Old Town Infant School and Nursery

MATHS MEDIUM TERM PLANNING

Coastal Learning PARTNERSHIP

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.

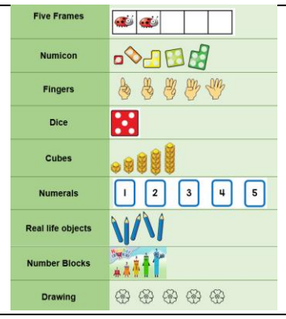
The stable-order principle – children understand when counting that the numbers have to be said in a certain order. Children need to know all the number names for the amount in the group they are counting. Teachers can therefore encourage children to count aloud to larger numbers without expecting them 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



Key Language

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

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Summer 1

Links to progression document

recognise up to 3 objects, without having to count them individually ('subitising')
recite numbers past 5
say one number for each item in order: 1,2,3,4,5
know the last number reached when counting objects tells you how many there are
show fingers, marks on paper or pictures for numbers up to 5
link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5
experiment with their own symbols and marks as well as numerals
compare small quantities using language: 'more than', 'fewer than'
know that a group of things changes in quantity when something is added or taken away
solve real world mathematical problems with numbers up to five
make comparisons between objects relating to size and length
talk about and explore circles, rectangles and triangles using language like 'sides', 'corners'; 'straight', 'flat', 'round'
combine shapes to make new ones, e.g. a bigger triangle etc.
talk about and explore solid shapes such as cuboids and balls *(round is an acceptable description at this age)*
select shapes appropriately e.g. flat surfaces for building, a triangular prism for a roof etc.
Combine shapes to make new ones e.g. an arch, a bigger cuboid etc.
begin to categorise objects according to properties, such as shape or size
begin to compare objects according to properties, such as shape or size
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
use a range of practical resources and equipment
talk about what they have done

Guidance	Resources	Key Vocabulary
Shapes		
Encourage children to play freely with blocks, shapes, shape puzzles and shape-sorters. Sensitively support and discuss questions like: "What is the same and what is different?" Encourage children to talk informally about shape properties using words like 'sharp corner', 'pointy' or 'curvy'. Talk about shapes as you play with them: "We need a piece with a straight edge." 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. Include sorting of natural shapes; the children may sort stones, for example, into sets that have straight edges, sets that have curved edges etc. Provide a variety of construction materials like blocks and interlocking bricks. When appropriate, talk about the shapes and how their properties suit the purpose. Provide shapes that combine to make other shapes, such as pattern blocks and interlocking shapes, for children to play freely with. When appropriate, discuss the different designs that children make. Occasionally suggest challenges, so that children build increasingly more complex constructions. Use tidy-up time to match blocks to silhouettes or fit things in containers, describing and naming shapes.	NCETM Early Years Typical Progression Chart –Shape and Space https://nrich.maths.org/13373	***Note: This is for staff to model.*** edge, curve, straight, round, flat, sides, face, corner, smooth

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Length and Height		
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 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).	NCETM Early Years Typical Progression Chart – Measures https://nrich.maths.org/13374	long, short, tall, longer than, shorter than, taller than The _____ is longer/shorter/taller than the _____.
One more, one less		
The children will use real objects to see that the quantity of a group can be changed by adding more. The first, then, now structure can be used to create mathematical stories in meaningful contexts. Children continue to count, subitise and compare as they explore one more and one less. Prompt children to see the link between counting forwards and the one more pattern and back and the one less pattern.		

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Nursery – Summer 2

Links to progression document

make comparisons between objects relating to capacity
begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'
understand position through words alone, e.g. "The bag is under the table," – with no pointing
describe a familiar route
start to use words like 'in front of' and 'behind'
make links to real-life, through role play and through helping adults
use a range of practical resources and equipment
understand a question or instruction that has two parts, e.g. 'Get your coat and wait at the door.'
talk about what they have done

Guidance overview	Resources	Key Vocabulary
Positional Language		
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'.* Discuss position in real contexts. Suggestions: how to shift the leaves off a path or sweep water away down the drain. 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, Let's put the troll under the bridge and the billy goat beside the stream) Take children out to the shops or the park: recall the route and the order of things seen on the way. Set up obstacle courses, interesting pathways and hiding places for children to play with freely. When appropriate, ask children to describe their route and give directions to each other. Provide complex train tracks, with loops and bridges, or water-flowing challenges with guttering that direct the flow to a water tray, for children to play freely with. Read stories about journeys, such as 'Rosie's Walk'. Count down to forthcoming events on the calendar in terms of number of days or sleeps.	Rosie's walk NCETM Early Years Typical Progression Chart – Shape and Space https://nrich.maths.org/13373	in, on, under, up, down, across, in front of, behind, on top of. The _____ is (*position*) the _____.
Time (My Day)		
Children talk about night and day and order key events of their day such as waking up, coming to school, dinner, bed time. Encourage the vocabulary of first, next, then and possibly last. They use language to describe when things happen e.g. day, night, morning, afternoon, before after, today, tomorrow. Children explore measuring time.		first, next, then, last
Capacity		
Children will have been given daily opportunity for sand and water play which will have already provided 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. Provide opportunities to explore capacity with different materials such as water, sand, rice and loose parts. Provide different sized and shaped containers to investigate.	NCETM Early Years Typical Progression Chart – Measures https://nrich.maths.org/13374	full, half full, empty, most, least The container is full/half full/empty. The _____ holds the most/least water.