

## MATHS MEDIUM TERM PLANNING

### NURSERY

Maths should not only be taught during specific maths sessions but wherever possible throughout the day. The following should be utilised to support maths teaching:

- Days of the week song and talking about the day (before, after, yesterday, today, tomorrow, etc.)
- Use of visual timetable (now, next, after, then, etc.)
- Birthday display
- General counting following the counting principles e.g. rote counting, counting how many bananas there are in the fruit box (1, 2, 3 – 3 bananas) or number of gems in the tin, counting claps or clicks, in playful contexts e.g. hide and seek, rocket-launch countdowns, etc. Point out the number of things whenever possible; so, rather than just ‘chairs’, say ‘two chairs’ etc. Ask children to get you several things and emphasis the total number in your conversation with the child.
- Counting and number songs
- Subitising 1-3, then to 5 (pictures and objects “Look, there are two!”)
- Use of ordinal numbers e.g. “Sam line up first, Lilly line up second...”
- Maths games such as track counting games, puzzles, snap, dominoes, etc.
- Noticing maths in the environment e.g. asking children what they notice about a tree. They may say it is tall, has circles on etc.
- Incorporating maths in areas of continuous provision wherever possible e.g. role play money in shop to pretend to pay and give change, weighing food in role play kitchen when pretending to bake a cake, an activity that matches numeral to quantity in the finger gym area or using wooden blocks to build a rocket in the construction area, etc.
- Incorporating maths in daily routines e.g. during registration time. If there are 3 children absent the children clap 3 times. Having labels on pencil pots with a representation of a number to show how many pencils go in that pot during tidy up time. Draw children’s attention to these throughout the session. Different representations of number to support children in knowing how many can play in a certain area at one time. Sharing snack between 2, with adult support.

#### Counting Principles:

**The one-one principle** – this involves children assigning one number name to each objects 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 which 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.

**The stable-order principle** – children understand when counting that the numbers have to 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. Puppets can make mistakes for children to correct.

**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. In order 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.

**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 in order to count accurately. Teachers can encourage abstraction on a daily basis by counting claps or clicks.

**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.

#### Key representations

Five Frames	
Numicon	
Fingers	
Dice	
Cubes	
Numerals	
Real life objects	
Number Blocks	
Drawing	

#### Key Language

<b>Cardinal</b>	The number that identifies how many there are in a set
<b>Numeral</b>	The written symbol for a number e.g. 1, 2, 3
<b>Subitise</b>	Instantly recognise a small quantity without having to count how many there are.
<b>More and fewer; more than and fewer than</b>	Used when talking about an amount of objects
<b>More and less; more than and less than</b>	Used when talking about the number e.g. 2 is less than 4.

<b>Spring 1</b>		
<b>Links to progression document</b>		
<p>recognise up to 3 objects, without having to count them individually ('subitising')</p> <p>recite numbers past 5</p> <p>say one number for each item in order: 1,2,3,4,5</p> <p>know the last number reached when counting objects tells you how many there are</p> <p>show fingers, marks on paper or pictures for numbers up to 5</p> <p>link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5</p> <p>experiment with their own symbols and marks as well as numerals</p> <p>solve real world mathematical problems with numbers up to five</p> <p>share/separate a group of three or four objects in different ways</p> <p>recognise that the total is still the same when objects are separated in different ways</p> <p>talk about and explore circles and triangles using language like 'sides', 'corners'; 'straight', 'flat', 'round'</p> <p>make links to real-life, through role play and through helping adults</p> <p>use a range of practical resources and equipment</p> <p>talk about what they have done</p>		
Guidance	Resources	Key Vocabulary
<b>Number 1</b>		
<p>Children identify representations of 1, 2, 3. They subitise and/or count to find out how many and make their own collections of 1, 2 or 3 objects. They match the number names to quantities and numerals. They touch count in different arrangements and recognise the final number is the quantity of the set. 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 1-3. 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.</p> <p><b>Number 1</b></p> <p>When learning about each number, the following should be explored</p> <ul style="list-style-type: none"> <li>• Number blocks episode 1</li> <li>• Counting to 1</li> <li>• Finding 1 object</li> <li>• 1 being the first number, its position on a number line, ordinal numbers</li> <li>• Numicon 1 and Dice 1</li> <li>• Subitising 1</li> <li>• Representing 1 on a 5 frame</li> <li>• A circle – 1 sided shape (Exploring different varieties of circles - including in the environment)</li> <li>• 1 action e.g. 1 hop, 1 jump, 1 clap</li> <li>• What is 1 made of 1 nose, 1 mouth, 1 body</li> <li>• The numeral and formation of 1</li> <li>• Representing 1 using marks, pictures and finger</li> <li>• Number 1 in the environment</li> <li>• Matching numeral to quantity</li> </ul>	<p><a href="https://nrich.maths.org/13372">https://nrich.maths.org/13372</a></p> <p>Number Blocks Series 1: One</p> <p>Number block cubes</p> <p>Numicon tiles</p> <p>Five frame</p> <p>Circles</p>	<p>number, numeral, subitise, represent, how many, count, cardinal, first, one</p>



<b>Number 2</b>		
<p>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. <b>Note:</b> 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.</p>	<p><a href="https://nrich.maths.org/13372">https://nrich.maths.org/13372</a> Numberblocks Series 1: 2 Number block cubes Numicon tiles Five frame</p>	<p>number, numeral, subitise, represent, how many, count, cardinal, second, two</p>
<b>Number 3</b>		
<p>As above (2 is a part of me, 1 is a part of me and the whole of me is 3). Exploring different varieties and orientations of triangles.</p>	<p><a href="https://nrich.maths.org/13372">https://nrich.maths.org/13372</a> Number Blocks Series 1: 3; Series 1: One, Two, Three! The Three Little Pigs The Three Billy Goats Gruff Goldilocks and the Three Bears Number block cubes Numicon tiles Five frame Triangles</p>	<p>number, numeral, subitise, represent, how many, count, cardinal, third, three</p>

<b>Nursery – Spring 2</b>		
<b>Links to progression document</b>		
<p>recognise up to 3 objects, without having to count them individually ('subitising')</p> <p>recite numbers past 5</p> <p>say one number for each item in order: 1,2,3,4,5</p> <p>know the last number reached when counting objects tells you how many there are</p> <p>show fingers, marks on paper or pictures for numbers up to 5</p> <p>link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5</p> <p>experiment with their own symbols and marks as well as numerals</p> <p>solve real world mathematical problems with numbers up to five</p> <p>share/separate a group of three or four objects in different ways</p> <p>recognise that the total is still the same when objects are separated in different ways</p> <p>make comparisons between objects relating to weight</p> <p>talk about and explore rectangles and squares using language like 'sides', 'corners'; 'straight', 'flat', 'round'</p> <p>make links to real-life, through role play and through helping adults</p> <p>use a range of practical resources and equipment</p> <p>talk about what they have done</p>		
<b>Guidance overview</b>	<b>Resources</b>	<b>Key Vocabulary</b>
<b>Mass</b>		
<p>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. Prompt them to use the language heavy, heavier than, heaviest, light, lighter than, lightest to compare items starting with items that have an obvious difference in weight.</p>	<p>NCETM Early Years Typical Progression Chart – Measures  <a href="https://nrich.maths.org/13374">https://nrich.maths.org/13374</a></p>	<p>Heavy, heavier than, light, lighter than, balanced</p> <p>The _____ is heavier than/lighter than the _____.</p>
<b>Number 4</b>		
<p>Children count on and back to 4. Children identify representations of 4. They subitise and/or count to find out how many and make their own collections of objects. They match the number names to quantities and numerals. They touch count in different arrangements and recognise the final number is the quantity of the set. 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 1-3, then to 5 when ready (beyond 3 may be conceptual subitising i.e. I see 3 and 2 which is the same as 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.</p> <p><b>Number 4</b></p> <p>When learning about each number, the following should be explored</p> <ul style="list-style-type: none"> <li>• Number blocks episode 4</li> </ul>	<p><a href="https://nrich.maths.org/13372">https://nrich.maths.org/13372</a></p> <p>Number block cubes</p> <p>Numicon tiles</p> <p>Five frame</p> <p>4-sided shapes – squares and rectangles</p> <p>Sesame Street: Feist sings 1, 2, 3, 4  <a href="https://www.youtube.com/watch?v=fZ9WiuJPnNA">https://www.youtube.com/watch?v=fZ9WiuJPnNA</a></p> <p>Number Blocks Series 1: Four</p>	<p>number, numeral, subitise, represent, how many, count, cardinal, fourth, four</p>

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<ul style="list-style-type: none"> <li>• Counting to 4</li> <li>• Finding 4 objects</li> <li>• its position on a number line, ordinal numbers</li> <li>• Numicon 4</li> <li>• Dice 4</li> <li>• Subitising 4</li> <li>• Representing 4 on a 5 frame</li> <li>• Squares and rectangles, including in the environment</li> <li>• 4 actions e.g. 4 hops, 4 jumps, 4 claps</li> <li>• The numeral and formation of 4</li> <li>• Representing 4 using marks, pictures and finger</li> <li>• Number 4 in the environment</li> <li>• Matching numeral to quantity</li> <li>• Composition of 4 (2 is a part of me, 2 is a part of me and the whole of me is 4; 3 is a part of me, 1 is a part of me and the whole of me is 4....)</li> </ul>		
<b>Number 5</b>		
<p><b>Number 5</b>                  As above                  Composition of 5 (3 is a part of me, 2 is a part of me; 4 is a part of me, 1 is a part of me....)                  Children continue to subitise up to 5 items and to count forwards and backwards to 5 accurately using the counting principles.                  They represent up to 5 items on a five frame and notice it is now full.</p>	<p><a href="https://nrich.maths.org/13372">https://nrich.maths.org/13372</a>                  Number block cubes                  Numicon tiles                  Five frame                  Series 1: 5; Series 1: How to Count;                  Series 1: The Whole of Me</p>	<p>number, numeral, subitise, represent, how many, count, cardinal, fourth, four</p>