FENISCOWLES PRIMARY SCHOOL

'STRIVING FOR EXCELLENCE'

EYFS MATHEMATICS PROGRESSION MAP

BIRTH TO END OF RECEPTION YEAR

EYFS Progression Map from birth to the end of Reception year

Area of Learning Mathematics Number
ELG: Number Have a deep understanding of number to 10, including the composition of each number. Subitise up to 5.
ELG Numerical Patterns: Verbally count beyond 20, recognising the pattern of the counting system

Concept:
Cardinality and Counting
The cardinal value of a number refers to the quantity of things it represents, e.g. the numerosity, 'howmanyness', or 'threeness' of three. When children understand the cardinality of numbers, they know what the numbers mean in terms of knowing how many things they refer to. Counting is one way of establishing how many things are in a group, because the last number you say tells you how many there are. Children enjoy learning the sequence of counting numbers long before they understand the cardinal values of the numbers. Subitising is another way of recognising how many there are, without counting.

Typical progression within this concept →		**Counting: saying number words in sequence**	**Counting: tagging each object with one number word or mark**	**Counting: knowing the last number counted gives the total so far**	**Subitising: recognising small quantities without needing to count them all**	**Numeral meanings**	**Conservation: knowing that the number does not change if things are rearranged (as long as none have been added or taken away)**	
Progression steps to enable typical progression within this concept ↓	Birth – 3	I can take part in finger rhymes with numbers – reacting to changes of amount in a group of up to 3 I can show counting like behaviour, such as making sounds, pointing or saying some number names I can count in everyday contexts sometimes skipping numbers or saying them in the wrong order						
	3- yrs 4	I can say number names in order to 3 starting at 1 I can say number names in order to 5 starting at 1 I can say number names in order to 10 starting at 1	I can count a line of objects, tagging each object with a number word, to 3 I can count an irregular arrangement of 3 objects by tagging each object with a number word I can count a line of objects, tagging each object with a number word, to 5 I can count an irregular arrangement of 5 objects by tagging each object with a number word	I can count out 3 objects from a larger group	I can automatically recognise a group of 2 objects I can automatically recognise a group of 3 objects	I can say the correct number word when I see number symbols 1-3 in various contexts I can match the number symbol with a group of up to 3 objects. I can say the correct number word when I see number symbols 4-5 in various contexts	I know that a group of 3 objects is still a group of 3 objects even when rearranged.	
	Reception	I can say number names in order to 20 starting at 1 I can say number names in order beyond 20	I can count a line of objects, tagging each object with a number word, to 10 I can count an irregular arrangement of 10 objects by tagging each object with a number word I can represent objects to 10 using my own marks I can count an objects or actions to 20 by tagging each object/action with a number word I can count an objects or actions beyond 20 by tagging each object/action with a number word	I can count out 5 objects from a larger group I can count out 10 objects from a larger group	I can automatically recognise a group of 4 objects I can automatically recognise a group of 5 objects	I can match the number symbol with a group of up to 5 objects. I can say the correct number word when I see number symbols 6-10 in various contexts I can match the number symbol with a group of up to 10 objects. I can use a tens frame to organise my counting I know that the numbers in the one's column increase in the same way (1-9) for each ten.	I know that a group of 5 objects is still a group of 5 objects even when rearranged. I know that a group of 10 objects is still a group of 10 objects even when rearranged.	**ELG: Number** Have a deep understanding of number to 10, including the composition of each number; Subitise up to 5 **ELG Numerical Patterns:** Verbally count beyond 20, recognising the pattern of the counting system
Guidance from NCETM progression document		Children need to know number names, initially to five, then ten, and extending to larger numbers, including crossing boundaries 19/20 and 29/30. Counting back is a useful skill, but young children will find this harder because of the demand it places on the working memory.	Children need lots of opportunities to count things in irregular arrangements. For example, how many play people are in the sandpit? How many cars have we got in the garage? These opportunities can also include counting things that cannot be seen, touched or moved.	Children need the opportunity to count out or 'give' a number of things from a larger group, not just to count the number that are there. This is to support them in focusing on the 'stopping number' which gives the cardinal value.	Subitising is recognising how many things are in a group without having to count them one by one. Children need opportunities to see regular arrangements of small quantities, e.g. a dice face, structured manipulatives, etc., and be encouraged to say the quantity represented. Children also need opportunities to recognise small amounts (up to five) when they are not in the 'regular' arrangement, e.g. small handfuls of objects.	Children need to have the opportunity to match a number symbol with a number of things. Look for opportunities to have a range of number symbols available, e.g. wooden numerals, calculators, handwritten (include different examples of a number).	Children need the opportunity to recognise amounts that have been rearranged and to generalise that, if nothing has been added or taken away, then the amount is the same.	

EYFS Progression Map from birth to the end of Reception year

Area of Learning Mathematics Number
ELG: Numerical
Patterns compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity

Concept: Comparison
Comparing numbers involves knowing which numbers are worth more or less than each other. This depends both on understanding cardinal values of numbers and also knowing that the later counting numbers are worth more (because the next number is always one more). This understanding underpins the mental number line which children will develop later, which represents the relative value of numbers, i.e. how much bigger or smaller they are than each other.

Typical progression within this concept		**More than / less than**	**Identifying groups with the same number of things**	**Comparing numbers and reasoning**	**Knowing the 'one more than/one less than' relationship between counting numbers**	
Progression steps to enable typical progression within this concept	Birth – 3	I can compare amounts saying 'lots', 'more', or 'same' (Drawing attention to changes in amount e.g. adding more bricks to a tower, eating things…)				
	3- yrs 4	I can compare two groups (when the amounts are obviously different and the objects are of a similar size) saying where there is more and where there is less. I can compare two groups (when the amounts are less obviously different and the objects are of a similar size) saying where there is more and where there is less.	I can match the objects in two groups to find out that they have an equal number of things.	I can say which number is more or less than another number with the support of objects.		
	Reception	I can compare two groups (when the amounts are less obviously different and the objects are not of a similar size) saying where there is more and where there is less.	I can say that groups are equal by counting them and reaching the same number.	I can explain why a number is more or less than another number. I can describe a number as a lot bigger or a little bigger by looking at their positions on a number line. I can describe a number as a lot smaller or a little smaller by looking at their positions on a number line.	I know what one more than and one than a number from 1-5 is. I know what one more than and one than a number from 1- 10 is. I can explain how I know what one more and one less than a number is.	**ELG: Numerical Patterns** compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity
Guidance from NCETM progression document		Children need progressive experiences where they can compare collections and begin to talk about which group has more things. Initially, the groups need to be very obviously different, with one group having a widely different number of things. Collections should also offer challenges, such as including more small things and fewer large things, to draw attention to the numerosity of the comparison, i.e. the number of things, not the size of them.	Children need the opportunity to see that groups could consist of equal numbers of things. Children can check that groups are equal, by matching objects on a one-to-one basis.	Children need opportunities to apply their understanding by comparing actual numbers and explaining which is more. For example, a child is shown two boxes and told one has 5 sweets in and the other has 3 sweets in. Which box would they pick to keep and why? Look for the reasoning in the response they give, i.e. 'I would pick the 5 box because 5 is more than 3 and I want more.' If shown two numerals, children can say which is larger by counting or matching oneto-one. Children can compare numbers that are far apart, near to and next to each other. For example, 8 is a lot bigger than 2 but 3 is only a little bit bigger than 2.	Children need opportunities to see and begin to generalise the 'one more than/one less than' relationship between sequential numbers. They can apply this understanding by recognising when the quantity does not match the number, i.e. if a pack is labelled as 5 but contains only 4, the children can identify that this is not right. Support children in recognising that if they add one, they will get the next number, or if one is taken away, they will have the previous number. For example: 'There are 4 frogs on the log, 1 frog jumps off. How many will be left? How do you know?'	

EYFS Progression Map from birth to the end of Reception year

Area of Learning Mathematics Number
ELG: Number
automatically recall number bonds to 5
(including subtraction facts) and some number bonds to 10, including double facts

Concept:
Composition
Knowing numbers are made up of two or more other smaller numbers involves 'part–whole' understanding. Learning to 'see' a whole number and its parts at the same time is a key development in children's number understanding. Partitioning numbers into other numbers and putting them back together again underpins understanding of addition and subtraction as inverse operations.

Typical progression within this concept →		**Part–whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total)**	**Inverse operations**	**A number can be partitioned into different pairs of numbers**	**A number can be partitioned into more than two numbers**	**Number bonds: knowing which pairs make a given number**	
Progression steps to enable typical progression within this concept ↓	Birth – 3	I can group objects together (e.g. in a selection of 5 items of crockery group all of the cups and the plates)					
	3- yrs 4	I can split 3 objects into different groups (e.g. I can give 3 bears one spoon each, I can give mummy bear 2 spoons so she can feed baby bear and herself but daddy bear can feed himself) I can split 5 objects into different groups	I know when I have split a set of 3 objects into groups, if I collect them back together there will still be 3. I know when I have split a set of 5 objects into groups, if I collect them back together there will still be 5.				
	Reception	I can split 10 objects into different groups	I know when I have split a set of 10 objects into groups, if I collect them back together there will still be 10.	I can partition 3 objects into different pairs of numbers I can partition 5 objects into different pairs of numbers I can partition 10 objects into different pairs of numbers	I can partition 5 objects into different amounts of numbers (e.g. 1, 1, 1, 1, 1; 2, 1, 1, 1;…) I can partition 10 objects into different amounts of numbers (e.g. 1, 1, 1, 1, 1; 2, 1, 1, 1;…)	I can remember the number bonds that total 2. I can remember the number bonds that total 3. I can remember the number bonds that total 4. I can remember the number bonds that total 5. I can remember some of the number bonds that total numbers 6-10. I know what the word double means. I know the doubles for numbers 0-5	**ELG: Number** automatically recall number bonds to 5 (including subtraction facts) and some number bonds to 10, including double facts
Guidance from NCETM progression document		Children need opportunities to see small numbers within a larger collection. 'Number talks' allow children to discuss what they see. For instance, with giant ladybirds: 'There are 5 spots altogether. I can see 4 and 1, I can see 3 and 2, and I can see 1 and 1 and 1 and 1 and 1.' Encourage exploration of all the ways that 'five' can be and look. Children are encouraged to look closely at numbers to see what else they can see. This reinforces the concept of conservation.	Children need opportunities to partition a number of things into two groups, and to recognise that those groups can be recombined to make the same total. Encourage children to say the whole number that the 'parts' make altogether.	Children need opportunities to explore a range of ways to partition a whole number. The emphasis here is on identifying the pairs of numbers that make a total. Children can do this in two ways – physically separating a group, or constructing a group from two kinds of things.	Children need opportunities to explore the different ways that numbers can be partitioned, i.e. into more than two groups. Situations to promote this include increasing the number of pots to put a given amount into, e.g. planting ten seeds into three or more pots.	Children need opportunities to say how many are hidden in a known number of things. For example: 'Five toys go into a tent, then two come out. How many are left in the tent?' The child should respond that there are still three toys in the tent.	

EYFS Progression Map from birth to the end of Reception year

Area of Learning Mathematics Shape, Space and Measures

Concept:
Measures
Mathematically, measuring is based on the idea of using numbers of units in order to compare attributes, such as length or capacity. Although young children engage with using rulers and experience being measured in centimetres, kilos – and years! – the measuring units themselves are hard to understand. Children need to realise which attribute is being measured, e.g. weight as opposed to size, and the idea of conservation: that the amount stays the same, even if the appearance alters, e.g. if dough is stretched out or in bits. In order to understand units, they need to realise that two items can be compared using a third item, or 'go between', such as a stick. Finally, children need to understand how equal size units are used repeatedly to express an amount as a number. While young children can engage actively in making comparisons and exploring equivalence of length, volume, capacity and weight in different ways, some of these ideas are challenging and will develop later in primary school. For instance, weight (mass or density) is difficult to distinguish from size since it is invisible, and the concept of conservation is harder to understand for weight and capacity. Measuring with non-standard units of different sizes in order to appreciate the need for equal units is less effective with younger children, so centimetre cubes are recommended as accessible units. While time is also elusive to measure, young children can sequence events and, for example, count 'sleeps'. (Money as a measure of value is too advanced to consider here.)

Typical progression within this concept →		**Recognising attributes**	**Comparing amounts of continuous quantities**	**Showing awareness of comparison in estimating and predicting**	**Comparing indirectly**	**Recognising the relationship between the size and number of units**	**Beginning to use units to compare things**	**Beginning to use time to sequence events**	**Beginning to experience specific time durations**
Progression steps to enable typical progression within this concept ↓	Birth – 3	I can fill and empty containers. I can build with a range of resources	I can attempt, sometimes successfully, to fit shapes into spaces on inset boards or jigsaw puzzles. I can squeeze myself into different types of spaces.	I can compare sizes, weights etc. using gesture (e.g. pointing or picking up) or language to indicate bigger, smaller, high, low, heavy, light					
	3-4 yrs	I can describe use size words to describe the things I see. I can use weight words to describe the things I hold. I can use capacity words to describe how full something is.	I can use the phrases 'too much' and 'not enough' when filling containers. I can describe something as 'longer' or 'shorter' when two objects of vastly different length are laid next to each other. I can describe something as heavier or lighter when two objects of vastly different weights are compared.	I can put things away in their correct boxes – understanding that these are the right size for the object.	I can play with a variety of different sized toys when filling/emptying containers.	I know it takes longer to count out a box full of tiny objects compared to the same box filled with large objects.	I can make everyday objects larger or smaller. e.g. how can you make that puddle bigger? When you squeeze that sponge does it stay small? What happens when you stretch the dough?	I can describe a familiar route e.g. where I walk to get to nursery I can begin to describe a sequence of events, real or fictional, using words such as 'first' and 'then'	
	Reception		I can find out which container will hold more than another container. I know that a balance scale will be lower on the side where the object is heavier.	I can predict/estimates related to capacity e.g. which container would need to be used to carry these items? What could we fit in here? Etc. I can make estimates related to distance e.g. how far I think a tire will roll, how many construction toys will be needed to span an area, etc.	I can order at least 3 items from smallest to biggest. I can order at least 3 items from heaviest to lightest. I can order at least 3 items by capacity. I can help to solve everyday problems that involve comparisons of size, weight and capacity.	I can compare filling a container with fluid or objects using small, medium sized and large containers. I can compare creating a tower with small, medium sized and large objects. I can use a balance scale to compare somethings weight using small, medium sized and large objects.	I can make a tower of blocks that is the same height, taller and smaller than myself. I can compare a tower of multilink to an object and describe if it is the same size, longer/bigger or smaller/shorter. I can measure the length of objects using various measuring apparatus such as apples, multilink, metre sticks etc.	I can order and sequences important times during the day. I know and understand the words 'before', 'after', 'next', and the relative terms 'yesterday' and 'tomorrow'. I know what the days of the week are.	I can talk about how many 'sleeps' there are before an event such as a birthday or Christmas. I am able to measure how long an activity takes in simple ways e.g. by counting, by using a simple timer etc. I am beginning to understand the concept of minutes by being timed to do as many actions as possible in a certain number of minutes.

EYFS Progression Map from birth to the end of Reception year

Area of Learning Mathematics Shape, Space and Measures

Concept:

Pattern

Seeking and exploring patterns is at the heart of mathematics (Schoenfeld, 1992). Developing an awareness of pattern helps young children to notice and understand mathematical relationships. Clements and Sarama (2007) identify that patterns may provide the foundations of algebraic thinking, since they provide the opportunity for young children to observe and verbalise generalisations.
The focus in this section is on repeating patterns, progressing from children copying simple alternating AB patterns to identifying different structures in the 'unit of repeat', such as ABB or ABBC. Patterns can be made with objects like coloured cubes, small toys, buttons and keys, and with outdoor materials like pine cones, leaves or large blocks, as well as with movements and sounds, linking with music, dance, phonics and rhymes. Children can also spot and create patterns in a range of other contexts, such as printed patterns, timetables, numbers and stories.

Typical progression within this concept →		**Continuing an AB pattern Copying an AB pattern Make their own AB pattern Spotting an error in an AB pattern**	**Identifying the unit of repeat**	**Continuing an ABC pattern Continuing a pattern which ends mid-unit**	**Make their own ABB, ABBC patterns Spotting an error in an ABB pattern**	**Symbolising the unit structure**	**Generalising structures to another context or mode**	**Making a pattern which repeats around a circle Making a pattern around a border with a fixed number of spaces**	**Pattern-spotting around us**
Progression steps to enable typical progression within this concept ↓	Birth – 3	I can notice simple patterns e.g. a spotty pattern on a jumper I can arrange things in patterns e.g. I can place a pompom inside the holes of an egg tray I can join in with the actions to nursery rhymes.							
	3- yrs 4	I can talk about patterns around me (e.g. the stripy pattern on a cloth) I can copy ABAB patterns. I can continue ABAB patterns. I can create ABABs pattern of my own. I can spot an error in an ABAB pattern and correct it.							
	Reception		I can say which part of an ABAB pattern is repeating.	I can continue ABC patterns. I can spot an error in an ABC pattern and correct it. I can continue an ABC pattern that ends mid unit.	I can create ABC pattern of my own. I can create ABB pattern of my own. I can create ABBC pattern of my own. I can spot errors in AB, ABC, ABB and ABBC patterns.	I can symbolise AB, ABC, ABB, ABBC patterns in simple ways.	I can use a symbolised pattern to create a pattern in a different media.	I can investigate whether a pattern will or will not fit around a circle. I can investigate whether a pattern will or will not fit around a boarder with a fixed number of spaces.	I can identify the unit of repeat in patterns in the environment. I know butterflies have a symmetrical pattern on their wings. I can explore creating symmetrical patterns.

EYFS Progression Map from birth to the end of Reception year

Area of Learning Mathematics Shape, Space and Measures

Concept:
Concept: Shape and Space Mathematically, the areas of shape and space are about developing visualising skills and understanding relationships, such as the effects of movement and combining shapes together, rather than just knowing vocabulary. Spatial skills are important for understanding other areas of maths and children need structured experiences to ensure they develop these. Here, the focus is on actively exploring spatial relations and the properties of shapes, in order to develop mathematical thinking (rather than on shape classification, which requires prior knowledge of properties). This section is concerned with developing the two aspects of spatial awareness and shape awareness, with some progression identified within each.

Typical progression within this concept →		Developing spatial awareness: experiencing different viewpoints	Shape awareness: developing shape awareness through construction	Representing spatial relationships	Identifying similarities between shapes	Showing awareness of properties of shape	Describing properties of shape	Developing an awareness of relationships between shapes
Progression steps to enable typical progression within this concept ↓	Birth – 3	I can select shapes which will fit when rotated or flipped in insert boards, shape sorters and jigsaws I can engage in exploratory play with shapes.		I can use gesture and limited talk (e.g. 'there') to indicate the position of something that has been asked for				
	3- yrs 4	I can ride trikes around different routes to get to the same end point I can direct a friend around an obstacle course using spatial vocabulary. I can take part in various construction activities I can print and making pictures and patterns with shapes I can select shapes appropriately e.g. flat surfaces for building, a triangular prism shape for a roof etc. I can combine shapes to make new ones e.g. An arch or a bigger triangle		I can respond to the use of everyday positional language e.g. I put my bag under my chair, I put my lunchbox in my bag etc. I can use everyday positional language in my day to day talk.	I know the names of the 2D shapes circle, square, rectangle and triangle. I can give simple explanations about why I have chosen a particular shape or object using everyday language for its properties e.g. I needed something flat for teddy to lie on.			
	Reception	I can make a complete circuit with a train track I can direct a simple robot or remote-controlled toy vehicle along a route I can see things from other viewpoints. E.g. With toys in a line 'Can you say what the teddy on the other side is seeing?'		I can respond to more specific positional language correctly. I can describe the position of things using more specific positional language.	I can select, rotate and manipulate 2D and 3D shapes, construction materials as well as found objects to fulfil a particular need e.g. choosing flat faced 3D shapes to build a tower, selecting the correct shapes and orienting them correctly to complete a complex 2D or 3D shape picture I know the names of the 3D shapes cube, sphere, square based pyramid, triangular based pyramid, cuboid and triangular prism. I know the properties of the 4 basic 2D shapes. I know the properties of the 3D shapes.			can spot shapes within shapes. I can investigate how shapes can be combined to create different shapes.