether, estimate, how many more/fewer, difference between

Measurement

measure, compare, length, width, height, distance, perimeter, unit, centimetre (cm), metre (m), kilometre (km), ruler, metre stick, tape measure,
weigh, weighs, balances, heavy/light, heavier/lighter, heaviest/lightest, mass, kilogram (kg), half-
kilogram, gram (g), balance, scales, volume, capacity, full, half full, empty, holds, contains, litre (l), half-litre, millilitre (ml), container, measuring scale, division, calibration

Time

analogue, digital, 12-hour, 24-hour, hour, minute, second, o'clock, half, quarter, past, to, a.m., p.m., morning, afternoon, evening, night, midnight, day, days of the week, month, months of the year, year, leap year, how long

Position and Direction

position, direction, movement, angle, turn, rotation, right-angle, half turn, quarter turn, three-quarter turn, clockwise, anticlockwise, straight line, grid, forwards, backwards, right, left

Money

money, coin, note, penny, pence, pound (£), price, cost, buy, bought, sell, sold, spend, spent, pay, change, dear, costs more, more/most expensive, cheap, costs less, cheaper, less/least expensive, total, amount, value, worth, ones, tenths, decimal, fraction, decimal point, decimal place, divide, dividing, value, digit, one or two-digit number, represents, place value, greater than, greatest, larger than, largest, least, fewest, compare, order

Fractions

part, equal parts, fraction, one whole, one half, two halves, one quarter, two quarters, three quarters, four quarters, one third, two thirds, three thirds, one tenth, numerator, denominator, unit fraction, non-unit fraction, equivalent, compare, order

Y 4	**Place Value, Including Decimals** • Count in multiples of 1000 from 0 or any multiple of 1000. • Count in multiples of 25 from 0 or any multiple of 25. • Count up and down in fractional hundredths (1 100) including where ones boundaries are crossed. • Count up and down in decimal hundredths (0.01) including where	**Multiplication and Division** • Recall and use multiplication and division facts for the 6 multiplication table. • Recall and use multiplication and division facts for the 11 multiplication table. • Use partitioning to double any number with up to four digits where the answer is less than 10 000.	**Place Value** • Count in multiples of 9 from 0 or any multiple of 9. • Count in multiples of 6 from 0 or any multiple of 6. • Count backwards through zero to include negative numbers. • Partition a four-digit number without the use of practical equipment into two groups in different ways.	**Multiplication and Division** • Identify factor pairs of a given number within the multiplication tables that they know. • Use appropriate factor pairs and commutativity in mental calculations. • Recall and use multiplication and division facts for the 9 multiplication table.	**Counting and Sequences** • Count in multiples of 6, 7, 9, 25 and 1000. **Written Division** • Use place value, known and derived facts to multiply and divide mentally, including: - multiplying by 0 and 1 - dividing by 1 - multiplying together three numbers. • Divide numbers up to 3 digits by a one-digit number using the formal	**Multiplication and Division** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). • Recognise and use factor pairs and commutativity

	tenths boundaries are crossed. • Read and write numbers to at least 10 000. • Read and write numbers with up to two decimal places. • Recognise the place value of each digit in a four-digit number. • Identify the value of each digit to two decimal places. • Partition a four-digit number (represented using place value counters) into thousands, hundreds, tens and ones in different ways. • Partition numbers with one decimal place (represented using straws or place value counters) into ones and tenths in different ways. • Identify and represent numbers up to 10 000 using models. • Correctly place multiples of 100 on a number line with multiples of 1000 marked but not labelled (with start and end labelled 0 and 10 000). • Identify and represent numbers with up to two decimal places using models such as straws,	• Use related facts to double a number of tenths. • Recognise that multiplying by 0 gives a product of 0. • Recognise that multiplying a number by 1 does not change the number. • Recognise the relationship between a known fact and a related calculation. • Recognise that dividing a number by 1 does not change the number. • Use knowledge of place value and multiplication facts to divide related greater numbers. • Use arrays to identify all the factor pairs of a given number. • Use partitioning to calculate a three-digit number multiplied by a single digit number using grid method. • Divide two-digit numbers (beyond the multiplication facts) by a single digit number using the chunking method where there is or is not a remainder.	• Partition numbers with one decimal place without the use of practical equipment into two groups in different ways. • Correctly place any number on a number line with multiples of 1000 marked but not labelled. • Correctly place multiples of one hundredth (0.01) on a number line with multiples of 0.1 marked but not labelled (with start and end labelled 0 and 1). • Order numbers up to 10 000 with different numbers of digits, saying which numbers are greater or less. • Identify the number one tenth (0.1) more and less than a given number with up to one decimal place. • Identify the multiples of 1000 immediately before and after a given four-digit number. • Round numbers with up to four-digits to the nearest thousand. • Extend number sequences by using the identified rule within children's number competence.	• Recall and use multiplication and division facts for the 7 multiplication table. • Use partitioning to double a number with ones and tenths. • Use partitioning to halve any four digit number where each digit is even. • Use partitioning to halve any four digit even number where some of the digits are odd. • Use partitioning to halve a number with ones and tenths where both digits are even. • Use partitioning to halve any number with ones and tenths where the tenths digit is even. • Represent multiplication of three numbers using arrays. • Use commutativity to reorder multiplication of three numbers to simplify the calculation.	written method of short division and interpret remainders appropriately for the context. • Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree Estimate division by rounding to the nearest multiple of 10 of the divisor and of accuracy. • Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, division (including interpreting remainders), integer scaling problems and harder correspondence problems such as n objects are connected to m objects. **Multiplication Facts 12X Table** • Recall multiplication and division facts for multiplication tables up to 12 × 12. **Fraction and Decimals (Measures)**	in mental calculations. • Use partitioning to double or halve any number, including decimals to one decimal place. • Use place value, known and derived facts to multiply and divide mentally, including: - multiplying by 0 and 1 - dividing by 1 - multiplying together three numbers. • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. • Divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. • Use estimation and inverse to check answers to

	• place value counters and arrow cards. • Correctly place multiples of one tenth (0.1) on a number line with multiples of 0.1 marked but not labelled (with start and end labelled 0 and 1). • Compare three or more numbers up to 10 000 when represented using models such as place value counters saying which numbers are greater or less and use and = correctly. • Compare two or more numbers with ones, tenths and hundredths using concrete materials such as straws, saying which has more and less and use and = correctly. • Order numbers with ones, tenths and hundredths using concrete materials such as straws, saying which numbers are greater or less. • Identify the number 1000 more and less than a given number with up to four-digits recognising which digits stay the same and which digits change.	• Multiply and divide amounts of money given in pence only. **Length including Perimeter** • Measure lengths (m/cm/mm) and use known measurements to make reasonable estimates including numbers to two decimal places. • Compare the length of different objects including numbers to two decimal places. • Add and subtract (including finding the difference) values of length including numbers to one decimal place (m/cm/mm). • Multiply and divide values of length (m/cm/mm). • Recognise where sides are the same length in rectangles, including squares and use this when measuring and calculating perimeter. • Calculate the perimeter of any rectilinear figure where all side lengths are given.	• Know that L represents 50 and C represents 100. • Represent numbers with only additive properties. • Know that I can only be used before V and X to represent 1 less than 5 (4) and 1 less than 10 (9). • Represent any number up to 50. • Know that X can only be used before L and C to represent 10 less than 50 (40) and 10 less than 100 (90). • Represent any number up to 100. • Compare and contrast Roman numeral system and modern day number system. **Fractions and Decimals** • Understand that a fraction is one whole number divided by another. • Where a fraction of an amount cannot be found by using known division facts, use pictorial representations to find non-unit fractions of a set of objects. • Count on or back in steps of any unit fraction	• Use inverse to check the answer to a calculation. **Shape** • Identify properties of 3-D shapes including: faces or surfaces – number of faces and/or surfaces, where any are congruent (identical), parallel and perpendicular edges – number of edges, parallel and perpendicular vertices – number of vertices axis of symmetry. • Name 3-D shapes including all prisms and pyramids according to their properties. • Complete a simple symmetric figure using a vertical or horizontal line of symmetry. • Identify acute and obtuse angles in any orientation. • Compare any two angles less than two right angles where one of the lines is horizontal or	• Order and compare numbers with the same number of decimal places up to two decimal places. • Round decimals (one decimal place) to the nearest whole number. • Find 0.1, 1, 10, 100 or 1000 more or less than a given number. • Recognise, find and write fractions of a discrete set of objects including those with a range of numerators and denominators. • Count on and back in steps of unit fractions. • Recognise and show, using diagrams, families of common equivalent fractions. • Recognise and write decimal equivalents of any number of tenths or hundredths. • Recognise and write decimal equivalents to , , 3/4. • Add and subtract fractions with the same denominator (using diagrams). • Solve problems involving increasingly harder fractions to calculate quantities, and fractions	calculations and determine, in the context of a problem, an appropriate degree Estimate division by rounding to the nearest multiple of 10 of the divisor and of accuracy. • Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, division (including interpreting remainders), integer scaling problems and harder correspondence problems such as n objects are connected to m objects. **Place Value** • Count in multiples of 6, 7, 9, 25 and 1000. • Count up and down in hundredths.

	• Identify the multiples of 10 and 100 immediately before and after a given four-digit number. • Round numbers with up to four-digits to the nearest hundred and ten. • Describe the effect of dividing a one or two-digit number by 10. • Write amounts of money using decimal notation. • Recognise that one hundred 1p coins equal £1 and that each coin is 1/100 of £1. • Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. • Understand the hundredths heading in place value columns represents a given number of fractional hundredths. **Addition and Subtraction (Problems and Inverse)** • Recognise and solve calculations that involve known or related facts. • Recognise that the numbers in calculations can be reordered to make calculating more	• Recognise where the sides are the same length in L and T shaped rectilinear figures and use this when measuring and calculating perimeter. • Calculate the length of missing sides using known dimensions. • Know that: 10mm = 1cm 100cm = 1m 1000m = 1km and vice versa. • Use the relationship between different units of length to identify the calculation necessary for conversion. **Statistics** • Use Venn diagrams with two intersecting sets to compare and sort objects, numbers and shapes including items that do not fit the criteria and placing these in the universal set (area outside the circles). • Interpret and present discrete data using bar charts and a scale appropriate to Year 4 counting and place value.	crossing ones boundaries. • Compare and order unit fractions and fractions with the same denominators (including on a number line). • Use pictorial representations to recognise where fractions are equivalent where one fraction is a unit fraction or where both fractions are non-unit fractions. • Recognise and write decimal equivalents for any number of hundredths less than 10/100. • Recognise that 10/100 is equivalent to 1/10 or 0.1. • Recognise that 20/100 is equivalent to 2/10 or 0.2 and so on. • Write any number of hundredths in fraction and decimal form. • Use concrete materials (such as money) or pictorial representations to show that 1/2 is the same as 50/100 which is 0.50 or 0.5, that 1/4 is the same as 25/100 which is 0.25 and that 3/4 is the same as 75/100 which is 0.75.	vertical, identifying which is greater and less. • Order more than two angles less than two right angles where one of the lines is horizontal or vertical. **Addition and Subtraction (Statistics)** • Place temperatures including negative numbers on a number line (this could be vertical). • Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently and use this strategy where appropriate. • Recognise calculations that require a mental compensation method and use this strategy where appropriate. • Recognise that, when calculating addition facts to 10,	to divide quantities, including non-unit fractions where the answer is a whole number. • Solve simple measure and money problems involving fractions and decimals to two decimal places. **Measures Volume/Capacity and Mass** • Estimate, measure, compare and calculate different measures, including money in pounds and pence. • Order temperatures including those below 0°C. • Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. • Convert between different units of measure. **Position and Area** • Describe positions on a 2-D grid as coordinates in the first quadrant. • Plot specified points and draw sides to complete a given polygon.	• Partition numbers in different ways. • Identify, represent and estimate numbers using different representations (including the number line). • Order and compare numbers beyond 1000. • Round any number to the nearest 10, 100 or 1000. • Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer. • Describe and extend number sequences involving counting on or back in different steps, including sequences with multiplication and division steps. • Read Roman numerals to 100 and know that over time, the numeral system changed to

	efficient and use this strategy where appropriate. • Recognise calculations that require counting on or back mentally and use this strategy where appropriate. • Recognise calculations that require mental partitioning and use this strategy where appropriate. • Recognise calculations that require counting on mentally to find the difference and use this strategy where appropriate. • Derive and use addition and subtraction facts for 1 and 10 using number lines, bar model and related facts. • Add and subtract a two-digit number to/from another two-digit number including crossing the hundreds boundary. • Add and subtract a three-digit number to/from a three-digit number where no boundaries are crossed. • Add and subtract a two-digit number to/from a three-digit number	• Choose the appropriate scale when representing data in a bar chart.	• Add and subtract fractions with the same denominator crossing a ones boundary by adding or subtracting the numerators. **Division** • Divide a two-digit number by a one-digit number using a partitioning strategy. • Divide three-digit numbers by a single digit number using the chunking method where there is no remainder. • Divide three-digit numbers by a single digit number using the chunking method, making the calculation more efficient by subtracting more than one multiple of 10 of the divisor. • Estimate division by rounding to the nearest multiple of 10 of the divisor and of accuracy using related facts. • Use inverse to check the answer to a calculation. **Position and Direction** • Know that the x axis is horizontal.	the ones total 9 and the tenths total 1. • Add and subtract a three-digit number to/from a three-digit number including crossing the hundreds boundary (This could be supported by jottings or a number line). • Add and subtract a number with one decimal place to/from another where the ones boundary is not crossed (This could be supported by jottings or a number line). • Add two numbers with one decimal place using formal written methods of columnar addition with exchange. • Subtract two numbers with one decimal place using formal written methods of columnar subtraction with exchange.	• Describe movements between positions as translations of a given unit to the left/right and up/down. • Find the area of rectilinear shapes by counting squares. **Time** • 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 and problems involving money and measures.	include the concept of zero and place value. • Solve number and practical problems that involve all of the above and with increasingly large positive numbers. **Statistics** • Use a variety of sorting diagrams to compare and classify numbers and geometric shapes based on their properties and sizes. • Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts, time graphs. • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

	including crossing the hundreds boundary. • Add and subtract a number with one decimal to/from a whole number. • Add more than two numbers with four digits using formal written methods of columnar addition with exchange. • Subtract two numbers with four digits using formal written methods of columnar subtraction with exchange where the greater number has 0 as a place holder. • Use rounding to estimate the answer to a calculation. • Add and subtract amounts of money including money notation where the pence is a multiple of 10p. **2D Shape** • Identify properties of 2-D shapes including: sides – number of sides, where any are equal, parallel and perpendicular vertices – number of vertices angles – right, acute, obtuse and where angles are equal		• Know that the y axis is vertical. • Know that vertical lines on a grid can be identified by the value on the x axis from which they originate. • Know that horizontal lines on a grid can be identified by the value on the y axis from which they originate. • Know that the first number in a coordinate pair refers to the x value and the second number refers to the y value and read and write them using correct notation e.g. (x , y). • Plot a given set of coordinate pairs. • Describe movement of a specified point as a translation of a given unit using left and right. • Describe movement of a specified point as a translation of a given unit using up and down. **Area** • Know area is a measure of surface within a given boundary. • Find the area of irregular shapes (including those	• Use inverse to check the answer to a calculation. • Use two criteria Carroll diagrams to compare and sort objects, numbers and shapes (understanding that Carroll diagrams are labelled 'is' and 'is not'). • Explain what a time graph is showing. • Present time graphs from given data using appropriate scales. • Answer questions using time graphs by reading from labelled values. • Answer questions using time graphs by reading from between labelled values.		**Addition and Subtraction** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). • Select a mental strategy appropriate for the numbers involved in the calculation. • Recall and use addition and subtraction facts for 100. • Recall and use +/- facts for multiples of 100 totalling 1000. • Derive and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place). • Add and subtract mentally combinations of two and three digit numbers and decimals Add and

	diagonals – number, if and how they intersect line symmetry. • Know and use the terms: scalene, isosceles, equilateral regular and irregular. • Name 2-D shapes including all triangles and quadrilaterals according to their properties. • Identify lines of symmetry in 2-D shapes presented in different orientations. • Continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines. • Identify acute and obtuse angles where one of the lines is vertical or horizontal. **Time** • Know that: 60 seconds = 1 minute 60 minutes = 1 hour 24 hours = 1 day 7 days = 1 week and vice versa. • Know that 24 hour clock times are written using four digits. • Recognise that times on a digital 24 hour clock with an hour value between 0 and 12 are before midday (morning)		with curved sides) by counting squares. • Find the area of rectangles presented on squared paper where the sides are horizontal and vertical by counting squares. • Use knowledge of arrays to find the area of rectangles by counting squares in groups. • Find the area of other rectilinear shapes presented on squared paper where the sides are horizontal and vertical by counting squares in groups. **Addition (Measures)** • Place temperatures including negative numbers on a number line (this could be vertical). • Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently and use this strategy where appropriate. • Recognise calculations that require a mental compensation method and use this strategy where appropriate.			subtract a number with one decimal to one decimal place. • Add and subtract numbers with up to 4 digits and decimals with one decimal place using the formal written methods of columnar addition and subtraction where appropriate. • Estimate; 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. • Solve addition and subtraction problems involving missing numbers. **Shape** • Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.

	and times between 12 and 24 are after midday (afternoon or night).		• Recognise that, when calculating addition facts to 10, the ones total 9 and the tenths total 1. • Add and subtract a three-digit number to/from a three-digit number including crossing the hundreds boundary (This could be supported by jottings or a number line). • Add and subtract a number with one decimal place to/from another where the ones boundary is not crossed (This could be supported by jottings or a number line). • Add two numbers with one decimal place using formal written methods of columnar addition with exchange. • Subtract two numbers with one decimal place using formal written methods of columnar subtraction with exchange. • Use inverse to check the answer to a calculation.			• Complete a simple symmetric figure with respect to a specific NB – the mirror line will dissect the figure line of symmetry. • Identify acute and obtuse angles and compare and order angles up to two right angles by size.
MASTERI	Pupils will have an opportunity to consolidate multiplication facts that have been the focus of learning in KS1 and Year 3, such as doubles and the 5 and 10 times tables. They will explore multiplicative contexts and apply these facts to them and explore relationships between factors and associated products when looking at larger numbers. The		Pupils will explore the core multiplication facts focusing on becoming secure with two facts per week, so that all are known and can be retrieved in a random order. As a class they will support one another to retrieve these facts and use a 'Going for Gold' approach, so that all facts are known as an oral response rather than having to be derived. They will continue to develop		Pupils will continue to retrieve known facts focussing on those that are less secure. They will continue to apply facts to multiplicative contexts and connect both multiplication and division equations to represent the maths story. In particular, they will connect missing factor equations to division. They will sort and classify products into multiples and not multiples of a given	

N G N U M B E R Y 4	use of gesture by the teacher and pupil will support with making connections. Pupils will: • consider 'many as 1' - seeing that a 'unit' can represent more than 1 • Sort and classify factors and products using multiplicative number sense • recap doubles • recap × 10 and × 5 (connect to halving and doubling) • explore square numbers • use the distributive property to explore the facts in the 11 and 12 times table • use the distributive property to explore the facts in the 9 times table • use the commutative property of multiplication to reorder factors to reduce the number of facts that need to be learnt and start to explore the core multiplication facts table (CMF).	multiplicative number sense looking at, for example, the magnitude and/or relationship of related products. Pupils will: • sort and classify factors and products using multiplicative number sense • practise retrieving multiplication facts using the oral pattern • know all the core multiplication facts and those related to the 11 and 12 times table • represent the structure of a maths story.	number knowing that for example 38 ÷ 4 will not result in a whole number quotient because 38 is not a multiple of 4. Pupils will: • practise retrieving multiplication facts using the oral pattern • sort and classify factors and products using multiplicative number sense • connect multiplicative contexts to writing and interpreting equations and connect multiplication equations, and multiplication equations with a missing factor, to division, knowing that the product in a multiplication equation is equivalent to the dividend in the corresponding division equation.

Year 4 Key Vocabulary

Place Value

units, ones, tens, hundreds, thousands, ten thousand, one-, two-, three- or four-digit number, numeral, place value, represents, exchange, greater than, greatest, more than, most, larger than, largest, least, fewest, smallest, one…ten…one hundred…one thousand more/less, compare, order, estimate, exact, exactly, approximate, approximately, round to the nearest ten/whole number, hundred, thousand, integer, most/least significant, Roman numerals, zero, stands for, integer, positive, negative, above/below zero, minus, next, consecutive, sequence, continue, predict, pattern, rule, relationship, increase, decrease, pattern, justify, tenths, hundredths, decimal, decimal fraction, decimal point, decimal place, numeral, odd, even

Addition and Subtraction

units, ones, tens, hundreds, thousands, one-, two-, three- or four-digit number, numeral, place value, represents, exchange, add, addition, more, plus, increase, sum, total, altogether, subtract, subtraction, take (away), minus, decrease, leave, how many are left/left over? difference between, equals, sign, is the same as, tens boundary, hundreds boundary, inverse

Geometry

line, curved, straight, side, vertex, sort, regular, irregular, 2-D, two-dimensional, circle, circular, semi-circle, triangle, triangular, equilateral triangle, isosceles triangle, square, rectangle, rectangular, oblong, pentagon, pentagonal, hexagon, hexagonal, heptagon, octagon, octagonal, polygon, quadrilateral, lines of symmetry, fold, mirror line, reflection, reflect, horizontal, vertical, angle, acute angle, degree, perpendicular, parallel, Venn diagram, Carroll diagram, classify, angle, right angle, acute, obtuse, degree

Measurement

measure, measurement, distance, size, compare, unit, standard unit, metric unit, measuring scale, division, guess, estimate, approximately, length, width, height, depth, breadth, edge, perimeter, rectilinear, rectangle, square, kilometre (km), metre (m), centimetre (cm), millimetre (mm), ruler, metre stick, tape measure, measuring scale, thermometer, temperature, degrees °, Celsius, mass, balances, weight, weighs, heavy/light, heavier/lighter, heaviest/lightest, kilogram (kg), half-kilogram, gram, scales, volume/capacity, full, half full, empty, holds, contains, litre (l), half-litre, millilitre (ml), container, measuring cylinder

Time

time, days of week: Monday, Tuesday…, months of the year: January, February…, seasons: spring, summer, autumn, winter, day, week, fortnight, month, year, leap year, decade, century, millennium, weekend, birthday, holiday, calendar, date, date of birth, morning, afternoon, evening, night, hour, minute

Statistics
count, tally, sort, survey, questionnaire, data, graph, block graph, pictogram, represent, group, set, list, chart, bar chart, tally chart, table, frequency table, time graph, line graph, label, title, axis, axes, scale, diagram, most popular, most common, least popular, least common, discrete data, continuous data

Multiplication and Division
lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product, repeated addition, array, row, column, double, halve, half, equal groups of, divide, division, divided by, divided into, remainder, factor, quotient, divisible by, inverse, partition, ones, tens, hundreds, thousands, place, place value, digit, dividend, divisor, share equally, equal groups of, estimate, pattern, pair, rule, relationship, partition, sequence, continue, predict, pattern, rule, relationship, increase, decrease,

Area
area, covers, surface, boundary, array, rows, column, equal squares, rectilinear

Position and Direction
position, over, under, underneath, above, below, to, bottom, side, on, in, outside, inside, around, in front of, behind, front, back, before, after, beside, next to, opposite, apart, between, middle, edge, centre, corner, direction, journey, route, map, plan, left, right, up, down, higher, lower, forwards, backwards, sideways, across, close, far, near, along, through, to, from, towards, away from, ascend, descend, grid, row, column, origin, coordinates, clockwise, anticlockwise, horizontal, vertical, diagonal, parallel, perpendicular, quadrant, movement, slide, roll, whole turn, half turn, quarter turn, rotate, straight line

Fractions
part, equal parts, fraction, one whole, half, quarter, eighth, third, sixth, fifth, tenth, twentieth, proportion, in every, for every, decimal, decimal fraction, decimal point, decimal place, units, ones, tenths, hundredths, numerator, denominator, equivalent, divided by, unit fractions, non-unit fractions, decimal, decimal fraction, decimal point, decimal place

Money
money, coin, penny, pence, pound (£)

Y 5	**Place Value (Decimals)** • Count forwards and backwards in steps of 10, 100 or 1000 for any given number up to 1 000 000. • Count forwards and backwards in steps of 10 000 without crossing 100 000 boundaries for any given number up to 1 000 000. • Count forwards and backwards in decimal steps where the step size is in multiples of tenths. • Count forwards and backwards in decimal	**Multiplication and Division** • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. • Establish whether a number up to 100 is prime. • Recall prime numbers up to 19. • Recognise that a square number is the product of two equal integers and can be written using ² notation.	**Place Value-Roman Numerals, Counting including Negative Numbers** • Round decimals with two decimal places to the nearest whole number. • Multiply/divide whole numbers and decimals by 100. • Multiply/divide whole numbers and decimals by 1000. • Explain the meaning of a negative number in a variety of real life contexts. • Count on and back with positive and negative	**Mental and Written Division** • Use knowledge of place value and multiplication facts to divide related decimal numbers where the dividend is/dividend and divisor are scaled down. • Divide a 4 digit number by a 1 digit number and interpret remainders appropriately for the context.	**Place Value <->** • Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000. • Count forwards and backwards in decimal steps. • Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. • Read, write, order and compare numbers with up to 3 decimal places.	**Written Calculations** **Measures (Mass, Volume and Capacity)** Use, read and write standard units of length and mass. Continue to order temperatures including those below 0°C. Convert between different units of metric measure. Understand and use approximate equivalences between metric units and

	steps where the step size is in multiples of hundredths less than a tenth. • Count forwards and backwards in decimal steps where the step size is in multiples of hundredths greater than a tenth. • Read, write, compare and order numbers to 1 000 000. • Read, write, order and compare numbers up to three decimal places where 0 is not used as a place holder. • Use a place value chart to support with identifying the value of each digit to three decimal places. • Identify, represent and estimate numbers on a number line from 0 to 1 000 000 where the number line has ten demarcations. • Find 0.01, 0.1, 1, 10, 100, 1000 more or less than a given number up to 1 000 000 without crossing boundaries. • Find 10 000 more or less than a given number up to 1 000 000 without crossing 100 000 boundaries.	• Recognise and use square numbers up to 12^2. • Use partitioning to double any decimal number to two decimal places. • Use partitioning to halve any decimal number to two decimal places. • Multiply a two-digit number by a one-digit number using a partitioning strategy. • Use knowledge of place value and multiplication facts to multiply multiples of 100 and 1000 by a one-digit number. • Use knowledge of place value and multiplication facts to decimals by a one-digit number. • Multiply a U.t number by a one-digit number using a partitioning strategy. • Use knowledge of place value and multiplication facts to divide related larger numbers. • Divide a three-digit number by a one-digit	whole numbers through zero. • Read Roman numerals using the symbols I, V, X, L, C, D, M in any order. **Addition and Subtraction including Problems** • Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently and use this strategy where appropriate. • Recognise calculations that require a mental compensation method and use this strategy where appropriate. • Add and subtract increasingly large numbers using appropriate mental strategies. • Add a number with up to two decimal places to another where the tenths or ones boundary is crossed. • Add and subtract decimals with two decimal places. **Mental and Written Multiplication**	**2D and 3D Shape including Sorting** • Use the properties of rectangles to deduce related facts and find missing angles at a vertex when diagonals have been drawn and one angle is given. • Use the properties of rectangles to deduce related facts and find missing angles where the diagonals bisect when one angle is given. • Identify cubes and cuboids from 2-D pictures of them. • Identify other 3-D shapes from 2-D pictures of them. • Identify a net of a cube from a range of nets. • Identify a net of other cuboids from a range of nets. **Calculating with Fractions** • Recognise a mixed number with a fractional part in halves, thirds or	• Identify the value of each digit to three decimal places. • Identify, represent and estimate numbers using the number line. • Find 0.01, 0.1, 1, 10, 100, 1000 and other powers of 10 more or less than a given number. • Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. • Round decimals with two decimal places to the nearest whole number and to one decimal place. • Multiply/divide whole numbers and decimals by 10, 100 and 1000. • Interpret negative numbers in context, count on and back with positive and negative whole numbers, including through zero. • Describe and extend number sequences including those with multiplication/division steps and where the step size is a decimal. • Read Roman numerals to 1000 (M); recognise years written as such.	common imperial units such as inches, pounds and pints. Measure/calculate the perimeter of composite rectilinear shapes. Use all four operations to solve problems involving measure using decimal notation, including scaling. **Area and Volume of Shapes** Calculate and compare the area of rectangle, use standard units square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. Estimate (and calculate) volume ((e.g., using 1 cm3 blocks to build cuboids (including cubes)) and capacity (e.g. using water). Understand the difference between liquid volume and solid volume.

	• Find 100 000 more or less than a given number up to 1 000 000. • Round any number up to 100 000 to the nearest 10, 100 or 1000. • Round any number up to 1 000 000 to the nearest 10, 100 or 1000. • Round any number up to 100 000 to the nearest 10 000. • Multiply/divide whole numbers and decimals by 10. • Describe and extend number sequences where the step size is in multiples of tenths. • Describe and extend number sequences where the step size is in multiples of hundredths less than a tenth. • Describe and extend number sequences where the step size is in multiples of hundredths greater than a tenth. **Written Addition and Subtraction including Problems** • Recognise and solve calculations that involve known or related facts. • Recognise that the numbers in addition	number using a partitioning strategy. • Multiply a 4 digit by a 1 digit number using a formal written method. • Multiply a 2 digit by a 2 digit number using a formal written method. • Divide a 4 digit number by a 1 digit number. **Fractions** • Read and write decimal numbers as fractions. • Count on or back in mixed number steps. • Compare and order two fractions where the denominator of one fraction is a multiple of the denominator of the other fraction. • Identify, name and write equivalent fractions of a given fraction by using multiplication and division facts. • Recognise and use thousandths. • Relate thousandths to tenths and hundredths. **Area** • Estimate the area of irregular shapes using a square centimetre overlay.	• Identify multiples of 2, 3, 4, 5, 6, 9, 10, 20, 25, 50 and 100 using rules of divisibility. • Use and derive multiplication and division facts to identify factors within known tables. • Use a list strategy to identify common factors of two numbers within known tables. • Use known facts to derive factors of multiples of 10 and 100. • Multiply a 3 digit by a 2 digit number using a formal written method. **Measures (Capacity)** • Use knowledge of points of reference to estimate the capacity of different containers. **Geometry (Reflection and Translation)** • Identify, describe and represent the position of a shape following a reflection in a horizontal or vertical mirror line when the shape has all, some or no sides parallel or perpendicular to the mirror line and is not touching the mirror line.	quarters and convert it to an improper fraction and vice-versa. • Add fractions with denominators that are multiples of the same number where the answer is less than 1. • Subtract fractions with denominators that are multiples of the same number. • Use concrete materials or pictorial representations to demonstrate conversion from an improper fraction to a mixed number. • Use multiples of the denominator to identify how many whole ones can be made from the improper fraction and how many fractional parts remain. **Measure (Area and Volume)** • Compare rectangles by area. • Use knowledge of points of reference to estimate the	• Solve number and practical problems that involve all of the above. **Fractions <->** • Recognise mixed numbers and improper fractions and convert from one form to the other. • Count on and back in mixed number steps. • Compare and order fractions whose denominators are all multiples of the same number (including on a number line). • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. • Add and subtract fractions with denominators that are the same and that are multiples of the same number (using diagrams). • Write statements > 1 as a mixed number.	

	calculations can be reordered to make calculating more efficient. • Recognise calculations that require mental partitioning. • Recognise calculations that require counting on mentally to find the difference. • Recall and use addition and subtraction facts for 1 (with decimal numbers to one decimal place). • Recall and use addition and subtraction facts for 10 (with decimal numbers to one decimal place). • Use practical apparatus and known facts to create addition and subtraction facts for 1 with decimal numbers to two decimal places. • Create generalisations based on addition and subtraction facts for 1. • Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places). • Add and subtract a four-digit number to/from another four-digit number where no boundaries are crossed.	• Use knowledge of arrays to understand why the area of rectangles can be calculated using length multiplied by width. • Calculate the area of rectangles. • Use the properties of rectangles to deduce related facts and find missing lengths. **Statistics and Measures (Time)** • Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks. • Convert between different units of time where long multiplication is required.	• Describe the translation for a shape that moves in one to two directions (left/right and up/down). **Geometry (Angles)** • Estimate acute, obtuse and reflex angles using knowledge of a right angle and fractions of a right angle. • Measure reflex angles to the nearest degree by either using a 360° protractor or by calculating the reflex angle by measuring the complementary acute or obtuse angle and subtracting this angle from 360°. • Draw reflex angles to the nearest degree by either using a 360° protractor or by drawing the complementary acute or obtuse angle that gives a sum of 360°. • Use information given to calculate missing angles at a point on a straight line and half a turn (total 180°). • Use information given to calculate missing angles at a point and one whole turn (total 360°).	volume of liquid in a container. • Use cm3 blocks to build cuboids of a given volume. • Calculate the volume of different cuboids when dimensions are given. • Understand that the units of liquid volume ml and units of solid volume cm3 have the same value. • Convert km (up to 3 decimal places) to m and vice versa. • Convert kg (up to 3 decimal places) to g and vice versa. • Convert l (up to 3 decimal places) to ml and vice versa. **Statistics and Measures** • Calculate the mode and range of a set of values. • Calculate the median for a number of values.	• Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. • Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal. • Solve problems involving fractions and decimals to three places. • Solve problems which require knowing percentage and decimal equivalents of 1/5, $2/5$, $4/5$ and fractions with a denominator of a multiple of 10 or 25. **Measures (Time)** • Solve problems involving converting between units of time. **Statistics** • Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes).	

	• Add and subtract a number with two decimal places to/from a whole number. • Add and subtract a number with two decimal places to/from another where the tenths boundary is not crossed. • Add whole numbers with more than 4 digits including combinations of numbers with different amounts of digits. • Subtract whole numbers with more than 4 digits including pairs of numbers with different amounts of digits. • Round whole numbers to an appropriate power of 10. **Geometry (Angles)** • Identify reflex angles as those greater than 180° where two lines meet. • Compare all types of angles including reflex angles. • Know that angles are measured in degrees. • Measure and draw acute and obtuse angles to the nearest degree. **Geometry and Measures (Perimeter)**		• Identify angles that are other multiples of 90°.		• Complete, read and interpret information in tables and timetables. • Solve comparison, sum and difference problems using information presented in all types of graph including a line graph. • Calculate and interpret the mode, median and range. **Geometry** • Describe positions on the first quadrant of a coordinate grid. • Plot specified points and complete shapes. • 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. • Use the properties of rectangles to deduce related facts and find missing lengths and angles. • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. • Know angles are measured in degrees:	

	• Use the properties of rectangles to deduce related facts and find missing lengths. • Identify the perimeter of composite rectilinear shapes through accurate measuring to the nearest mm. • Identify the length of missing sides of composite rectilinear shapes. • Calculate the perimeter of a composite rectilinear shape where the lengths of some sides are not given. **Statistics** • Interpret and complete information in a variety of sorting diagrams. • Identify the properties used to sort a set of numbers or shapes in a completed diagram. • Read and interpret information in a range of tables with different contexts. • Complete tables by identifying missing information. • Read and interpret information in a range of timetables with different contexts.				estimate and compare acute, obtuse and reflex angles. • Draw given angles, and measure them in degrees (°). • Identify: - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and half a turn (total 180°) - other multiples of 90°. **Addition and Subtraction** • Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). • Select a mental strategy appropriate for the numbers involved in the calculation. • Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place). • Add and subtract numbers mentally with increasingly large numbers and decimals to two decimal places.	

	• Answer questions which ask 'How many/much more…?' or 'How many fewer/much less…?' when comparing two categories in a data set. • Answer questions which ask 'How many in total…?' for different data readings.				• Add and subtract whole numbers with more than 4 digits and decimals with two decimal places, including using formal written methods (columnar addition and subtraction). • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. **Multiplication and Division** • Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. • Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers. • Establish whether a number up to 100 is prime and recall prime numbers up to 19. • Recognise and use square and cube numbers, and notation. • Use partitioning to double or halve any number, including decimals to two decimal places.	

					• Multiply and divide numbers mentally drawing upon known facts. • Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. • Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. • Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. • Use estimation/inverse to check answers to calculations; determine, in the context of a problem, an appropriate degree of accuracy. • 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.	
MASTERING NUMBER Y5	Pupils will have an opportunity to consolidate multiplication facts that have been the focus of learning in previous years and use the core multiplication facts table (CMF) to practise those that are less secure. They will explore multiplicative contexts and scale known facts by 10 and 100 and explore relationships between factors and associated products when looking at larger numbers. The use of representations, such as arrays, and the use of gesture by the teacher and pupil will support pupils to see structure and to make connections. Pupils will: • continue to practise retrieving multiplication facts using their oral pattern and focus on those that are less secure • explore contexts where 1 is a factor • recap scaling by 10 and then apply to scaling by 100 (creating multiples of 10 and 100 - not looking at decimals) • applying scaling in the contexts of ratios • make links between multiplication and division expressions as well asequations in different multiplicative contexts • write an improper fraction and as a whole number such as 36 6 = 6.The dividend is a multiple of the divisor. • find a unit fraction of a number to connect the known division fact to scaling down. The dividend is a multiple of the divisor. • continue to explore multiplicative contexts.		Pupils will continue to retrieve the core multiplication facts in a random order. They will practise these facts when using the written algorithms for multiplication and division. They will continue to develop multiplicative number sense and connect contexts to equations. When looking at division there will be a focus on remainders and knowledge of when a number is 1 more, 2 more, etc., than a given multiple. They will continue to sort improper fractions into those that will give a whole number quotient and those that do not, and use this knowledge to write improper fractions as mixed numbers and vice versa. Pupils will: • continue to practise retrieving multiplication facts using their oral pattern so that they know all the core multiplication facts • connect a multiplication and addition equation to a division equation with a remainder • develop multiplicative number sense through using knowledge of divisibility laws • sort and classify improper fractions into those that give a whole number quotient and those that do not.		Pupils will focus on multiplicative composition of number. When a context gives rise to more than two factors, they will use the associative and the commutative property of multiplication to make calculations more accessible. When working with larger numbers they will be encouraged to consider how they see the maths as you shift from one expression to another, for example 3 × 72 to 3 × 73, and 3 × 72 to 4 × 72, being able to explain what each number represents. They will also make connections when number facts have been scaled by 10 (or 100). For example, 5 × 6 = 30; 30 ÷ 5 = 6 and 50 × 6 = 300; 300 ÷ 5 = 6. They will also apply known facts to when a factor is 1 10 the size making connections to decimal fractions where the denominator of a unit fraction is a multiple of 10. Pupils will: • continue to connect multiplicative contexts to writing and interpreting equations • apply scaling by, 10, 100, 1 10 or 1 100 to known facts • look at the multiplicative composition of number • explore expressions with three factors and use brackets, considering how the associative property and commutative property can be used to make calculations easier to solve.	

Year 5 Key Vocabulary

Place Value

units, ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions, power of 10, tenths, hundredths, decimal, round, exchange, digit, equal to, estimate, guess, roughly, about the same as, ascending, descending, ≈ (is approximately equal to), consecutive, predict, formula, thousandths, scaling up, scaling down, positive, negative, above/below zero, minus, difference, Roman, numeral, every other, how many times?, multiple of, digit, next, consecutive, sequence, continue, predict, decimal, pattern, pair, rule, relationship, divisible (by), divisibility, factor, square number, one squared, two squared… (1^2, 2^2…)

Addition and Subtraction
add, addition, more, plus, increase, sum, total, altogether, score, double, near double, how many more to make…?, subtract, subtraction, take (away), minus, decrease, leave, how many are left/left over?, difference between, half, halve, how many more/fewer is… than…?, how much more/less is…?, equals, sign, is the same as, tens boundary, units boundary, hundredths boundary, hundreds boundary, tenths boundary, inverse, hundreds

Geometry
full turn, half turn, quarter turn, rotate, rotation, angle, greater/smaller angle than, right angle, acute, obtuse, reflex, degree, straight line, angle measurer, compasses, protractor, 2-D, two-dimensional, triangle, triangular, equilateral triangle, isosceles triangle, scalene triangle, square, rectangle, rectangular, oblong, pentagon, pentagonal, hexagon, hexagonal, heptagon, octagon, octagonal, polygon, quadrilateral, flat, line, curved, straight, round, solid, point, pointed, side, angle, right-angled, congruent, regular, irregular, concave, convex, line of symmetry, symmetrical, property, face, vertex, vertices, diagonal, internal angles, parallel, perpendicular, properties, 3-D, faces, edges, cube, cuboid, prism, pyramid

Position and Direction
position, corner, direction, grid, row, column, origin, coordinates, horizontal, vertical, diagonal, parallel, perpendicular, x-axis, y-axis, quadrant, movement,

Multiplication and Division
lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product, times as (big, long, wide… and so on), repeated addition, array, row, column, double, halve, share between, share into groups of , group in pairs, threes… tens, equal groups of, divide, division, divided by, divided into, remainder, factor, divisible by, inverse, prime, square number, chunking, repeated subtraction, cube number, common factor, rate

Fractions
fraction, proper/improper fraction, mixed number, unit fraction, non-unit fraction, numerator, denominator, equivalent, reduced to, cancel, one whole, half, quarter, eighth, third, sixth, ninth, twelfth, fifth, tenth, twentieth, hundredth, proportion, in every, for every, to every, decimal, decimal fraction, decimal point, decimal place, equal parts, simplify, thousandths, percentage, per cent, %

Area
area, covers, surface, square centimetre (cm2), square metre (m2), square millimetre (mm2)

Time
time, days of the week: Monday, Tuesday…months of the year: January, February…seasons: spring, summer, autumn, week, fortnight, month, year, leap year, century, millennium, weekend, calendar, date, date of birth, am, pm, noon, midnight, before, after, next, last, now, soon, early, late, earliest, latest, quick, quicker, quickest, quickly, fast, faster, fastest, slow, slower, slowest, slowly, old, older, oldest, new, newer, newest, takes longer, takes less time, how long ago? how long will it be to…?, how long will it take to…?, timetable, arrive, depart, hour, minute, second, o'clock, half past, quarter to, quarter past, clock, watch, hands, digital/analogue clock/watch, timer, 24-hour clock, 12-hour clock, how often?, am, pm, noon

Measurement
measure, measurement, size, compare, unit, standard unit, metric unit, imperial unit, measuring scale, division, estimate, length, width, height, depth, breadth, distance apart/between, distance to… from…, edge, perimeter, kilometre (km), metre (m), centimetre (cm), millimetre (mm), mile, ruler, metre stick, tape measure, mass, kilogram (kg), gram (g), balance, scales, capacity, full, half full, empty, holds, contains, litre (l), millilitre (ml), pint, gallon, container, measuring cylinder, volume, cube, cubic centimetre (cm^3), cubic metre (m^3), yard, feet, foot, inches, inch, pound (lb), ounce (oz)

Statistics
count, data, graph, line graph, represent, group, set, list, table, frequency table, label, title, axis, axes, diagram, most popular, most common, least popular, least common, maximum/minimum value, increase, mode, median, range

Y 6	**Place Value including Decimals**	**Place Value including Decimals**	**Algebra**	**Mental and Written Multiplication**	**Statistics (Pie Charts)**	•

	• Identify the value of each digit to three decimal places. • Find 0.001 more/less than a given number without crossing any boundaries. • Find 1, 10, 100 or 1000 more/less than a given number up to 10 000 000 including crossing any boundaries. • Find 10 000 or 100 000 more/less than a given number up to 10 000 000 including crossing any boundaries. • Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. **Mental and Written Addition and Subtraction** • Add and subtract whole numbers up to 10 000 000. **Fractions Fractions/Percentages/Ratio and Proportion** • Add and subtract two fractions by converting both into fractions with a common denominator. • Find 1% of an amount by dividing by 100 or by	• Round any number up to 10 000 000 to the nearest 10, 100, 1000, 10 000, 100 000 or 1 000 000. • Count forwards or backwards in steps of powers of 10 from any number up to 10 000 000. • Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. • Order and compare negative numbers including in a variety of contexts. • Round decimals with three decimal places to the nearest whole number or tenth. • Add a positive number to a negative number, including crossing zero. • Subtract a positive number from a positive number crossing zero. • Subtract a positive number from a negative number. **Mental and Written Addition and Subtraction** Recognise and solve calculations that involve known or related facts.	• Express a given one-step word problem algebraically. • Express a given two-step word problem algebraically. • Find pairs of missing numbers to complete an equation where a total is given. • Find pairs of missing numbers to complete an equation with addition and/or subtraction. • Describe the relationship between the pairs of numbers used to solve the equation. • Find pairs of missing numbers to complete an equation with multiplication and/or division. • Describe the relationship between the pairs of numbers used to solve the equation. • Describe simple rules using words. • Write simple rules using symbols. • Understand and use algebraic convention for multiplication. • Understand and use algebraic convention for combining like terms.	• Use partitioning to double any number, including decimals to three decimal places. • Use partitioning to halve any number, including decimals to three decimal places where all the digits are even. • Use knowledge of place value and multiplication facts to divide related decimal numbers where the divisor is scaled down. • Multiply a number with one or two decimal place by a single digit. **2D and 3D Shape** • Complete a given shape by drawing one angle of a given size and one side of a given length. • Identify nets that create 3-D shapes and ones that do not. • Draw the net of a cube in different ways. • Draw the net of a variety of cuboids in	• Interpret pie charts by directly comparing the size of the segments. • Identify halves, quarters and thirds of a circle including in different orientations. • Relate the proportion (including percentage) of the circle to the proportion of the total where the segments are halves, thirds and quarters. **Measurement- Mean** • Calculate the mean as an average and understand that it is the mathematical representation of the typical value of a series of numbers.	

	dividing 10% of the amount by 10. • Find 5% of an amount by dividing 10% by 2.	• Recognise that the numbers in calculations can be reordered to make calculating more efficient and use this strategy where appropriate. • Recognise calculations that require mental partitioning and use this strategy where appropriate. • Round numbers to an appropriate power of 10. **Mental and Written Multiplication** • Identify common multiples of three or more numbers. • Divide a 3-digit number by a 2-digit number. • Use written division methods where the answer has one decimal place. **Fractions Fractions/Percentages/ Ratio and Proportion** • Compare two fractions or mixed numbers by using common multiples to express the fractions in the same denomination.	• Substitute values for variables (letters) in simple formulae. • Find the value of a variable (letter) from a given formula. • Generate a linear number sequence when given the rule for each term. • Complete the sequence using the rule: multiply the term by 3 and subtract 1. • Describe the relationship between the values in a linear sequence and their position (term) where the relationship is a single step. • Describe the relationship between the values in a linear sequence and their position (term) where the relationship is two steps. • Use the relationship between the values in a linear sequence and their position to identify the value of a given term or the term from a given value. • Describe the rule for a linear sequence algebraically. • Use concrete materials or pictorial representations to	which the end faces are square. • Draw the net of a variety of cuboids in which no faces are square. **Fractions Fractions/Percentages/Ratio and Proportion** • Know that: 3/5 is 0.6 or 60% 1/3 is approximately 0.33 or 33.3% 2/3 is approximately 0.66 or 66.6% 1/8 is 0.125 or 12.5%. • Calculate decimal fraction equivalents by scaling up from the decimal equivalent of the unit fraction. • Use concrete materials or pictorial representations to show scaling up or down to find missing values. • Use concrete materials or pictorial representations to share a single digit to a given ratio. • Use concrete materials or pictorial		

		Geometry (Angles) • Recognise that vertically opposite angles are equal. • Calculate missing angles where two straight lines meet and one angle is given. **2D Shape Coordinates, Translation and Reflection** • Describe positions in the first two quadrants of a coordinate grid (the x-axis only is extended into negative numbers). • Translate simple shapes in two directions on a coordinate grid within the first quadrant identifying the coordinates of the vertices after translation. • Translate simple shapes in two directions on a coordinate grid where one axis is crossed identifying the coordinates of the vertices after translation. • Translate simple shapes in two directions on a	systematically find all the combinations of two variables. **Time** • Convert between different units of time where long division is required. **Geometry (Angles)**. • Find missing angles in triangles where two angles are given. • Find missing angles in isosceles triangles where one angle is given.	representations to share amounts to a given ratio where the total is a multiple of the sum of the parts (a ratio of 2:3 has 5 parts). • Identify the multiplicative relationship between corresponding sides of similar shapes. • Use the multiplicative relationship for corresponding sides to calculate the lengths of missing sides. **Measurements- Length including Perimeter and Mass** • Understand and use approximate equivalences between miles and kilometres when given the conversion graph or conversion fact that 5 miles ≈ 8km. • Find the perimeter of different rectangles that have the same area.		

		coordinate grid where both axes are crossed identifying the coordinates of the vertices after translation.		**Measurement- Area and Volume** • Derive the area of a parallelogram by relating it to a rectangle with the same width and vertical height. • Calculate the area of parallelograms. • Know the formulae for the area of: rectangles (including squares) is length x width and how this relates to the area of parallelograms as base x height. • Know the formulae for the area of: rectangles (including squares) is length x width and how this relates to the area of triangles as ½ (base x height). • Know the formulae for the volume of cuboids (including cubes) is length x width x depth. • Calculate and compare the volumes of different cuboids (including cubes) where the		

				dimensions of the cuboids are in the same unit.		

Year 6 Key Vocabulary

Place Value

million, decimal, digit, significant digit, tenth, hundredth, thousandth, positive, negative, integer, decimal, ascending, descending, sequence, power of 10, generate, describe, linear, non-linear, alternating, power, decimal fraction, decimal point

Addition and Subtraction

add, addition, plus, sum, altogether, how many more to make…? subtract, subtraction, minus, take away, difference between, how many more/less than… ?, inverse, brackets, decrease, fewer, calculation, problem, mental, strategy, jotting, method, operation, sign, multi-step, equation, accuracy, powers, indices

Multiplication and Division

lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product, once, twice, three times.. ten times as (big, long, wide etc.) inverse, sharing, equally, divide, division, divisor, quotient, factor, divisible, inverse, remainder, rounding, short division, long division, factor, prime number, scale factor,
variables, enumerate, combinations, systematic, organised, pattern, generalise

Fractions

fraction, proper fraction, improper fraction, unit fraction, non-unit fraction, mixed number, numerator, denominator, equivalent, reduced to, cancel, one whole, half, quarter, eighth, hundredth, thousandth, proportion, ratio, decimal, vulgar fraction, decimal fraction, decimal point, percentage, percent, %, common, simplify, denomination

Statistics

interpret, construct, graph, pie chart, radius, section, line graph, axis, axes, label, coordinate, x-axis, y-axis, quadrant, term, algebra, data, intervals, mean, average, median, pictogram, Venn diagram, Carroll diagram, information, continuous, discrete, sum, difference, more than,fewer than, compare, comparison, table, analyse

Time

hour, minute, second, o'clock, half past, quarter to, quarter past, digital, analogue, clock, watch, timer, 24-hour clock, 12-hour clock, Greenwich Mean Time, British Summer Time, International Date Line

Measurement

length, width, height, depth, breadth, perimeter, circumference, kilometre (km), metre (m), centimetre (cm), millimetre (mm), mile, mass, gram (g), kilogram (kg), tonne, convert, conversion, area, volume, surface, square centimetre (cm2), square metre (m2), space, cubes, cubic centimetre (cm3), cubic metre (m3), cubic millimetre (mm3), cubic kilometre (km3), formula, formulae, base, vertical, negative, positive, temperature

Algebra

sequence, step size, integer, decimal, power of 10, generate, describe, extend, linear, nonlinear, constant, inconsistent, alternating, formula, formulae, term, algebra

Ratio and Proportion

similar, scale factor, once, twice, three times…ten times as (big, long, wide etc.), convert, conversion, standard units, mass, volume, decimal notation, percentage, ratio, proportion,

Geometry

3-D, three- dimensional, cube, cuboid, pyramid, sphere, hemi-sphere, spherical, cone, cylinder, cylindrical, prism, tetrahedron, polyhedron, octahedron, dodecahedron 2-D, two-dimensional, circle, circular, semi-circle, triangle, triangular, equilateral triangle, isosceles triangle, scalene triangle, square, rhombus, rectangle, rectangular, oblong, pentagon, pentagonal, hexagon, hexagonal, heptagon, octagon, octagonal, polygon, quadrilateral, kite, parallelogram, trapezium face, side, edge, vertex, vertices, end, net, angle, angled, congruent, intersecting, intersection, plane, base, square-based, regular, irregular, concave, convex, parallel, perpendicular, angle, turn, whole turn, acute, obtuse, reflex, degree, point, straight line, protractor, parallel, perpendicular, vertical, opposite, mirror line, line of symmetry, radius, diameter, circumference, angle, turn, point, straight line, degree

Position and Direction

plane, reflect, reflection, image, translate, translation, transformation, coordinate, orientation, quadrant, axis, axes