

## 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.

## MATHS MEDIUM TERM PLANNING

### Autumn 1

Links to progression document

begin to categorise objects according to properties, such as shape or size  
 begin to compare objects according to properties, such as shape or size  
 sort familiar objects into two groups, making choices, e.g. teddy bears and dolls, apples and bananas  
 say why they chose to put an object in the group they did  
 make links to real-life, through role play and through helping adults  
 talk about what they have done

#### Guidance

#### Resources

#### Key Vocabulary

#### Colour

Children should be taught to recognise and name colours in a variety of contexts e.g. toys within the classroom, colours in nature, colours in the environment, matching colours, colours on themselves such as hair, skin, clothes. Children should be able to say when objects are and are not the same colour. Link to expressive art and design through painting.

The Usborne Big Book of Colours  
 Monsters Love Colours – Mike Austin  
 CBeebies colour blocks

notice, match, same, colour

#### Match

Provide opportunities for the children to explore and match objects which are the same. Can you find one exactly like mine? How do you know it's the same? Can you find one different to mine? Why is this one not like mine?

match, same, different

#### Sorting: Sorting by various attributes

Children will learn that collections can be sorted into sets based on attributes such as colour, size or shape. Sorting enables the children to consider what is the same about all the objects in one set and how they are different to the other sets. They begin to understand that the same collection of objects can be sorted in different ways. There should be a focus on reasoning within sorting i.e how have you sorted the animals/button etc? 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 it Out! – Barbara Mariconda  
 Sorting at the market – Tracey Steffora

sort, notice, groups, sets, same, different

### Nursery – Autumn 2

Links to progression document

compare small quantities using language: 'more than', 'fewer than'  
 make comparisons between objects relating to size and length  
 recognise and extend ABAB patterns, e.g. stick, leaf, stick, leaf  
 create new ABAB patterns  
 notice and correct an error in a repeating ABAB pattern  
 talk about and identify the patterns around them, for example: stripes on clothes, designs on rugs and wallpaper  
 begin to compare objects according to properties, such as shape or size  
 make links to real-life, through role play and through helping adults  
 talk about what they have done

#### Guidance overview

#### Resources

#### Key Vocabulary

#### Compare - comparing amounts of objects

Once children can confidently sort collections into sets they learn that these sets can be compared and ordered. They understand that when making comparisons a set can have more, the same or fewer than another set. 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). Discuss mathematical ideas throughout the day, inside and outdoors. Suggestions: • "I think Jasmin has got more crackers..."

For further progression in comparing see *NCETM Early Years Typical Progression Chart – Comparison*.

compare, more, fewer, same, equal  
 There are more \_\_\_\_\_ than \_\_\_\_\_ / there are fewer \_\_\_\_\_ than \_\_\_\_\_.

#### Pattern: Continuing AB patterns

Provide patterns from different cultures, such as fabrics. Provide a range of natural and everyday objects and materials, as well as blocks and shapes, for children to play with freely and to make patterns with. When appropriate, encourage children to continue patterns and spot mistakes. Engage children in following and inventing movement and music patterns, such as clap, clap, stamp. Developing an awareness of pattern helps children to notice and understand mathematical relationships. 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. For further progression in Pattern see *NCETM Early Years Typical Progression Chart – Pattern*.

Pattern Fish – Trudy Harris  
 Lots and lots of Zebra Stripes – Stephen R. Swinburne  
<https://nrich.maths.org/13250>

pattern, continue, notice, next

#### Size: Using the language of size

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?'

Big Bear, Small Mouse – Karma Wilson & Jane Chapman

notice, big, large, small, little  
 The \_\_\_\_\_ is smaller/larger than the \_\_\_\_\_.