

Nursery Medium Term Plan for Mathematics – author Sharon Day

Warning: the nature of teaching and learning in the EYFS is subtle and holistic. Much of the learning experiences provided for the children come from high quality resources in the different zones/areas of provision. The following long term plan indicates the learning which is actively ‘controlled’ by the adult practitioners and will not necessarily be able to indicate how to promote child-led learning and child-initiated learning. Look at your children and only follow advice on this plan if it fits what they need.

Each Unit of work is structured with the main foci for adult-led teaching based on concepts to be taught. This is then enhanced with the same teaching foci, and opportunities for experience being provided for, in the other areas of continuous provision (you may have different areas of provision than the areas listed below; amend the planning as necessary) which are the contexts for the application of the concepts. Recognition of the children applying learning independently is the point where the adult practitioner observes children choosing to use skills and knowledge in child-initiated activity and can come at any time. This often occurs much later than the time of actually being taught it so, as each focus moves on, it is wise to leave items/ideas from the previous units of work in the areas of provision to allow for consolidation and application. This is also an important point to be made to anyone that is observing mathematics teaching in a foundation stage setting – they need to be aware that ***child-initiated activity will not usually be about the new learning being taught at the time*** as most young children are not yet ready for application at the stage of new learning. The child-initiated mathematics observed will usually be from previous learning acquired.

The Long Term Plans in years 1 to 6 are named as: place value; addition and subtraction; multiplication and division; fractions; geometry. In order to make the Nursery LTPs more focused around the underlying concepts, rather than the title of the maths, these have been changed to: **numbers and ordering and comparing; putting amounts into unequal and equal groups and also combining unequal and equal groups; sharing items out equally; shapes.**

Learning based on chronology and on positional language is best done as on-going experiences (see ‘Planning principles and content’ document for advice on this).

Autumn term main foci (four units of work): numbers and ordering and comparing; sharing items out equally; shapes; review.

Spring term main foci (four units of work): numbers and ordering and comparing; separating amounts into unequal and equal groups and also combining unequal and equal groups; sharing items out equally; shapes.

Summer term main foci (five units of work): numbers and ordering and comparing; separating amounts into unequal and equal groups and also combining unequal and equal groups; sharing items out equally; shapes; review.

Concept(s) - the	The facts and skills of the concepts being taught – This	<i>Using the facts and</i>	Context(s) Learning how to apply and then applying in
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main teaching foci including what to investigate	includes the adult-led activities best suited to whole class i.e. 'carpet time' and adult-led and adult-initiated activities in targeted small groups based on identified need	<i>skills and reasoning about them – as guided investigations or as part of open ended activity in the maths area of provision</i>	a variety of contexts – enhancements or adult-directed/initiated in other areas of provision (also see 'Learning Through Play' document)
<i>First Unit in each term</i>			
The facts and skills as well as conceptual understanding of numbers and ordering and comparing Autumn term 4 weeks approx.	(<i>For this Unit of work in the Autumn term, you could have a focus on a different number each week – perhaps one, in the first week of the unit, two in the second week and three in the third week of the Unit – using the fourth week of the unit to look at all three numbers. Subsequent revisits of this concept in Spring and Summer may mean moving on with introducing new numbers or might need the same numbers revisiting in different ways- it will depend on the children you are working with</i>)	'Show me how you know that there is the same amount in each of these bags.' <i>They continue repeating patterns with objects and with shapes.</i> <i>'Here are some subitising plates like the ones we were using on the carpet. Do you want to play teachers with them?'</i>	In all areas of provision, using up to three of any type of item such as measuring cylinders, order by direct comparison including 'the same...' Application of numbers and ordering and comparing in the contexts of: Construction (blocks): be comparing lengths and heights of blocks and models built: same length as, shorter than, longer than; height: same height as, shorter than, taller than; Construction (items that connect): be comparing the amount of items used in built models/numbers of wheels/lengths of parts/etc. Water: be comparing the capacity of different containers i.e. same/more than/less than etc. Be comparing the speed of flow of water from different containers Sand: Be comparing properties of dry and wet sand and using language to describe similarities and differences also counting sand pies/shells in sand/ etc. Also weight/mass: same weight as, balances with, lighter than, heavier than Malleable: counting and comparing items made and equipment used. Also weight/mass: same weight as, balances with, lighter than, heavier than
Spring term 4 weeks approx.	Identify and represent amounts of one, two and three (at least) using objects and pictorial representations - include subitising in common arrangements such as dice (1-3) and the Plates patterns in the subitising file and only use the patterns which are red in colour (1-3)		
Summer term 4 weeks approx.	Use Numberblocks from CBeebies https://www.bbc.co.uk/cbeebies/shows/numberblocks (written in collaboration with Debbie Morgan from the NCETM) – do the stories of 'One', 'Two', 'Three' and 'One, Two, Three!' as a starting point for each of the four weeks – they also have accompanying resources.		

	Say the names and recognise numerals for least one, two and three		Mark making: items to use which are labelled and numbered so children have to count them back when tidying up Workshop: items displayed in amounts and types so that comparing and ordering is part of working behaviours in this area/zone. Painting: items labelled (thick paint brushes/thin paint brushes) and numbered to promote comparing and ordering in this area. Role play: promoting comparing and ordering with how items are displayed and which items are being used Small world: promoting comparing and ordering with how items are displayed and which items are being used
Ideas to ‘keep spinning’: Geometry facts and properties: naming and recognising 3D shapes when working in the construction area as well as terms such as ‘straight’ and ‘curved’. Facts for calculation: counting up and down in a variety of ways such as with a puppet and when lining up. Use of provision areas and daily routines: positional language and chronological language and concepts; items in provision numbered with quantities (i.e. ‘5 thick writing pencils’ and ‘5 thin...’) – have different numbers/quantities displayed for this purpose around the different areas of provision.			
Second unit in Spring and Summer terms			
The facts and skills as well as conceptual understanding of Separating amounts into unequal and equal groups and also combining unequal and equal groups Spring term	<p>The main focus of this unit is conservation of number which is to know that amounts can be moved around and still be the same number</p> <p>Teach finger gnosis ('bunny ears') to represent amounts in different ways (at least up to 3)</p> <p>Use of subitising to add - put more than one small unequal group together and see how much is there (i.e. a picture of 2 dots and a picture of 1 dot altogether makes 3 dots also a picture of 1 dot and a picture of 2 dots and a picture of 1 dot altogether makes 4 dots...) – encourage mathematical graphics to</p>	<p><i>'How can we find out how much more we have in this pile than this pile?'</i></p> <p><i>Have labelled bags of items (1 to 5) in the maths area of provision and explore what happens when you add nothing to an amount as well as</i></p>	<p>Equal groups could be shown in the context of tallies – for keeping records of dinner numbers and/or who has had snack and/or choices for numbers of children at school each day and/or reward points, etc.</p> <p>In all areas of provision... add and subtract unequal amounts</p> <p>In all areas of provision... also add and subtract equal amounts</p> <p>Application of putting amounts into unequal and equal groups and also combining unequal and equal groups:</p> <p>Construction (blocks): be comparing amounts of blocks used such as ‘total’, ‘altogether’, ‘you have used</p>

<p>4 weeks approx. Summer term 3 weeks approx.</p>	<p>record findings</p> <p>Use of subitising to subtract - separate a group of items into unequal groups and recognise that there is still the same total (i.e. a picture of 5 dots can be separated into a picture of 2 dots and a picture of 3 dots also a picture of 4 dots can be separated into a picture of 1 dot and a picture of 2 dots and a picture of 1 dot) – encourage mathematical graphics to record findings</p> <p>Looking for groups of amounts around the room – ‘finding forks’ (see subitising file) – can we find items grouped into twos? ... grouped into threes?</p> <p>Show how putting items into equal groups can be presented as arrays as well as towers of cubes.</p> <p>Count items in twos (children lining up; Noah’s Ark, pairs of socks, pairs of shoes, pairs of gloves...)</p> <p>Here is an amount, let’s double it!</p> <p>Use Numberblocks from CBeebies https://www.bbc.co.uk/cbeebies/shows/numberblocks do the stories ‘Another One’, ‘Just Add One’ and ‘Double Trouble’</p>	<p><i>take nothing away from an amount. Also use these bags to combine amounts.</i></p> <p><i>Reorder the bags of items for addition (i.e. larger number in ‘head’ which is prepared for by having experienced screening amounts).</i></p> <p><i>Are there any items in the room where this only one of them?; Can we find things in the room that are grouped in twos?; Is there anything grouped in threes?</i></p> <p><i>Let’s investigate what happens when we count the same amount in different ways. Will we get the same answer?</i></p>	<p>three more bricks than your friend’, ‘your friend has used three fewer bricks than you’... make a model which is double the height of the first; make two models with different sized bricks where the model with the smallest bricks has double the number of bricks – is it double the height now?</p> <p>Construction (items that connect): be comparing and totalling the amount of items used in built models/numbers of wheels/lengths of parts/etc.; count the wheels on the model in ones; make more carriages which are exactly the same and fit them together...</p> <p>Water: putting a large amount of liquid into smaller unequal containers and filling a large container with smaller unequal containers also putting a large amount of liquid into smaller equal containers and filling a large container with smaller equal containers</p> <p>Sand: Be comparing and totalling items made and being used in the sand ... Be doubling items made and placing one shell in each sand pie...</p> <p>Malleable: Be comparing and totalling items made and being used in the sand... Be doubling items made; making specific reference to using bun trays in arrays</p> <p>Mark making: items to use which are labelled and numbered so children have to count them back when tidying up – ‘How many thick writing pencils should we have? Are they all there? How many are missing?’...– ‘Can you make a story book about numbers?; ‘Can you draw with both hands at the same time so that you double the amount you draw?’</p> <p>Workshop: items displayed in amounts and types so that comparing, ordering and totalling is part of working behaviours in this area/zone. Can you make a</p>
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			<p>model that has wheels in pairs?</p> <p>Painting: items labelled (thick paint brushes/thin paint brushes) and numbered to promote comparing, ordering and totalling in this area. Can you make a painting of a butterfly by folding so that the pattern is doubled?</p> <p>Role play: promoting comparing, ordering and totalling with how items are displayed and which items are being used; ‘How many different hats do we have in the area today? How many are being used by you and how many are still on the shelf?’... When you look in the mirror are there now two of you? Put these items into the party bags equally.</p> <p>Small world: promoting comparing, ordering and totalling with how items are displayed and which items are being used.</p>
<p>Ideas to ‘keep spinning’: Geometry facts and properties: naming and recognising 3D shapes when working the construction area as well as terms such as ‘straight’ and ‘curved’. Facts for calculation: counting up and down in a variety of ways. Use of provision areas and daily routines: positional language and chronological language and concepts; items in provision numbered with quantities (i.e. ‘5 thick writing pencils’ and ‘5 thin...’) – have different numbers/quantities displayed for this purpose around the different areas of provision Numbers and amounts in order (to keep learning from the first unit ‘spinning’)</p>			
<p><i>Second unit in Autumn term and Third unit in Spring and Summer terms</i></p>			
<p>The facts and skills as well as conceptual understanding of</p> <p>Sharing items out equally</p> <p>Autumn term 2 weeks approx.</p> <p>Spring term</p>	<p>Halve amounts such as: in snack; giving items out and they have to share with another person; putting even items into two places by using both hands at the same time</p> <p>Half a turn in PE, fold items in half, cut items in half, balance an amount to find half of it, use shapes to find half of in different ways (i.e. two halves of a square can be two triangles)</p>	<p><i>‘When will you be three and a half years old?’</i></p> <p><i>‘How can we check if this is half the length of this?’</i></p>	<p>In all areas of provision... put amounts into two halves and begin to experience equal sharing into other places</p> <p>Application of sharing items out equally</p> <p>Construction (blocks): make a model which is half the height of the first; share the bricks out equally before you start; which of these bricks are half as long/tall as each other?</p> <p>Construction (items that connect): make your model half the size of this model.</p> <p>Water: half full; half empty; not full; full; less than full;</p>

2 weeks approx. Summer term 2 weeks approx.			share out the ‘tea’ equally between these cups Sand: cut your sand pie exactly into two halves... Malleable: cut your cakes exactly into two halves... Mark making: make a book to show about halves Workshop: make half of your model using plastic straws and half of your model using paper straws... Painting: make a painting by mixing colours where a colour is made of half yellow and half red... Role play: dress up with your top half in blue and your bottom half in red... put a yellow glove on your right hand and a green glove on your left hand... Small world: share the twelve animals into two fields so that each field has the same number of animals.
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Ideas to ‘keep spinning’:

Geometry facts and properties: naming and recognising shapes

Facts for calculation: counting up and down in a variety of ways

Use of provision areas and daily routines: positional language and chronological language and concepts; items in provision numbered with quantities (i.e. ‘5 thick writing pencils’ and ‘5 thin...’) – have different numbers/quantities displayed for this purpose around the different areas of provision

Recognising items in equal groups and in unequal groups.

Vocabulary displayed and used in provision areas continues to increase in amount as well as complexity i.e. there may have been items listed as ‘less than...’ which may become ‘fewer than...’ etc.

Third unit in Autumn term and Fourth unit in Spring and Summer term

The facts and skills as well as conceptual understanding of shapes Autumn term 2 weeks approx.	Be aware of the properties of shapes and be able to describe them – using vocabulary such as straight and curved Begin to know the proper names for shapes (it is more important that children can describe and recreate shapes than be able to give them a name)	<i>‘Tell me about the shapes you can see’</i> <i>‘Tell me about how you are moving yourself/this.’</i>	In all areas of provision... use the language of shape and movement Application of shapes Construction (blocks): make a model using just cylinders... cuboids... cubes Construction (items that connect): why are wheels cylinders? Water: fill the container shaped like a cylinder and pour the water into the container shaped like a cube [where both have the same capacity i.e. 1 litre]. What do you notice?
Spring term 2 weeks approx.	Be aware of words that describe position and movement		

Summer term 2 weeks approx.	Talk about and recreate patterns		<p>Sand: make some different shapes in the sand and tell me about them.</p> <p>Malleable: make some different shapes in the playdough and tell me about them.</p> <p>Mark making: make a book to show about shapes; Make patterns with curved and straight lines.</p> <p>Workshop: make a model and tell me about the shapes you have used.</p> <p>Painting: print using different shapes to see the faces of the shapes – (begin to realise that some shapes have faces which are all the same such as a cube and others contain different shaped faces such as triangular prisms)</p> <p>Role play: wear items with squares on them; pretend to be a shape; dance in straight lines; dance in curved lines</p> <p>Small world: make your characters move in different directions and in different places i.e. retell the story of the Billy Goats Gruff or other stories that use positional and directional language</p>
<p>Ideas to ‘keep spinning’:</p> <p>Facts for calculation: counting up and down in a variety of ways</p> <p>Use of provision areas and daily routines: positional language and chronological language and concepts; items in provision numbered with quantities (i.e. ‘5 thick writing pencils’ and ‘5 thin...’) – have different numbers/quantities displayed for this purpose around the different areas of provision</p> <p>Recognising items in equal groups and in unequal groups.</p>			
End of the Autumn and Summer terms, for 1 to 2 weeks – Review Unit	<p>A mixture of concepts put together as a review unit at the end of the Autumn and Summer terms (to be decided by the teacher): Choose a theme – such as ‘Christmas presents’ for the end of the Autumn term and ‘Holidays’ or ‘Sports’ Day’ for the end of the Summer term. Include elements of all five conceptual foci based around the theme chosen. For example, presents could be ordered and described by size, weight, volume and could be counted and sorted. The children could make wrapping paper in repeating patterns, using certain shapes, and then have to cut it in half to wrap a present, etc.</p> <p>The other units begin with a concept which is then actively applied in a variety of contexts. For review units this process is reversed and the theme/application is the centre with each concept being drawn out from the theme.</p>		