

Christ Church CE Primary School



Maths

Progression of Skills

At Christ Church CE Primary we use Maths No Problem as a basis for our teaching of Mathematics. Our aims are to fulfil the requirements of the National Curriculum for Maths; our pupils are taught to become fluent in the fundamentals of mathematics, reason mathematically and become problem solvers. Pupils are also provided with a teaching of maths for mastery in order to further develop their fluency and they are given the opportunity to think deeply about the maths concepts they are immersed in.

Intent

At Christ Church, we aim to teach pupils to master many mathematical concepts. Pupils are moved through the topics broadly at the same pace to build self-confidence and resilience in all pupils. Our aim is for our pupils' knowledge to be built upon throughout the year groups; expanding on concepts that are introduced in EYFS, immersing them in a depth of mathematical vocabulary and ideas so that they can begin to master mathematical concepts. We give the pupils plenty of opportunities to build upon their problem-solving skills and teach them to be able to articulate their mathematical thinking using the correct terminology. We want our children to enjoy learning about maths and instinctively make connections between the maths they are learning in the classroom and real-life mathematical experiences that they encounter.

There are a number of key documents that support our planning and delivery of Maths:

- National Curriculum mapping document
- Vocabulary Progression document
- MNP scheme of work
- Intent, Implementation and Impact document



Nursery Children will:

Learning Objectives	Progression of knowledge/skills	Linked Texts	Vocabulary
Recognising, naming, and matching colours Development Matters - Notices patterns and arranges things in patterns (Pre 3) (Numerical Patterns) - Talk about and identify the patterns around them e.g., stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc. (Nursery) (Numerical Pattern)	- Children should be taught to recognise and name colours in a variety of contexts using prime colour knowledge - Children should be taught to recognise and name colours in a variety of contexts using secondary colours.		red, blue, green, yellow, pink, purple, black, white, grey, orange, brown, notice, match, same.
Sorting by various attributes Development Matters - Notices patterns and arranges things in patterns (Pre 3) (Numerical Patterns) - Talk about and identify the patterns around them e.g., stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc. (Nursery) (Numerical Pattern)	- Children should be given the opportunity to sort the objects by their own rules and should be taught how to communicate that rule (e.g. I have sorted the buttons by colour). This should be explored, in many different contexts such as shapes, different coloured and size objects, different animals, objects found in the environment, appearance of various objects and people. - Children should be taught to verbalise what is the same and what is different between sets of objects (e.g. these buttons are pink and these buttons are blue/ they are boys and they are girls). Links can be made to Understanding of the World.		sort, notice, groups, sets, same, different.
Continuing AB patterns Development Matters - Notices patterns and arranges things in patterns (Pre 3) (Numerical Patterns) - Extend and create ABAB patterns – sticks, leaf, stick, leaf. (Nursery) (Numerical Pattern) - Notice and correct an error in a repeating pattern (Nursery) (Numerical Pattern).	- Children should initially be taught to continue an AB pattern. Children need the opportunity to see a pattern, talk about what they can see and to continue a pattern. At first they may do this one object at a time e.g red cube, blue cube, red cube... verbalising the pattern helps. - Children may then be asked to say what they would add next to continue it.		pattern, continue, notice, next

	Using the language of size Development Matters - Is able to compare sizes, weights etc. using gesture and language such as 'bigger/little/smaller', 'high/tall/heavy'. (Pre 3) (Numerical Patterns) - Make comparisons between objects relating to size, length, weight and capacity. (Nursery) (Numerical Pattern)	At this stage only focus on large/big and small/little. Use real life examples of objects that are large and small in relation to each other. Begin with objects that are vastly larger/smaller than each other and move onto objects with a smaller difference in size. Include reasoning e.g., 'do you think this large tree would fit into my small box?'		Notice, big/large, small/little, The __ is smaller/larger than the __.
	One-one principles, stable-order principle, cardinal principle, abstraction principle, order-irrelevance principle Development Matters - Counts in everyday contexts, sometimes skipping numbers. (Pre 3) (Number) - Says one number for each item in order: 1, 2, 3, 4, 5 (Nursery) (Number)	1. The one-one principle – this involves children assigning one number name to each object that is being counted. Children need to ensure that they count each object that is being counted only once ensuring that they have counted every object. Children will sometimes count objects more than once or miss an object out that needs to be counted. Encourage children to line up objects and touch each one as they count saying one number name for each object. This will also avoid children counting more quickly than they touch the objects that again shows that they have not grasped one-one correspondence. When counting pictures children should use the strategy of drawing a line through each picture as they count it. Children should be taught number names through number songs and general counting. 2. The stable-order principle – children understand when counting that the numbers must be said in a certain order. Children need to know all the number names for the amount in the group they are counting. Teachers can therefore encourage children to count aloud to larger numbers without expecting them to count that number of objects immediately. The order of numbers should be reinforced through number songs and daily counting activities. 3. The cardinal principle – Children understand that the number name assigned to the final object in a group is the total number of objects in that group. To grasp this principle, children need to understand the one-one and stable-order principles. From a larger group, children select a given number and count them out. When asked 'how many?' children should be able to recall the final number they said. Children who have not grasped this principle will recount the whole group again. 4. The abstraction principle – this involves children understanding that anything can be counted including things that cannot be touched including sounds and movements. When starting to count many children rely on touching the objects to count accurately. Teachers can encourage abstraction daily by counting claps or clicks.		Count How many Total Altogether Cardinal number The cardinal number is

		5. The order-irrelevance principle – this involves children understanding that the order we count a group of objects is irrelevant. There will still be the same number. Encourage children to count objects left to right, right to left, top to bottom, bottom to top. Once children have counted a group, move the objects, and ask children how many there are. If they count them all again, they have not fully grasped this principle.		
	Comparing amount of objects	Children need progressive experiences where they can compare collections and begin to talk about which group has more things. When talking about amounts of objects use the language of more and fewer. Children should initially be taught perceptual comparing (comparing without counting). Initially the groups need to be very obviously different (e.g 2 objects and 7 objects). Move on to collection of small numbers of objects that are similar (e.g 1 and 3 objects) and then move onto different items but same quantity (using language of same or equal).		Compare Most Fewest Same/equal There are more __than __. There are fewer __than __
	Development Matters			
	- Compares amounts saying 'lots', 'more', or 'same' (Pre 3) (Number) - Makes comparisons between objects relating to size, length, weight and capacity. (Nursery) (Numerical Pattern)			
	Exploring and understanding number 1	- When teaching numbers to 6 consider the counting principles at all times. Wherever possible, ensure that children are counting real-life objects. They could start by counting objects that are identical before moving on to counting objects that have slight difference e.g. different colours, different sizes, but make sure that the objects are of the same type. - Encourage children to put objects in a line when counting so they have a clear start and end point. The five frame can be used to support children in lining up objects to count. It will also support children to subitise numbers within 5. Numerals may be introduced to children but they are not expected to write them at this stage. They could use drawings to represent their numbers. <u>Number 1</u> Throughout the 2 weeks the following should be explored: - Number blocks episode 1 - Counting to 1 - Finding 1 object 1 being the first number, its position on a number line, ordinal numbers - Numicon 1 - Dice 1 - Subitising 1 - Representing 1 on a 5 frame • - A circle – 1 sides shape (including in the environment) 1 action e.g. 1 hop, 1 jump, 1 clap		Number Numeral Subitise Represent How many Count Cardinal First/second/third etc
	Development Matters			
	- Takes part in finger rhymes with numbers. (Pre 3) (Number) - Displays first recognition of up to 3 objects, without counting (subitising) (Nursery) (Number)			

		- The numeral and formation of 1 - Number 1 in the environment - Representing 1 using marks, pictures and finger - Matching numeral to quantity		
	Exploring and understanding number 2	<u>Number 2</u>		Number
	Development Matters	As above but also focus on what 2 is made of (1 is a part of me, 1 is a part of me and the whole of me is 2. Note: do not introduce children to addition or number sentences until Reception. Also look at separating the group of objects but knowing that the total is the same.		Numeral
	- Displays counting-like-behaviour, such as making sounds, pointing or saying some numbers in sequence (Pre 3) (Number) - Displays first recognition of up to 3 objects, without counting (subitising) (Nursery) (Number)			Subitise
	Exploring and understanding number 3	<u>Number 3</u>		Represent
	Development Matters	As above (2 is a part of me, 1 is a part of me and the whole of me is 3).		How many
	- Reacts to change of amount in a group of up to 3 items. (Pre 3) (Number) - Displays first recognition of up to 3 objects, without counting (subitising) (Nursery) (Number)	Exploring different varieties and orientations of triangles.		Count
	Exploring and understanding number 4	<u>Number 4</u>		Cardinal
	Development Matters	Throughout the 2 weeks the following should be explored:		First/second/third etc
	- Counts in everyday contexts, sometimes skipping is 4; 3 is a part of me, 1 is a part of me and the whole of me is 4) numbers: 1, 2, 3 – 5. (Pre 3) (Number) - Knows that the last number reached when counting a small set of objects tells you how many there are in total (Nursery) (Number) - Experimenting with their own symbols and marks as well as numerals (Nursery) (Number)	- Number blocks episode 4 - Counting to 4 - Finding 4 objects - its position on a number line, ordinal numbers - Numicon 4 - Dice 4 - Subitising 4 - Representing 4 on a 5 frame - Squares and rectangles, including in the environment 4 actions e.g. 4 hops, 4 jumps, 4 claps - The numeral and formation of 4 - Number 4 in the environment - Representing 4 using marks, pictures and finger - Matching numeral to quantity		
	Exploring and understanding number 5	<u>Number 5</u>		Number
	Development Matters	As above (3 is a part of me, 2 is a part of me; 4 is a part of me, 1 is a		Numeral
	Counts in everyday contexts,			

	sometimes skipping numbers: 1, 2, 3 – 5. (Pre 3) (Number) • Takes part in finger rhymes with numbers. (Pre 3) (Number) • Says one number for each item in order: 1, 2, 3, 4, 5 (Nursery) (Number) • Can show 'finger numbers' up to 5. (Nursery) (Number) • Can link numerals and amounts e.g., showing the right number of objects to match the numeral up to 5 (Nursery) (Number) • Can solve real world mathematical problems with numbers up to 5. (Nursery) (Number)	part of me)		Subitise Represent How many Count Cardinal First/second/third etc
	Exploring and understanding number 5 Development Matters • Counts in everyday contexts, sometimes skipping numbers: 1, 2, 3 – 5. (Pre 3) (Number) • Takes part in finger rhymes with numbers. (Pre 3) (Number) • Says one number for each item in order: 1, 2, 3, 4, 5 (Nursery) (Number) • Can show 'finger numbers' up to 5. (Nursery) (Number) • Can link numerals and amounts e.g., showing the right number of objects to match the numeral up to 5 (Nursery) (Number) • Can solve real world mathematical problems with numbers up to 5. (Nursery) (Number)	Number 5 • As above (3 is a part of me, 2 is a part of me; 4 is a part of me, 1 is a part of me)		Number Numeral Subitise Represent How many Count Cardinal First/second/third etc
	Exploring and understanding number 6 Development Matters • Counts in everyday contexts, sometimes skipping numbers; 1,2,3 - 5 (Pre 3). • Can show 'finger numbers' up to 5 (Nursery). • Can link numerals and amounts e.g., showing the right number of objects to match the numeral up to 5 (Nursery) (Number) • Experimenting with their own symbols	Number 6 • As above (3 is a part of me, 3 is a part of me; 4 is a part of me 2, 2 is a part of me, 5 is a part of me 1 is a part of me). Explain 6 as being 5 and 1 more.		Number Numeral Subitise Represent How many Count Cardinal First/second/third etc

	and marks as well as numerals (Nursery) (Number) Can compare quantities using language such as, 'more than', 'fewer than'. (Nursery) (Number)			
	Focus on properties of shapes Development Matters - Builds with a range of resources (Pre 3) (Numerical Patterns) - Completes inset puzzles (Pre 3) (Numerical Patterns) - Combines objects like stacking blocks and cups (Pre 3) (Numerical Patterns) - Can talk about and explore 2D and 3D shapes using informal and mathematical language, 'sides', 'corners', 'straight', 'flat', 'round'. (Nursery) (Numerical Patterns) - Select shapes appropriately: flat, surfaces, for building as triangular prism for a roof etc. (Nursery) (Numerical Pattern) - Combine shapes to make new ones – an arch, a bigger triangle etc. (Nursery) (Numerical Pattern)	The primary focus in relation shapes should be on the properties of shapes. For example, children should be encouraged to notice and describe shapes in the environment and talk about the properties using words such as 'straight/flat/round/curved'. When teaching the names of shapes, wherever possible, real-life shapes in the environment should be used. Note that only flat surfaces should be referred to as faces. Include sorting of natural shapes; the children may sort stones, for example, into sets that have straight edges, sets that have curved edges etc.		2D shapes: Sides Vertices/corners (to help understanding) You cannot pick up a 2D shape, it is flat. 3D shapes: Edges Vertices Face (of 2D shapes)
	Ordering events of the day Development Matters - Notices patterns and arranges things in patterns (Pre 3) (Numerical Patterns) - Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' (Nursery) (Numerical Pattern)	Children should explore talking about and ordering the events of their day such as waking up, coming to school, dinner, bedtime. Encourage the vocabulary of first, next, then and possibly last.		First Next Then Last
	Length and Height Development Matters - In the first stage children should be able to apply the attribute of long, short, tall etc to various examples (e.g., a bus is long; an adult is tall; grass is short). Adults should be continuously modelling this language. - The children should then move on to finding objects that are longer/shorter than a given item. They should be	- In the first stage children should be able to apply the attribute of long, short, tall etc to various examples (e.g., a bus is long; an adult is tall; grass is short). Adults should be continuously modelling this language. - The children should then move on to finding objects that are longer/shorter than a given item. They should be encouraged to utilise strategies such as direct comparison (e.g., placing objects side by side to determine which is longer). - When comparing length and height verbally children should be encouraged to use language such as 'taller than/longer than/shorter		Long Short Tall Longer than Shorter than Taller than The __ is longer/shorter/taller than the __

	encouraged to utilise strategies such as direct comparison (e.g., placing objects side by side to determine which is longer). When comparing length and height verbally children should be encouraged to use language such as 'taller than/longer than/shorter than'. When comparing lengths directly children need to ensure that they align the starting points and compare like-for-like (e.g., straightening skipping ropes before comparing lengths).	than'. When comparing lengths directly children need to ensure that they align the starting points and compare like-for-like (e.g., straightening skipping ropes before comparing lengths).		
	Light and heavy and comparison Development Matters - Is able Compares sizes, weights etc. using gesture and language such as 'bigger/little/smaller', 'high/tall/heavy'. (Pre 3) (Numerical Patterns) - Makes comparisons between objects relating to size, length, weight and capacity. (Nursery) (Numerical Pattern)	Initially begin with identifying objects the children think may be heavy – use lots of adult modelled language. Move on to comparing weights. One way to identify this is to identify that a heavier object creates a greater downwards pull. Ask children to hold a carrier bag; encourage them to notice if it feels as though their hand is being pulled down when something heavy is put in it. Place a carrier bag in each hand and identify which one is heavier by discussing which arm feels more pulled down. Explore the link to the balance scales to show that the heavier side goes down. Exemplify this with a see-saw 'What can we do to make this side of the see-saw go down?'. Ensure that children are presented with large but light objects and small but heavy objects to prevent the generalisation that big means heavy and small means light		Heavy Heavier than Light Lighter than Balanced The __ is heavier than the __. The __ is lighter than the __.
	Full, half full, empty and comparison Development Matters - Is able to compare sizes, weights etc. (Pre 3) - Can make comparisons between objects (Nursery)	- Children should be given daily opportunity for sand and water play which can provide lots of opportunities to explore capacity. Children should be able to identify when a container is empty and full and extend to half full. Initially children should be exposed to the comparison of full, half full, empty using the same container. However, this can be moved on by talking about different size containers (e.g., I wonder whose pot will hold the most water?) - When comparing capacities directly children can pour from one container to another to find which holds more or less water.		Full Half full Empty Most Least The container is full/half full/empty. The __ holds the most/least water
	Using language related to position and direction Development Matters Climbs and squeezes himself/herself into different types of spaces (Pre 3) (Numerical Patterns)	- Children need opportunities to be exposed to and to use the language of position and direction; Position: 'in', 'on', 'under'. Direction: 'up', 'down', 'across' - Children also need opportunities to use terms which are relative: 'in front of', 'behind', 'on top of'.		In On Under Up Down

	Understands position through words alone. Is able to discuss a route, using words like 'in front of' and 'behind' (Nursery).	Create as many opportunities as possible to explore this language such as hunting for hidden objects with some prompts (e.g. look behind the shed).		Across In front of Behind On top of. The __ is (position) the
Assessment Check point Can a child: - Subitise different arrangements of up to 3? - Recite numbers past 5? - Say 1 number for each item by tagging or moving one away each time it is counter? - Count a small set of objects and know that the last number reached is how many there are in total? As well as solving real mathematical problems? - Show 'finger numbers' up to 5? - Link numerals to amounts up to 5. - Use this stem sentence when comparing quantities? __ is more than __, __ is fewer than - Compares size, length, weight, and capacity by using these stem sentences? __ is heavier than __, __ is lighter than __ etc. - Extend on a repeated pattern before and after the pattern? Do they copy the repeated pattern at least 3 times without any mistakes? - Create their own ABAB pattern? Do they describe the pattern as an AB (or red, blue for example) pattern.				

Reception Children will:

Learning Objectives	Progression of knowledge/skills	Linked Texts	Vocabulary
Subitising: recognising small quantities without needing to count them all Development Matters Subitise (Reception) (Number)	Perceptually subitise within 3. - Identify sub-groups in larger arrangements. - Create their own patterns for numbers within 4. - Practise using their fingers to represent quantities which they can subitise. - Experience subitising in a range of contexts, including temporal patterns made by sounds. Common errors in this area may include: - If arrangements are unfamiliar children will count to get the total.		Subitising Subitising – don't count just say the amount
Subitising: recognising quantities without needing to count them all Development Matters Subitise (Reception) (Number)	- Continue from first half-term to gain confidence in subitising and using their special awareness to explain how they know it is 2, 3 and 4. Subitise within 5, perceptually (known patterns e.g., pattern on a die) and conceptually (arrangements not known but can still see it is 4 as there are 3 in a line and 1 on the top) depending on the arrangements. Common errors in this area may include: - If arrangements are unfamiliar children will count to get the total		I know it is 2/3/4 because it has __ going across/in a line/vertical and __ on the top/bottom
Subitising: recognising quantities without needing to count them all Development Matters To subitise up to 5 (ELG) (Number)	Increase confidence in subitising by continuing to explore patterns within 5, including structured and random arrangements. - Explore a range of patterns made by some numbers greater than 5, including structured patterns in which 5 is a clear part. - Experience patterns which show a small group and '1 more'. - Continue to match arrangements to finger patterns e.g., two finger at the top and one finger in the middle. Common errors in this area may include: - If arrangements are unfamiliar children will count to get the total. - Children scrunch up their hand as they struggle to match arrangements to their finer patterns.		Patterns The pattern is __ on a die The pattern is __ in a portrait line __ on the left.

	Subitising: recognising larger amounts by doubling quantities without needing to count them all Development Matters - Subitise up to 5 (ELG) - Is able to explore and represent patterns within number up to 10. Including evens, odds, double facts and how quantities can be distributed equally (ELG) (Numerical Patterns)	- Explore symmetrical patterns, in which each side is a familiar pattern, linking this to 'doubles'. Common errors in this area may include: - If arrangements are unfamiliar children will count to get the total. - Struggle to see the symmetry as child show another (for example) dot underneath		It is __. Because double __ is __ Symmetrical patterns are same on each side
	Subitise different arrangements, structured and unstructured patterns, including '1 more' or 'doubles' Development Matters - Is able able to compare numbers (Reception) (Number) - Is able to subitise up to 5 (ELG) (Number) - Is able to explore and represent patterns within number up to 10. Including evens, odds, double facts and how quantities can be distributed equally (ELG) (Numerical Patterns)	- Continue to practise increasingly familiar subitising arrangements, including those which expose '1 more' or 'doubles' patterns. - Use subitising skills to enable them to identify when patterns show the same number but in a different arrangement, or when patterns are similar but have a different number. - Subitise structured and unstructured patterns, including those which show numbers within 10, in relation to 5 and 10. - Be encouraged to identify when it is appropriate to count and when groups can be subitised. Common errors in this area may include: - If larger quantities are arranged in groups children may think they need to count it all instead of noticing/identifying the smaller arrangements within it.		One more than __ is __. It is the same/different because ... (special arrangement language as seen above) I need to count/subitise this because there is too many/ there is no arrangement pattern/the arrangement pattern it is...
	Assessment Check point Can a child: - Can a child subitise (instantly recognise) a group that contains up to four, then five, in a range of ways, e.g., fingers, dice, random arrangement? - Can a child subitise small groups within a larger number? - Can a child explain how they come to the total without counting? e.g., 3 going across and one underneath - Select a numeral to represent a quantity? - Correct a puppet who thinks the amount has changed when their collection has been rearranged?			
	Cardinality, ordinality and counting			
	Learning Objectives	Progression of knowledge/skills	Linked Texts	Vocabulary
	Counting: tagging each object with one number order Development Matters Count objects, actions and sounds (Reception) (Number)	- Relate the counting sequence to cardinality, seeing that the last number spoken gives the number in the entire set. - Have a wide range of opportunities to develop their knowledge of the		Altogether Total Cardinality Counting onwards/up Counting backwards/down 1 object/sound/picture needs one number

		counting sequence, including through rhyme and song. • Have a wide range of opportunities to develop 1:1 correspondence, including by coordinating movement and counting. • Have opportunities to develop an understanding that anything can be counted, including actions and sounds. • Explore a range of strategies which support accurate counting. • Missing out an object or counting an object twice. • When asked how many cars are in a group of four, simply recounting '1, 2, 3, 4,' without concluding that 'there are four cars in the group' • When asked to 'get five oranges' from a tray, a child just grabs some, or carries on counting past five. • When objects in a group are rearrange. Common errors in this area may include: • Missing out an object or counting an object twice. • Thinking the last number name is only for the last object they touched not the total • When asked how many cars are in a group of four, simply recounting '1, 2, 3, 4,' without concluding that 'there are four cars in the group'.		name
	Counting: knowing the last number counted gives the total so far; numeral meanings Development Matters	• Continue to develop their counting skills.		Altogether Total Amount Represent Symbol

	- Count objects, actions, and sounds (Reception) (Number) - Link number symbol (numeral) with its cardinal number value (Reception) (Number)	- Explore the cardinality of 5, linking this to dice patterns and 5 fingers on 1 hand. - Begin to count beyond 5. - Begin to recognise numerals, relating these to quantities they can subitise and count. - Children need to have the opportunity to match a number symbol with a number of things. Look for opportunities to have a range of number symbols available, e.g., wooden numerals, calculators, handwritten (include different examples of a number, e.g., 4, 4, 4).		
	Counting: saying number words in sequence. Development Matters	- Children need to know number names, initially to five, then ten, and extending to larger numbers, including crossing boundaries 19/20 and 29/30. - Continue to develop verbal counting to 20 and beyond. - Continue to develop object counting skills, using a range of strategies to develop accuracy. - Continue to link counting to cardinality, including using their fingers to represent quantities between 5 and 10. - Order numbers, linking cardinal and ordinal representations of number. - Counting back is a useful skill, but young children will find this harder because of the demand it places on the working memory.		Number names to 50 (encourage children to keep on counting the furthest they can go) Number pattern Next Number names
	- Count objects, actions and sounds (Reception) (Number) - Link number symbol (numeral) with its cardinal number value (Reception) (Number) - Count beyond 10 (Reception) (Number) - Verbally counts beyond 20, recognising the pattern of the counting system (ELG) (Numerical Patterns)			

	Counting: consolidating children's cardinality Development Matters	- Count objects, actions and sounds (Reception) (Number) - Count beyond ten. - Verbally counts beyond 20, recognising the pattern of the counting system (ELG) (Numerical Patterns) Link number symbol (numeral) with its cardinal number value (Reception) (Number)	- Continue to consolidate their understanding of cardinality, working with larger numbers within 10. - Become more familiar with the counting pattern beyond 20. - Children need the opportunity to count out or 'give' a number of things from a larger group, not just to count the number that are there. This is to support them in focusing on the 'stopping number' which gives the cardinal value.		
	Conservation: knowing that the number does not change if things are rearranged (as long as none have been added or taken away) Counting: continue to count past 20 and beyond; counting at different starting points Development Matters	- Count objects, actions and sounds (Reception) (Number) - Count beyond ten. - Verbally counts beyond 20, recognising the pattern of the counting system (ELG) (Numerical Patterns) - Link number symbol (numeral) with its cardinal number value (Reception) (Number)	- Children need the opportunity to recognise amounts that have been rearranged and to generalise that, if nothing has been added or taken away, then the amount is the same. - Continue to develop verbal counting to 20 and beyond, including counting from different starting numbers - Continue to develop confidence and accuracy in both verbal and object counting. Common errors in this area may include: - Difficulties in counting back. - Confusion over the 'teen' numbers – they are hard to learn.		If I start at __, __ goes next (children continue to count beyond the highest number)
	Assessment Checkpoint Can a child: <i>Consistently recite the correct sequence of numbers and cross decade boundaries?</i> <i>Can a child subitise (instantly recognise) a group that contains up to four, then five, in a range of ways, e.g., fingers, dice, random arrangement?</i> - Select a numeral to represent a quantity in a range of fonts, e.g., 4 ,4 ,4? <i>Collect nine from a large pile, e.g., nine pencils from a pot?</i> - Correct a puppet who thinks the amount has changed when their collection has been rearranged?				

Composition				
Learning Objectives		Progression of knowledge/skills	Linked Texts	Vocabulary
Part-whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total)		- Children need opportunities to see small numbers within a larger collection. ‘Number talks’ allow children to discuss what they see. For instance, with giant ladybirds: ‘There are 5 spots altogether. I can see 4 and 1, I can see 3 and 2, and I can see 1 and 1 and 1 and 1 and 1.’ - Encourage exploration of all the ways that ‘five’ can be and look. Children are encouraged to look closely at numbers to see what else they can see. This reinforces the concept of conservation.		Composition Composition is when two numbers make one whole number
Development matters				
- Explore the composition of numbers to 10 (Reception) (Number) - Understand the ‘one more than/one less than’ relationship between consecutive numbers (Reception) (Number) - Compose and decompose so that children recognise a shape can have other shapes within it, just as numbers can (Reception) (Numerical Patterns)				
Inverse operations		- Children need opportunities to partition a number of things into two groups, and to recognise that those groups can be recombined to make the same total. - Encourage children to say the whole number that the ‘parts’ make altogether.		Whole-part – when two numbers make one whole number
Development Matters				
- Explore the composition of numbers to 10 (Reception) (Number) - Compose and decompose so that children recognise a shape can have other shapes within it, just as numbers can (Reception) (Numerical Patterns)				
A number can be partitioned into different pairs of numbers		Children need opportunities to explore a range of ways to partition a whole number. The emphasis here is on identifying the pairs of numbers that make a total. Children can do this in two ways – physically separating a group or constructing a group from two kinds of things.		Partition – taking the whole number apart
Development Matters				
Explore the composition of numbers to 10 (Reception) (Number)				

	Automatically recalls number bonds for numbers 0-5 and some to 10 (Reception) (Number)			
	A number can be partitioned into more than two numbers Development Matters Explore the composition of numbers to 10 (Reception) (Number) - Has a deep understanding of number to 10, including the composition of each number (ELG) (Number) - Automatically recalls number bonds for numbers 0-5 and some to 10 (Reception) (Number) - Automatically recalls (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 (ELG) (Number)	Children need opportunities to explore the different ways that numbers can be partitioned, i.e., into more than two groups. Situations to promote this include increasing the number of pots to put a given amount into, e.g., planting ten seeds into three or more pots.		Composition – when two (or more) numbers makes one whole number
	Number bonds: knowing which pairs make a given number Development Matters - Explore the composition of numbers to 10 (Reception) (Number) - Has a deep understanding of number to 10, including the composition of each number (ELG) (Number) - Automatically recalls number bonds for numbers 0-5 and some to 10 (Reception) (Number) - Automatically recalls (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction	Children need opportunities to say how many are hidden in a known number of things. For example: ‘Five toys go into a tent, then two come out. How many are left in the tent?’ The child should respond that there are still three toys in the tent.		__ number is left because there was __ in total and you only have __ so __ + __ = __ (children to say and write the missing number sentence)

	facts) and some number bonds to 10, including double facts (ELG) (Number)			
Assessment Checkpoint Can a child: • Can a child subitise small groups within a larger number? • Make a reasonable guess at a hidden number? <i>In context, state two groups that make a larger amount. For example, how might the (six) bean bags land? You could have three with stripes up and three with spots up.</i>				
Comparison				
	Learning Objectives	Progression of knowledge/skills	Linked Texts	Vocabulary
	More than/less than Development Matters • Compare numbers (Reception) (Number) • Understand the 'one more than/one less than' relationship between consecutive numbers (Reception) (Number) • Can compare length, weight, and capacity (Reception) (Numerical Patterns)	• Children need progressive experiences where they can compare collections and begin to talk about which group has more things. Initially, the groups need to be very obviously different, with one group having a widely different number of things. Collections should also offer challenges, such as including more small things and fewer large things, to draw attention to the numerosity of the comparison, i.e., the number of things, not the size of them. • Understand that sets can be compared according to a range of attributes, including by their numerosity. • Use the language of comparison, including 'more than' and 'fewer than'.		Estimate Predict Most Fewest __ is more than __ __ is fewer than __
	Identifying groups with the same number of things Development Matters • Compare numbers (Reception) (Number)	• Children need the opportunity to see that groups could consist of equal numbers of things. Children can check that groups are equal, by matching objects on a one-to-one basis.		Compare Matching Equal amount Equals the same

	Understand the 'one more than/one less than' relationship between consecutive numbers (Reception) (Number)	- Compare sets using a variety of strategies, including 'just by looking', by subitising and by matching. - Compare sets by matching, seeing that when every object in a set can be matched to one in the other set, they contain the same number and are equal amounts		
	Comparing numbers and reasoning Development Matters	- Continue to compare sets using the language of comparison and play games which involve comparing sets. - Continue to compare sets by matching, identifying when sets are equal. - Explore ways of making unequal sets equal. - Children need opportunities to apply their understanding by comparing actual numbers and explaining which is more. For example, a child is shown two boxes and told one has 5 sweets in and the other has 3 sweets in. Which box would they pick to keep and why? Look for the reasoning in the response they give, i.e. 'I would pick the 5 boxes because 5 is more than 3 and I want more.' - If shown two numerals, children can say which is larger by counting or matching one-to-one.		Equals the same Equal amount
	Knowing the ordinal number system; the 'one more than/one less than' relationship between counting numbers Development Matters	- Compare numbers, reasoning about which is more, using both an understanding of the 'how-many-ness' of a number, and its position in the number system. - Order sets of objects, linking this to their understanding of the ordinal number system. - Children need opportunities to see and begin to generalise the 'one more than/one less than' relationship between sequential numbers. They can apply this understanding by recognising when the quantity does not match the		
	- Compare numbers (Reception) (Number) - Understand the 'one more than/one less than' relationship between consecutive numbers			

	(Reception) (Number)	number, i.e., if a pack is labelled as 5 but contains only 4, the children can identify that this is not right. Support children in recognising that if they add one, they will get the next number, or if one is taken away, they will have the previous number. For example: 'There are 4 frogs on the log, 1 frog jumps off. How many will be left? How do you know.'		
	Ordinal number system	- Order sets of objects, linking this to their understanding of the ordinal number system. - Children can compare numbers that are far apart, near to and next to each other. For example, 8 is a lot bigger than 2 but 3 is only a little bit bigger than 2.		1 st , 2 nd , 3 rd , 4 th . 5 th ... Last places, first place etc...time, the smaller the number in seconds/minutes the faster/slower __ was
	Development Matters			
	- Compare numbers (Reception) (Number) - Understand the 'one more than/one less than' relationship between consecutive numbers (Reception) (Number) - Can compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity (ELG) (Numerical Patterns)			
	Assessment Checkpoint Can a child: - State which group of objects has more? Can they do this with a large or small visual difference? - Compare two numbers and say which is the larger? - Predict how many there will be if you add or take away one? - Can the child use stem sentences (see in ambitious vocabulary) to compare weight, length, capacity?			

Pattern			
Learning Objectives	Progression of knowledge/skills	Linked Texts	Vocabulary
Continuing an AB pattern Development Matters • Continue, copy and create repeating patterns (Reception) (Number)	• Children need the opportunity to see a pattern, to talk about what they can see, and to continue a pattern. At first, they will do this one item at a time, e.g., red cube, blue cube, red cube...verbalising the pattern helps. Children may then be asked to say what they would add next to continue it.		Repeating Pattern
Copying an AB pattern Development Matters • Continue, copy and create repeating patterns (Reception) (Number)	• Copying a pattern can be difficult for children if they must keep comparing item by item. AB patterns are easiest – when presented to children, these should contain several repeats, to ensure that the pattern unit is evident. Discuss the nature of the pattern: how has the pattern been made? Patterns can have a range of features such as varying objects, size, or orientation.		2 step pattern is when two things are repeated
Make their own AB pattern Development Matters • Continue, copy and create repeating patterns (Reception) (Number)	• As children progress from continuing to copying patterns, they can be challenged to change the sample pattern or to create their own. A range of objects can be provided for children to decide what the features of the pattern are going to be. Children may find it easier to make a pattern with the same colours as the original but with different objects. For example, copying a red– blue cube pattern with red and blue dinosaurs is easier than with yellow and green cubes. Patterns can involve different aspects and modes such as sounds, words or actions: some children will need suggestions, while others will think of their own.		Repeating pattern
Assessment Checkpoint: Can the child: • Can a child continue, copy, and create an AB pattern? • Identify the pattern rule (unit of repeat) in an AB pattern?			

Place Value

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes
	- Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 100 in numerals. - Count in multiples of twos, fives and tens	- Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward - Recognise the place value of each digit in a two-digit number (tens, ones)	- Count from 0 in multiples of 4, 8, 50 and 100. Calculate 10 or 100 more or less than a given number. - Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).	- Count in multiples of 6, 7, 9, 25 and 1000. 1. Read, write, arrange & compare numbers to at least 1 000 000 and determine the value of each digit. - Recognise the place value of each digit in a 4-digit number (thousands, hundreds, tens, and ones). 2. - Calculate 1000 more or less than a given number. Round any number to the nearest 10, 100 or 1000.	- Count in multiples of 6, 7, 9, 25 and 1000. 1. Read, write, arrange & compare numbers to at least 1 000 000 and determine the value of each digit. - Count in increasing and decreasing steps of powers of 10 for any given number up to 1 000 000. Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.	- Read, write, arrange and compare numbers up to 10 000 000 and determine the value of each digit. - Round any whole number to a required degree of accuracy.

	Key vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
	sort represent multiples sequence partitioning ones tens	multiples place value digit base 10 one – digit two – digit columns estimate compare 10 more 10 less	digit three-digit place value partition ones tens hundreds column	digit three-digit place value partition ones tens hundreds thousands column calculate round round up round down nearest approximate (close) value	increasing decreasing power of 10 digit column round round up round down nearest approximate value	arrange digit ones tens hundreds thousands ten thousands hundred thousands millions column

Number

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes
- Given a number, identify one more and one less. - Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. - Read and write numbers from 1 to 20 in numerals and words. - Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.	- Identify, represent and estimate numbers using different representations, including the number line. - Compare and order numbers from 0 up to 100; use and = signs. - Read and write numbers to at least 100 in numerals and in words. - Solve problems with addition and subtraction: using concrete objects and pictorial representations; applying their increasing knowledge of mental and written methods.	- Compare and arrange numbers up to 1000. - Read and write numbers up to 1000 in numerals and in words - Identify, represent and estimate numbers using different representation. - Solve number problems and practical problems involving these ideas.	- Arrange and compare numbers beyond 1000. - Count in descending order through zero to include negative numbers. - Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. - Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. - Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.	- Interpret negative integers in context, count in ascending and descending order with positive and negative whole numbers, including through zero. - Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). - Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	Use negative integers in context, and calculate intervals across zero. Solve number and practical problems that involve all of the above.

	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
	number line concrete objects pictorial representation equal to more than less than fewer most least	compare order symbol greater than less than equal to	estimate approximate value	compare arrange digit ones tens hundreds thousands column descending order positive number negative number	roman numerals numerical value equivalent to	positive integer negative integer interval

Addition and Subtraction

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes
- Add and subtract one-digit and two-digit numbers to 20, including zero. - Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = - 9$.	- Recall and use add and subtract facts to 20 fluently, and derive and use related facts up to 100. - Add and sub numbers using concrete objects, pictorial representations, and mentally, including: a 2-digit no and 1s or 10s; two 2-digit numbers; adding three 1-digit numbers. - Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.	- Add and subtract numbers mentally, including: a 3-digit no and 1s, 10s, 100s. - Add and sub numbers with up to 3 digits, using formal written methods of columnar add and sub. - Estimate the answer to a calculation and use inverse operations to check answers. - Solve problems, including missing no problems, using number facts, place value, and more complex add/sub.	- Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. - Estimate and use inverse operations to check answers to a calculation. - Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	- Use their knowledge of the priority of operations to carry out calculations involving the four operations. - Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
	add plus altogether total takeaway/minus number bonds part whole digit concrete objects quantity pictorial representation difference missing number problem number sentence	sign symbol number bond plus add equal part whole greater than less than equal to as many as more less subtract take away total tens ones operation addition commutative subtraction difference	place value tens ones hundreds more than less than column row pattern regrouping digit column method renaming base 10 box method equation missing number problems inverse operations	hundreds fifties commutative law multiples sum count back bar model	roman numerals numerical value equivalent to	positive integer negative integer interval

Multiplication and Division

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes
Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial reps and arrays with the support of the teacher.	- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. - Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ($\times$), division ($\div$) and equals (=) signs. 13. - Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. - Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication	- Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. - Write and calculation math statements for $\times$ and $\div$ using the tables they know, including 2-digit numbers times 1-digit numbers, using mental and formal written methods. - Divide numbers up to 3 digits by a 1-digit number using the formal written method of short division, without remainders. - Solve problems and missing number problems, involving $\times$ and $\div$, including integer scaling problems and correspondence problems in which n objects are connected to m	- Recall multiplication and division facts for multiplication tables up to 12×12. - Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. - Divide numbers up to 4 digits by a 1-digit number using the formal written method of short division, with and without remainders. - Solve problems involving $\times$ and $+$, including using the distributive law to multiply 2-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	- Identify multiples and factors, including calculating all factor pairs of a number, and common factors of two numbers. - Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19. - Multiply numbers up to 4 digits by a 1- or 2-digit number using a formal written method. Divide numbers up to 4 digits by a 1-digit number using the formal written method of short division, with and without remainders. Begin to use the formal method of long division to divide	- Identify common factors, common multiples and prime numbers. - Multiply and divide numbers up to 4 digits by a 2-digit whole number using the formal written methods and interpret remainders as whole number remainders, fractions, or by rounding. - Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places. 11. - Multiply one-digit numbers with up to two decimal places by whole numbers. Use written division methods in cases

		and division facts, including problems in contexts.	objects.		numbers up to 4 digits by a 2- digit whole number. • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	where the answer has up to two decimal places.
	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
	double half even odd equal groups doubling sharing grouping equally odd number even number	multiply repeated addition array times tables divide group share equally relationship	regrouping multiplication division bus stop method partition	product relationship inverse remainder dividend divisor quotient multiples grid method	multiples factors common factors prime numbers square number cube number long division	product estimating decompose common multiples lowest common multiple lowest common factor composite number

Fractions

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes
- Recognise, find and name a half as one of two equal parts of an object, shape or quantity - Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	- Recognise/calculate /name/w rite fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ of a length, shape, set of objects or quantity. - Write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.	- Count in ascending and descending order in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. - Recognise, calculate and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. - Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. - Add and sub fractions with the same denominator within one whole (e.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$). . Recognise and show, using	- Count in ascending and descending order in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten. - Recognise and show, using diagrams, families of common equivalent fractions. - Add and subtract fractions with the same denominator. - Recognise and write decimal equivalents of any number of tenths or hundredths; and the decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and three quarters. - Calculate the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the	- Compare and arrange fractions whose denominators are all multiples of the same number. - Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number. - Add and subtract fractions with the same denominator and multiples of the same number. - Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. - Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.	- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. - Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. 9. - Multiply simple proper fractions and simplify the answer (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$). Divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$). - Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

			diagrams, equivalent fractions with small denominators. • Compare and arrange unit fractions, and fractions with the same denominators.	digits in the answer as ones, tenths and hundredths. • Round decimals with one decimal place to the nearest whole number. Solve simple measure and money problems involving fractions and decimals to 2 decimal places.	• Round decimals with two decimal places to the nearest whole number and to one decimal place. • Read and write decimal numbers as fractions (e.g. $0.72 = \frac{72}{100}$). • Read, write, arrange and compare numbers with up to three decimal places. Solve problems involving number up to three decimal places. • Write percentages as a fraction. Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25.	
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	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
	halves quarters whole equal parts	thirds equal denominator numerator compare three quarters	tenths equivalent convert numerator denominator simplest form	hundredths mixed numbers improper fraction equivalent simplifying	compare order common denominator simplification	common factors lowest common denominator divisor percentage per 100 decimal number simple fraction equivalents tenths hundredths

Ratio and Proportion	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes
						- Solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison. - Solve problems involving similar shapes where the scale factor is known or can be found. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
						relative size missing values integer multiplication percentages scale factor unequal sharing and groups

Algebra	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes
						- Express missing number problems algebraically. Use simple formulae expressed in words. - Generate and describe linear number sequences. - Identify pairs of numbers that satisfy number sentences involving two unknowns. Enumerate all possibilities of combinations of two variables.
	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
						algebraic equation pattern generalisation consecutive expressions formulae sequence

Measure

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes	Learning Outcomes
Compare, describe & solve practical problems for: lengths/heights (short/tall, half/double); mass/weight (heavier/lighter); capacity/volume (full/empty, more/less); time (quicker/slower/later).	Choose/use appropriate units to estimate/measure length/height (m/cm); mass (kg/g); temp (°C); cap (litres/ml) to nearest unit, using rulers, scales, thermometers and measuring vessels.	Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).	Convert between different units of measure (e.g. kilometre to metre). Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days).	- Convert between different units of metric measure (e.g. km & m; cm & m; cm & mm; g & kg; l & ml). Use approx. equivalences between metric and imperial units (e.g. inches, pounds & pints). - Measure & calculate the perimeter of composite rectilinear shapes in cm/m. Calculate the area of squares/rectangles using standard units, square cm/m and estimate the area of irregular shapes.	- Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. Convert between miles and km. - Use, read, write & convert between standard units of measure, converting length, mass, volume & time from smaller to larger units, and vice versa, using decimal notation to up to 3 decimal places.

	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
	long, longer, longest short, shorter, shortest tall, taller, tallest measure units full empty more than less than heavy, heavier light, lighter as heavy as heavier than lighter than	centimetres metres length height mass kilograms grams weigh temperature thermometer Degrees Celsius volume litres millilitres	kilometres estimate distance convert weighing scales capacity represents	interval needle digital scales decimal notations increments approximate partitioned converted recombined	imperial metric millimetres inches partitioning thermometer minus negative positive volume cubic centimetre layer capacity	convert units (of measure) metre centi- (one-hundredth) centimetre milli- (one-thousandth) millimetre millilitre litre kilo (one-thousand) kilometre kilogram mile kilometre
	Measure and begin to record the following: lengths/heights; mass/weight; capacity/volume; time (hours, minutes, seconds).	Compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$.	Calculate the perimeter of simple 2-D shapes.	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. Find the area of rectilinear shapes by counting squares.	- Estimate volume (e.g. using 1 cm blocks to build cubes/cuboids) and capacity (e.g. using water). - Measure & calculate the perimeter of composite rectilinear shapes in cm/m. - Calculate the area of squares/rectangles using standard units, square cm/m and estimate the area of irregular shapes.	- Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm²) and cubic metres (m³), and extending to other units. - Recognise that shapes with the same areas can have different perimeters and vice versa. - Calculate the area of

						parallelograms and triangles. Recognise when it is possible to use formulae for area and volume of shapes.
	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
	measure length short long height tall mass weight heavier lighter capacity volume full empty more less time quicker slower later hours minutes seconds	compare order symbol greater than less than equal to inequality units (of measure) length height metres (m) centimetres (cm) mass kilogram (kg) gram (g) temperature (°C) capacity volume litres millilitres (ml) standard units measuring tools (e.g. rulers, thermometers etc...)	calculate perimeter distance length width edge two-dimensional shape sum total	calculate perimeter distance edge two-dimensional shape sum total area space length width product rectilinear shape	calculate perimeter distance edge two-dimensional shape rectilinear shape composite shape sum total area space length width product regular shape irregular shape	calculate perimeter distance edge two-dimensional shape rectilinear shape composite shape sum total area space length width product regular irregular

	Recognise and know the value of different denominations of coins and notes.	- Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. Find different combinations of coins that equal the same amounts of money. - Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.	Add and subtract amounts of money to give change, using both £ and p in practical contexts.	Estimate, compare and calculate different measures, including money in pounds and pence.	Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.	
	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
	currency coins notes pound sterling pence	pound sterling pence notation combination addition sum total subtraction difference change	pound sterling pence notation addition sum total subtraction difference change	estimate approximate value compare calculate pound sterling pence notation addition sum total subtraction difference change	length kilometres (km) metres (m) centimetres (cm) mass kilogram (kg) gram (g) capacity volume litres millilitres (ml) pound sterling pence change decimal notation scaling	

	- Sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. - Recognise and use language relating to dates, including days of the week, weeks, months and years. - Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	- Compare and sequence intervals of time. Know the number of minutes in an hour and the number of hours in a day. - 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.	- Identify/write the time from an analogue clock, including Roman numerals from I to XII, and 12-hr/24-hr clocks. - Estimate and read time with increasing accuracy to nearest min; record/compare time in seconds, minutes, hours. Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight. - Know the number of seconds equivalent to a minute and the number of days equivalent to each month, year and leap year.	Read, write and convert time between analogue and digital 12 and 24-hour clocks.	Solve problems involving converting between units of time.	
	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
	sequence ordinal number before after next first second	sequence intervals of time day hour minute second equal to	analogue clock hour minute second o'clock half past quarter past	convert analogue clock digital clock second minute hour hand	convert second minute hour 12 hour clock 24 hour clock	

	third yesterday today tomorrow morning afternoon evening		quarter to hands clock face Roman Numerals 12 hour clock 24 hour clock hours minutes seconds o'clock half past quarter past quarter to morning (a.m.) noon afternoon (p.m.) midnight	12 hour clock 24 hour clock		
Geometry	- Recognise and name common 2-D shapes (e.g. rectangles, circles and triangles) and 3-D shapes (e.g. cuboids (including cubes), pyramids and spheres). - Describe position, directions and movements, including whole, half, quarter and three-quarter turns.	- Identify and describe the properties of 2D shapes, including the number of sides and symmetry in a vertical line. - Identify and describe the properties of 3D shapes, including the no. of edges, vertices and faces. - Identify 2D shapes on the surface of 3D shapes, e.g. circle on a cylinder; a triangle on a pyramid. - Compare and sort	- Draw 2-D shapes and construct 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe their properties. - Recognise that angles are a property of shape or a description of a turn. - Identify right angles, recognise that 2 right angles make a half-turn, 3 make three	- Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. - Identify acute and obtuse angles and compare and arrange angles up to two right angles by size. - Identify lines of symmetry in 2-D shapes presented in different orientations. - Complete a simple symmetric figure	- Identify 3D shapes, including cubes and other cuboids, from 2D representations. - Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Construct 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	- Construct 2-D shapes using given dimensions and angles. Recognise, describe and construct simple 3-D shapes, including constructing nets. - Compare and classify geometric shapes based on their properties and sizes and calculate unknown angles

		common 2D and 3D shapes and everyday objects. - Order and arrange combinations of mathematical objects in patterns and sequences. - Use maths vocabulary to describe position, direction & movement including movement in a straight line and distinguishing rotation as a turn & in terms of right angles for $\frac{1}{4}$, $\frac{1}{2}$, & $\frac{3}{4}$ turns (clock/anticlockwise).	quarters of a turn and 4 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.	with respect to a specific line of symmetry. . Describe positions on a 2-D grid as coordinates in the first quadrant. Describe movements between positions as translations of a given unit to the left/right and up/down. - Plot specified points and construct edges to complete a given polygon.	line and $\frac{1}{2}$ a turn (total 180°); other multiples of 90°. - Use the properties of rectangles to deduce related facts and calculate missing lengths and angles. - 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.	in any triangles, quadrilaterals, and regular polygons. - Illustrate and identify parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. - Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and calculate missing angles. - Describe positions on the full coordinate grid (all four quadrants). - Construct and translate simple shapes on the coordinate plane, and reflect them in the axes.
	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
	two-dimensional shape circle square	right angle intersect perpendicular lines	two-dimensional shape symmetrical congruent	degrees rays vertex	two-dimensional shape three-dimensional shape net	degrees interior angles equilateral triangle

	triangle rectangle oblong kite pentagon hexagon heptagon octagon three-dimensional shape cube cuboid sphere cone cylinder pyramid Carroll diagram	quarter turn half turn three-quarter turn complete turn revolution full rotation horizontal line vertical line parallel lines perpendicular lines intersect right angle	line of symmetry axis of symmetry orientation position two-dimensional coordinates quadrant x-axis y-axis origin translation transformation congruent	whole turn revolution full rotation half turn straight line supplementary angles degrees interior angles quadrilateral	edges vertex vertices faces degrees estimate compare reflex angle construct rays vertex protractor position reflection translation transformation congruent	isosceles triangle scalene triangle quadrilaterals polygons radius diameter circumference centre compass formula degrees vertically opposite angles corresponding angles supplementary angles intersecting line coordinate grid/plane quadrant x-axis y-axis origin
Statistics		- Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. - Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity; ask and answer questions about totalling and	- Interpret and present data using bar charts, pictograms and tables. - Solve one-step and twostep questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.	- Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. - Solve comparison, sum and difference problems using information presented in bar	- Solve comparison, sum and difference problems using information presented in a line graph. - Complete, read and interpret information in tables, including timetables.	- Interpret and construct pie charts and line graphs and use these to solve problems. - Calculate and interpret the mean as an average.

		comparing categorical data.		charts, pictograms, tables and other graphs.		
		Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
		interpret construct chart diagram bar chart column graph block graph pictogram tally chart table data category categorical data quantity totaling total frequency	interpret data bar chart pictogram table one-step two-step fewer maximum value minimum value	discrete data continuous data bar chart time graph comparison sum total difference	comparison sum total difference line graph timetable	construct pie chart line graph compass average mean values