

Reception – Mathematics				
Term	What we are learning: (Development Matters)	What a child might be doing: (Birth to 5 Matters)	Vocabulary:	Activities and Opportunities
Autumn 1	Baseline	-	-	-
	Counting Counts objects, actions and sounds	<p>Reciting numbers from 0-10 (and beyond) and back from 10-0</p> <p>Encourage cardinal counting by saying how many there are after counting (...6, 7, 8. There are 8 balls).</p> <p>Counts out up to 10 objects from a larger group.</p>		<ul style="list-style-type: none"> Counting things that can't be seen e.g. sounds, actions & words Counting things that cannot be moved such as pictures on a screen, birds at the bird table, faces on a shape Counting backwards e.g. number rhymes
	Subitising	Subitising numbers to 3	One, two, three	<ul style="list-style-type: none"> Using dot cards, dominoes and dice as part of a game, including irregularly arranged dots (e.g. stuck on) "all at once fingers" – show me 3 fingers
	Linking Numerals and Amounts Link the number symbol (numeral) with its cardinal number value	Matches the numeral with a group of items to show how many there are (up to 10).		<ul style="list-style-type: none"> Using "tidy up labels" on containers and checking that nothing is missing Reading number books

<p>Measure Compare length, weight and capacity</p>	<p>Becomes familiar with measuring tools in everyday experiences and play</p>	<p>Long, short, longer, shorter, bigger, smaller, light, heavier, lighter, empty, full</p>	<ul style="list-style-type: none"> • 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 • When comparing directly, finding the odd one out, by providing a varied range of container shapes all containing the same amount of liquid except for one, “which one do you think is the odd one out? Why? How will we check? Were we right?” • Holding a carrier bag in each hand, turn the children into a balance scale • Ensure that children are presented with large, light things and small, heavy things, to prevent the over-generalisation that big means heavy and small means light
<p>Problem solving and Composition of Numbers Explore the composition of numbers 2 & 3</p>	<p>Shows awareness that numbers are made up (composed) of smaller numbers, exploring portioning in different ways with a wide range of objects.</p>	<p>Two and three, add, plus, equals</p>	<ul style="list-style-type: none"> • Number blocks • Encourage making arrangements with 2&3; ensuring talking about the different arrangements • Numicon towers: layering up Numicon pieces of the same total • Putting things into two containers in different ways

		<p>Begins to explore and work out mathematical problems, using signs and strategies of their own choice including (when appropriate) standard numerals, tallies and “+” or “-”.</p> <p>Odd or Even Doubles</p>		
	Shape and Space	<p>Uses informal language and analogies as well as mathematical terms to describe shapes.</p> <p>Uses spatial language, including following and giving directions, using relative terms and describing what they see from different viewpoints.</p>	<p>In front of, behind, before and after, in a line, next to, between, up, down, on top of, under, beside</p>	<p>Children need opportunities through small-world play and model building to describe things being “in-front of”, “behind”, “on top of”, etc., and to consider objects from different perspectives:</p> <ul style="list-style-type: none"> • Further challenge: drawing representations of the relationships above. These drawings may include a simple representation of a three-dimensional object from a different viewpoint e.g. “can you draw your construction from above, looking down on it?”

Autumn 2	Counting Counts objects, actions and sounds	Increasingly confident at putting numerals in order 0-10 (ordinality).	Sequence, order	
	Subitising Subitise	Subitising numbers to 4 and maybe 5 (5 frame)	One, two, three, four, five	<ul style="list-style-type: none"> Using dot cards, dominoes and dice as part of a game, including irregularly arranged dots (e.g. stuck on) “all at once fingers” – show me 4 fingers
	Shape and Space Select, rotate and manipulate shapes in order to develop spatial reasoning skills	Uses informal language and analogies as well as mathematical terms to describe shapes.	2D shapes, circle, triangle, square, rectangle	
	Counting Count beyond 10	Recognising the pattern of the counting system.		
	Comparing Quantities and Numbers Compare Numbers	<p>Uses number names and symbols when comparing numbers, showing interest in large numbers.</p> <p>Estimates of numbers of things, showing understanding of relative size.</p>	More/ less, different, the same, many, fewer, lots	<ul style="list-style-type: none"> Contexts such as sharing things out (grouping them in different ways) and then the puppet complaining that it is not fair as they have less Explaining (reasoning) unfair sharing – “this one has more because it has 5 and that one only has 3” Comparing numbers that are far apart, near to and next to each other

<p>Measure</p>	<p>Is increasingly able to order and sequence events using everyday language related to time.</p>	<p>First, next, after that, then, finally</p>	<ul style="list-style-type: none"> • Unmuddling visual timetables • Making picture sequences for cooking instructions • Describing sequences by re-telling stories • Discussing “o’clock” times at registration, lunchtime, snack time, tidy-up time etc. • Making their own timetable for a day – selecting activities and ordering them
<p>Problem solving and Composition of Numbers Explore the composition of numbers 4 & 5</p>	<p>Shows awareness that numbers are made up (composed) of smaller numbers, exploring portioning in different ways with a wide range of objects.</p> <p>Begins to explore and work out mathematical problems, using signs and strategies of their own choice including (when appropriate) standard numerals, tallies and “+” or “-”.</p> <p>Odd or Even</p>	<p>Four and five, adding, taking away, plus, subtract, equals, total, more, less</p>	<ul style="list-style-type: none"> • Number blocks • Encourage making arrangements with 4&5; ensuring talking about the different arrangements • Making a number with two different kinds of things. E.g. make a fruit skewer with 5 pieces of fruit, using bowls of bananas/strawberries to choose from and discuss with partner, “what’s the same? What’s different?” • Bunny ears: using your fingers like bunny ears. “With two hands, show me 5 fingers. Can you do it in a different way?” Or, “show 5 fingers altogether with a friend.”

		Doubles		
	Pattern Continue, copy and create repeating patterns		Pattern, repeating, what comes next?, sequence, the same, different	<ul style="list-style-type: none"> Repeating patterns using compare bears
Spring 1	Subitising Subitise	Begins to conceptually subitise larger numbers by visualising smaller groups within the number (5/10 frame).		<ul style="list-style-type: none"> Playing hidden object games where objects are revealed for a few seconds; e.g. small toys hidden under bowl – shuffle them, lift the bowl briefly and ask how many there were
	Shape and Space	May enjoy making simple maps of familiar and imaginative environments, with landmarks.	Compass, north, south, east, west, river, mountain, trees, treasure, buildings, tents, near, far, close, a long way, a short way	<ul style="list-style-type: none"> Drawing or making a simple map of a route with “landmarks”, e.g. houses and trees Following a simple map of an excursion Designing a plan for a garden or play area, using a small tray with sand, twigs, building bricks, etc.
	Comparing Quantities and Numbers Understand the ‘one more than/one less than’ relationship between consecutive numbers	In practical activities, adds 1 and subtracts 1 with numbers to 10.	One more/less, bigger smaller, number names	<ul style="list-style-type: none"> Labeling group with the correct numeral. Do children spot the error if a group is mislabeled, e.g. “the label on the pot says 4 and we have 5 – what do we need to do?” Ensuring children focus on the numerosity of the group by having items in the collection of different kinds and sizes Making predictions about what the outcome will be in

				<p>stories, rhymes and songs if one is added to, or if one is taken away</p> <ul style="list-style-type: none"> Encouraging the children to make different patterns with a given number of things
	<p>Pattern Continue, copy and create repeating patterns</p>	<p>Spots patterns in the environment beginning to identify 'rule' (including AB, ABB, ABBC).</p>	<p>Pattern, repeating, what comes next?, sequence, the same, different</p>	<ul style="list-style-type: none"> Once children are secure with alternating patterns, they can tackle more complex pattern structures: ABC; ABB; ABBC; AABB e.g. building towers or trains of different coloured cubes and identical objects in different colours Once secure, challenge children to continue patterns which do not end after a whole unit of repeat e.g. provide a range of patterns – physical and on cards – that can be continued Utilizing a range of items in the environment to create patterns such as interlocking tubes and toys e.g. links, elephants, camels Exploring and creating pattern on peg boards, with fruit (e.g. fruit kebabs), musical instruments, movements and dance sequences

<p>Shape and Space</p> <p>Compose and decompose shapes so that children recognise a shape can have other shapes <i>within</i> it, just as numbers can</p>	<p>Enjoys composing and decomposing shapes, learning which shapes combine to make other shapes.</p> <p>Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems, and visualizing what they will build.</p> <p>Investigates turning and flipping objects in order to make shapes fit and create models; predicting and visualising how they will look (spatial reasoning).</p>	<p>Square, circle, triangle, rectangle</p> <p>Cone, sphere, cuboid, cube, pyramid, cylinder, triangular prism</p> <p>Big, bigger, small smaller</p>	<p>Children need opportunities to talk about their constructions and representations:</p> <ul style="list-style-type: none"> • With shapes such as triangles and rectangles ensure that children are used to seeing a range of examples, and the same shape in different orientations, sizes, colours and materials • Covering objects in foil and inviting children to justify their guesses about what is inside • Make arrangements with a selection of different rectangles including squares • Choosing 2D shapes to construct a 3D model e.g. using triangles and rectangles to make a tent • Making decorations by folding and cutting • Making 3D shapes using interlocking shapes
<p>Problem solving and Composition of Numbers</p> <p>Explore the composition of numbers 6 & 7</p>	<p>Shows awareness that numbers are made up (composed) of smaller numbers, exploring portioning in</p>	<p>Six and seven Adding, taking away, plus, subtract, equals, total, double, fair/unfair, share</p>	<ul style="list-style-type: none"> • Number blocks • Encourage making arrangements with 6&7; ensuring talking about the different arrangements • Spill the beans: using double-sided counters, double-

		<p>different ways with a wide range of objects.</p> <p>Begins to explore and work out mathematical problems, using signs and strategies of their own choice including (when appropriate) standard numerals, tallies and “+” or “-”.</p> <p>Odd or Even Doubles</p>		<p>sided beanbags or 2 types of beans. Throw the collection and note how many of each type can be seen and how many altogether</p>
<p>Spring 2</p>	<p>Pattern Continue, copy and create repeating patterns</p>	<p>Chooses familiar objects to create and recreate repeating patterns, beyond AB patterns and begins to identify the unit of repeat.</p>	<p>Pattern, repeating, what comes next?, sequence, the same, different, the same again</p>	<ul style="list-style-type: none"> • Highlight within a pattern what the unit of repeat is and ask the children to describe it • Present patterns with deliberate errors • Find a way to record the patterns they make e.g. red dot or a squiggle or the letter R represents the red dinosaur • Provide a range of experiences where children can create a pattern using a coding structure and ensure children can follow the patterns they have coded • Make circular patterns e.g. necklaces, circles of

				<p>linking elephants/camels</p> <ul style="list-style-type: none"> • Making patterns around a border with a fixed number of spaces
	<p>Measure Compare length, weight and capacity</p>	<p>Enjoys tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy.</p>	<p>longest, shortest, heaviest, lightest, full, empty</p>	<ul style="list-style-type: none"> • Making a bed for teddy using blocks • Selecting a box to store a specific item • Dress dolls, and select different sized clothes • Finding things that will fit inside a matchbox <p>Comparing indirectly:</p> <ul style="list-style-type: none"> • Making “Russian Doll” type sets of nesting boxes from a collection • Finding which of 3 pairs of shoes is heaviest for packing in a rucksack • “Do you think the table will fit through the door?” • Packing a shopping bag, making sure the lightest items do not get squashed by heavier things
	<p>Shape and Space Select, rotate and manipulate shapes in order to develop spatial reasoning skills</p>	<p>May enjoy making simple maps of familiar and imaginative environments, with landmarks.</p>	<p>Compass, north, south, east, west, river, mountain, trees, treasure, buildings, tents, near, far, close, a long way, a short way</p>	<ul style="list-style-type: none"> • Drawing or making a simple map of a route with “landmarks”, e.g. houses and trees • Following a simple map of an excursion • Designing a plan for a garden or play area, using a small tray

				with sand, twigs, building bricks, etc.
	<p>Problem solving and Composition of Numbers</p> <p>Explore the composition of numbers 8 & 9</p>	<p>Shows awareness that numbers are made up (composed) of smaller numbers, exploring portioning in different ways with a wide range of objects.</p> <p>Begins to explore and work out mathematical problems, using signs and strategies of their own choice including (when appropriate) standard numerals, tallies and “+” or “-”.</p> <p>Odd or Even Doubles</p>	<p>Six to nine, adding, taking away, plus, subtract, equals, total, same, different, more, odd, even, pair double, half, fair/unfair, share</p>	<ul style="list-style-type: none"> • Number blocks • Encourage making arrangements with 8&9; ensuring talking about the different arrangements • Role play: e.g. in a toyshop 10 toys need arranging onto 3 shelves. How will we organise them? • Having more than two places in any given context, e.g. arranging characters in small-world play in different locations • Games such as <i>Posh Ducks</i>: using a set number of ducks, e.g. 10 in 3 different locations (nest, water, decking), roll the dice and make one group match the amount shown without adding or taking any away
Summer 1	<p>Number Bonds</p> <p>Automatically recall number bonds for numbers 0-5.</p>	<p>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts).</p>	<p>Number bonds, adding, taking away, plus, minus, double, half</p>	<ul style="list-style-type: none"> • Playing hiding games with a number of objects in a box, under a cloth, in a tent, in a cave, etc. • Utilizing classroom routines e.g. tidy-up time to identify how many are still missing from a pot with a number label
	<p>Problem solving and</p>	<p>Shows awareness</p>	<p>Adding, taking away, plus,</p>	<ul style="list-style-type: none"> • Number blocks

	<p>Composition of Numbers Explore the composition of number 10</p>	<p>that numbers are made up (composed) of smaller numbers, exploring portioning in different ways with a wide range of objects.</p> <p>Begins to explore and work out mathematical problems, using signs and strategies of their own choice including (when appropriate) standard numerals, tallies and “+” or “-”.</p> <p>Odd or Even Doubles</p>	<p>subtract, equals, total, same, different, more, greater than fewer than odd, even, double, half, fair/unfair, share</p>	<ul style="list-style-type: none"> Encourage making arrangements with 10; ensuring talking about the different arrangements
<p>Summer 2</p>	<p>Measure Compare length, weight and capacity</p>	<p>Confidently tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy.</p>	<p>short, shorter, shortest, tall, taller tallest, heavy, heavier, heaviest, light, lighter, lightest, full, fuller, fullest, empty, emptier, emptiest, same, different</p>	<ul style="list-style-type: none"> Setting up an “estimation station” and guessing how many things are in the jar each day Making biscuits from a given amount of dough – choosing cutters to see who will make the most biscuits Choosing from a selection of spoons, ladles etc. to see who can fill their pot the quickest with rice. How do you know

				<p>who will be quickest”?</p> <ul style="list-style-type: none"> • Setting up a “filling station” with lots of different sized containers to fill with beads, then comparing capacities • Using large bricks to measure the height of individuals • Using metre sticks to see if an elephant/dinosaur would fit in the room • Measuring the growth of a beanstalk or sunflower with interlocking centimetre cubes • Comparing the capacity of different bottles by filling lots of glasses
	<p>Statutory ELG: Number</p>	<p>Have a deep understanding of number to 10, including the composition of each number.</p> <p>Subitise (recognise quantities without counting) up to 5.</p> <p>Automatically recall (without reference to rhymes, counting or other aids)</p>	<p>Number names, number bonds, adding, taking away</p> <p>double, half, equals</p>	

		<p>number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.</p>		
	<p>Statutory ELG: Numerical Patterns</p>	<p>Verbally count beyond 20, recognizing the pattern of the counting system.</p> <p>Compare quantities up to 10 in different contexts, recognising when 1 quantity is greater than, less than, or the same as the other quantity.</p> <p>Explore and represent patterns</p>	<p>More/less</p> <p>Odd, even, double, fair, unfair, sharing (understanding)</p>	

		within numbers up to 10 including evens and odds, double facts and how quantities can be distributed equally.		
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