EYFS MATHEMATICS SKILLS PROGRESSION

Teacher

There are six main areas that collectively underpin children's early mathematical learning, and which provide the firm foundations for the maths that children will encounter as they go up the years in primary school.

They are:

Cardinality and Counting: understanding that the cardinal value of a number refers to the quantity, or 'howmanyness' of things it represents

Comparison: understanding that comparing numbers involves knowing which numbers are worth more or less than each other

Composition: understanding that one number can be made up from (composed from) two or more smaller numbers

Pattern: looking for and finding patterns helps children notice and understand mathematical relationships

Shape and Space: understanding what happens when shapes move, or combine with other shapes, helps develop wider mathematical thinking

Measures: comparing different aspects such as length, weight and volume, as a preliminary to using units to compare later.

https://www.ncetm.org.uk/resources/52500

Guidance for teachers in EYFS (https://whiterosemaths.com/resources)

The five counting principles

The one-one principle.	The stable-order principle.	The cardinal principles.	The abstraction principle.	The order-irrelevance principle.
This involves children assigning one number name to each object that is being counted. Children need to ensure that they count each object only once ensuring they have counted every object.	Children understand when counting, the numbers have to be said in a certain order.	Children understand that the number name assigned to the final object in a group is the total number of objects in that group.	This involves children understanding that anything can be counted including things that cannot be touched including sounds and movements e.g. jumps.	This involves children understanding that the order we count a group of objects is irrelevant. There will still be the same number.

Key Language for Teachers

Cardinal – The number that indicates how many there are in a set.	**Classification** – The identification of an object by specific attributes, such as colour, texture, shape or size.
Conservation (of number) – The recognition that the number stays the same if none have been added or taken away.	**Numeral** – The written symbol for a number; e.g. 3, 2, 1
Ordinal – a number denoting the position in a sequence e.g. 1st, 2nd, 3rd, etc or page 1, page 2, page 3…	**Partition** – separate a set into two or more subsets e.g. partition a set of socks into plain and patterned.
Subitise – Instantly recognise a small quantity, without having to count how many there are.	**Number** – Number can be: • a count of a collection of items e.g. three boxes, • a measure e.g. of length or weight, or • a label e.g. the number 17 bus
Quantity –The amount you have of something e.g. a cup of four, three boxes, half an hour.	

Key	
	The 6 main areas of EYFS maths
	Nursery skills
	Reception skills

EYFS Mathematics Progression Chart

Number and Place Value - Cardinality and Counting

Counting: saying number words in sequence	Counting: tagging each object with one number word	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)

Counting – object counting skills progression 0-5. 0-10, 0-20

Use language associated with counting, such as "more", "a lot", "less".	Say number names to count objects, not necessarily in the right order or at the right speed.	Begin to develop one-to-one correspondence and say one number name for each object.	Move or touch objects to count them.	Can count things they can't touch or see, such as pictures on a wall or sounds.	Know that when objects are moved, spread out, or moved closer together that the total remains the same.	Knows that the last number they say represents the number of objects in a group.	Give someone a specified number of objects. Count out a specified number of objects from a larger group.	Subitise small amounts of objects arranged on a regular pattern, such as a dice pattern. Subitise small amounts of objects arranged in an irregular pattern.	Make an estimate, such as choosing the group with more objects in, or choosing the group which has closest to ten objects.	Can count on when part of a set of objects is hidden.

Rote counting – skills progression 0-5, 0-10, 0-20

Can say some counting words randomly.	Can say the number names in order in an unbroken string forwards. Can say the number names backwards in an unbroken string.	Understands that the order of numbers is fixed and will not change.	Recognise the significance and value of zero.	Can say the number before or after a number, dropping back to one.	Can say the number before or after a number, without dropping back to one.	Can stop and start in different places forwards. Can stop and start in different places backwards.	Can count on and keep track of how many they have counted on. Can count back and keep track of how many they have counted back.	Can see the recurring pattern in our number system and use this to help them count higher.	Can enunciate each number clearly.

Number Recognition, Representation and Ordering

Can distinguish numerals from letters. For example, by pointing to a numeral when sharing a familiar book with an adult.	Can represent numbers using fingers, marks on paper or pictures.	Can pick out a matching numeral to a numeral that is shown to them.	Can recognise a numeral from 1 to 3 and find the matching number of objects.	Can sometimes match numeral to quantity.	Can record using marks that they can interpret and explain.	Can recognise numerals 0 to 5, then 0 to 10 when they are placed in order, such as reading along a number line.	Can read a numeral from 0 to 5, then 0 to 10 and sometimes represent it correctly.	Can order objects, such as towers of bricks or pictures, visually ordering numbers by saying which number is the largest /smallest.	Can recognise numerals 0 to 5, then 0 to 10 when placed out of order.	Can order numerals 0 to 5.	Can place consecutive numerals in order initially with numbers from 0 to 10, then progressing to numbers 0 to 20.	Through a meaningful context, such as point scoring games, children can place their scores in order.	Can place consecutive numbers in order starting from a number other than one.	Can place non-consecutive numbers in order. Initially with numbers from 0 to 10, then progressing to numbers 0 to 20.	Can place numbers in order from smallest to greatest and from greatest to smallest.

Number and Place Value - Comparison

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	

Comparing Numbers and Quantities

Recognise when a group of objects is more than one.	Can indicate, for example by pointing, which group of objects has 'more' objects.	Uses number language, such as 'more' and 'a lot'.	Can indicate, for example by pointing, which set has more or which set has less.	Uses number language, such as 'less' or 'fewer'.	Can indicate, for example by pointing, which group of objects has 'fewer' objects.	Recognise groups with one, two or three objects and begin to make comparisons between quantities, using the language of 'more' and 'fewer'.	Match groups of objects with the same number.	Compare two groups of objects, saying when they have the same number.	Know that the quantity of objects stays the same when they are spread out or moved closer together. Understand that objects will appear different if they are spread out or different sizes.	Say the number that comes after a given number in the sequence one to five, progressing to numbers from one to ten.	Say the number that comes before a given number in the sequence one to five, progressing to numbers from one to ten.	Can find one more than a number to five, progressing to numbers to ten.	Can find one less than a number to five, progressing to numbers to ten.	Can find one more and one less than a number to five, progressing to numbers to ten.

Addition and subtraction - Composition

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

Addition

Know that numbers identify how many objects are in a set.	Separate a group of three or four objects in different ways, beginning to recognise that the total is still the same.	Know that a group of things changes in quantity when something is added.	Compare sets of objects, saying when they have the same number.	Compare sets of objects, saying which has more objects.	Compare sets of objects, saying how many more are in each set.	Find one more than a number from one to ten.	Say the number that is one more than a given number	Know that numbers are made up of different numbers. For instance, four can be four and zero, one and three or two and two.	Represent numbers in different ways, using equipment, five or ten-frames, part-part-whole models, number lines, stories.	Understand the effect of adding zero.	Find the total number of items in two groups by counting all of them.	Select two groups of objects to make a given total of objects.	Recognise the number of objects without counting. (0-5) (Subitise)	Find out the 'total' or 'how many altogether' after two sets have been combined.	Count on to add.	Uses vocabulary of equals: makes, balances, same, total.	Use vocabulary of addition: how many altogether, plus, more.	Understand addition as an increase.

Subtraction

Know that numbers identify how many objects are in a set.	Know that a group of things changes in quantity when something is taken away.	Count out objects from a larger group.	Compare sets of objects, saying when they have the same number.	Compare sets of objects, saying which has fewer objects.	Compare sets of objects, saying how many fewer are in each set.	Subtract by counting a group of objects, counting out the number to remove and then recounting all.	Find one less than a number from one to ten	Know that numbers are made up of different numbers. For example, four can be four and zero, one and three or two and two.	Represent numbers in different ways using equipment, such as five or ten-frames, part-whole models, number lines or stories.	Understand the effect of subtracting zero.	Understand the effect of subtracting the full amount.	Compare groups of objects, saying how many belong and how many don't belong in the set.	Count back to subtract.	Use vocabulary of equals: leaves, balances, same, total.	Use vocabulary of subtraction: take away, how many left, subtract, minus.	Use vocabulary of comparison in practical contexts: how many fewer? How much shorter/cheaper than…?	Understand subtraction as a decrease.

Multiplication and Division – Numerical Patterns

Learn that double means 'twice as many'	Say doubles as they build them, e.g. Double 2 is 4.	Look at doubles and non-doubles and sort and explain why.	Share items into 2 equal groups and identify when groups are shared fairly.	Know that half is one of 2 equal parts. Explore sharing between 3 or 4 people.	Understand that when quantities are shred into 2 equal groups with no items left over are even.	Understand that when quantities are shred into 2 equal groups with one left over are odd.	Understand the odd and even structure on Numicon and ten frame.	Explore odd and even by grouping quantities into pairs/groups of 2.	Recognise that even quantities can be grouped into pairs and odd quantities will have one left on their own when they are grouped into pairs.	Solve practical problems, combining objects into groups of 5.	Solve practical problems, combining objects into groups of 10.

Geometry - Patterns

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

Geometry - Shape and Space

Developing spatial awareness: experiencing different viewpoints	Developing spatial vocabulary	Representing spatial relationships	Shape awareness: developing shape awareness through construction	Identifying similarities between shapes	Showing awareness of properties of shape	Describing properties of shape	Developing an awareness of relationships between shapes

Measures

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

Reception		
Autumn	Number and Place Value – Numbers to 5	One, two, three
		Four
		Five
	Addition and Subtraction – Sorting	Sorting into groups
	Number and Place Value – Comparing Groups	Comparing quantities of identical objects
		Comparing quantities of non-identical objects
	Addition and Subtraction – Change within 5	One more
		One less
	Measurement - Time	My day
Spring	Addition and Subtraction – Numbers to 5	Number bonds to 5
	Number and Place Value – Numbers to 10	Counting to 6, 7 and 8
		Counting to 9 and 10
		Comparing groups to 10
	Addition and Subtraction – Addition to 10	Combining two groups to find the whole
		Number bonds to 10 – ten frame
		Number bonds to 10 – part-whole model
	Geometry – Shape and space	Spatial awareness
		3-D shapes
		2-D shapes
Summer	Geometry – Exploring Patterns	Making simple patterns
		Exploring more complex patterns
	Addition and Subtraction – Count on and back	Adding by counting on
		Taking away by counting back
	Number and Place value – Numbers to 20	Counting to 20
	Multiplication and Division – Numerical Patterns	Doubling
		Halving and sharing
		Odds and evens
	Measurement - Measure	Length, height and distance
		Weight
		Capacity

		Nursery
Autumn	Number and place value –	rote counting (0-5)
		Counting objects- - Use language associated with counting, such as "more", "a lot", "less". - one-to-one correspondence and say one number name for each object (0-3)
		Number Recognition, Representation and Ordering (0-3) - Can represent numbers using fingers, marks on paper or pictures. - Can pick out a matching numeral to a numeral that is shown to them. - Begin to recognise a numeral from 1 to 3 and find the matching number of objects.
		Comparing Numbers and Quantities - Recognise when a group of objects is more than one. - Uses number language, such as 'more' and 'a lot'. - Can indicate, for example by pointing, which set has more or which set has less.
	Space and space	Develop spatial awareness: experiencing different viewpoints (riding trikes around interesting routes, cconstruction activities, printing with shapes, posting boxes, jigsaws , making a complete circuit with a train track**)**
	Measure	Recognising attributes (length, capacity, weight - big, tall, full or heavy)
Spring	Number and place value –	rote counting (0-5/0-10)
		Counting objects - one-to-one correspondence and say one number name for each object. - Move or touch objects to count them.
		Number Recognition, Representation and Ordering - Can represent numbers using fingers, marks on paper or pictures. - Can pick out a matching numeral to a numeral that is shown to them. - Can recognise a numeral from 1 to 3 and find the matching number of objects. - Can sometimes match numeral to quantity.
		Comparing Numbers and Quantities - Uses number language, such as 'less' or 'fewer'. - Recognise groups with one, two or three objects and begin to make comparisons between quantities, using the language of 'more' and 'fewer'.
	Composition - Addition and Subtraction	Separate a group of three or four objects in different ways, beginning to recognise that the total is still the same.
		Count out objects from a larger group.
	Space and space	Develop spatial vocabulary: position and direction
		Develop spatial vocabulary: terms which are relative to the viewpoint(in front of', 'behind', 'forwards',' backwards')
	Measures	Comparison amount of continuous quantities(direct comparison of two objects) – length
		Comparison amount of continuous quantities(direct comparison of two objects) – weight
Summer	Number and place value –	rote counting (0-10)/0-20)
		Counting objects- - one-to-one correspondence and say one number name for each object. - Move or touch objects to count them
		Number Recognition, Representation and Ordering - Begin to recognise a numeral from 1 to 5 and find the matching number of objects. - Can sometimes match numeral to quantity (0-5). - Can record using marks that they can interpret and explain.
		Comparing Numbers and Quantities - Recognise groups with one, two or three objects and begin to make comparisons between quantities, using the language of 'more' and 'fewer'. - Match groups of objects with the same number. - Compare two groups of objects, saying when they have the **same** number.
	Space and space	Shape awareness: developing shape awareness through construction
		Identifying similarities between shapes (representing a ball as a circle, building a train from wooden rectangular blocks, or using a curved block for the elephant's trunk.**)**
	Measures	Comparison amount of continuous quantities(direct comparison **of two objects)** – weight
	Geometry - Patterns	Simple AB patterns
	Composition - Addition Subtraction	Know that a group of things changes in quantity when something is added.
		Know that a group of things changes in quantity when something is taken away.
		Compare sets of objects, saying when they have the same number.