

Guidance for Teachers

# Reception

#MathsEveryoneCan

2020-21



# Reception Guidance

This year education and Early Years provision has changed dramatically. Many young children will have missed out on almost a year in nursery in high quality provision as well as not being able to attend home based settings or pre-schools and playgroups.

Here at WRM we full understand the need for high quality environments and meaningful interactions with staff and each other. Our EY ethos is embedded in the Characteristics of Effective Learning and seeks to support young children's development. We also understand what it is like to teach, lead and manage in Early Years and how to support children to progress through play.

Our adapted overviews support the ethos of the EYFS whilst at the same time enabling teachers to create a mathematically rich curriculum.

The updated Reception Scheme underpins the new Educational Programme for Mathematics (DFE July 2020) and will support you to deliver a curriculum that embeds mathematical thinking and talk. The updated scheme builds on the content of the previous scheme and allows for key mathematical concepts to be revisited and developed further across the year.

The new scheme has been divided into 3-weekly phases which provide far more opportunities to develop the understanding of shape, measure and spatial thinking.

The scheme does not focus solely on either the existing or the new ELGs but the skills needed for either set will be included as part of a broad early maths curriculum.

# The Counting Principles

Following research from Gelman and Gallistel in 1978, it is vital that teachers understand the five counting principles. (Gelman, R. & Gallistel, C. (1978) *The Child's Understanding of Number*. Cambridge, MA. Harvard University Press.)



**The one-one 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 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 per object. This will also help to avoid children counting more quickly than they touch the objects which again shows they have not grasped one-one correspondence.

# The Counting Principles

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**The stable-order principle.** Children understand when counting, 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.

3

**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 principle. 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 Counting Principles

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**The abstraction principle.** This involves children understanding that anything can be counted including things that cannot be touched including sounds and movements e.g. jumps.

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. They can also count imaginary objects in their head to encourage counting on, this involves the children visualising objects.

5

**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 and 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 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. 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 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 flour, three boxes, half an hour.

## Important links and websites

### The NCETM Early Years area

The aim of this section is to help teachers and practitioners in Early Years settings have a clearer understanding of how children build early number sense, and to provide tips on how best to support that learning.

<https://www.ncetm.org.uk/resources/51439>

### Number Blocks

Numberblocks, first broadcast in January 2017, is a pre-school BBC television series aimed at introducing children to early number.

Snappy animation and loveable characters combine with engaging storylines to gently introduce concepts of number to support early mathematical understanding.



<https://www.bbc.co.uk/cbeebies/shows/numberblocks>

### NRICH

The NRICH Early Years resources aim to further develop young children's natural problem-solving abilities in the context of mathematics.

<https://nrich.maths.org/early-years>

### Learning Trajectories

[LT]<sup>2</sup> is a web-based tool for early childhood educators to learn about how children think and learn about mathematics and how to teach mathematics to young children (birth to age 8).

<https://www.learningtrajectories.org/>

### Early Math Collaborative

The Erikson Institute Early Math Collaborative is transforming the understanding, teaching and learning of early mathematics from the ground up.

<https://earlymath.erikson.edu/>

### EEF Improving Mathematics in the EY and KS1

This guidance report summarises the latest research into early maths education and offers 5 practical recommendations for teachers to support the learning of children aged 3-7.

<https://educationendowmentfoundation.org.uk/tools/guidance-reports/early-maths/>

# Overview 2020/21

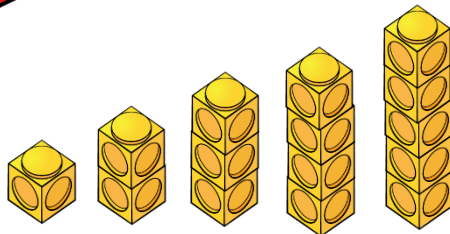
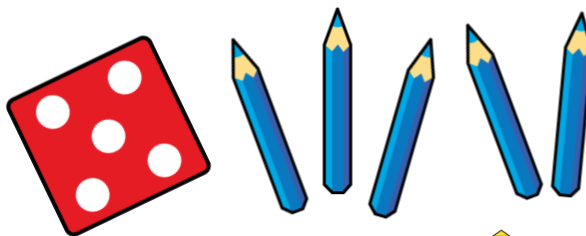
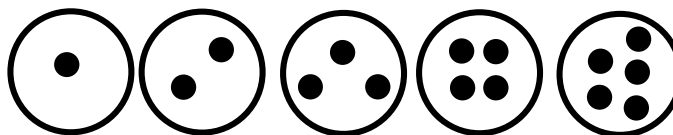
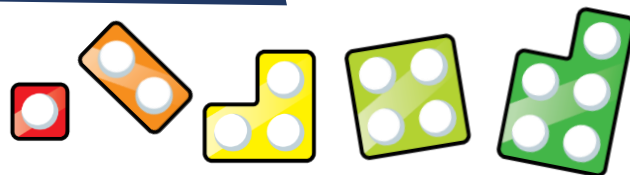
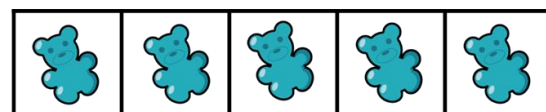
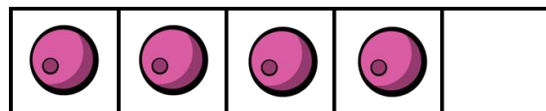
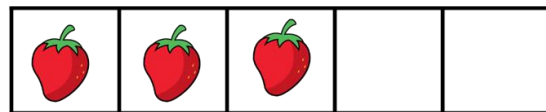
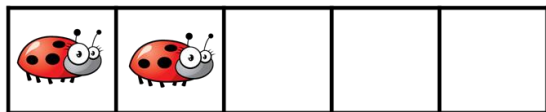
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Autumn	Getting to Know You			Just Like Me!			It's Me 1 2 3!			Light and Dark			Consolidation	
Spring	Alive in 5!			Growing 6, 7, 8			Building 9 and 10			Consolidation				
Summer	On the Move			Superhero to 20 and Beyond			First then Now			Find my Pattern			Consolidation	

- We have divided the Reception Year into 10 Phases. Each phase roughly lasts 3 weeks long, allowing time for flexibility and consolidation.
- Each phase has a number focus and suggested links to measure, shape and spatial thinking.



Week 1	Week 2	Week 3		Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
<p>Getting to Know You</p> <p>Opportunities for settling in, introducing the areas of provision and getting to know the children.</p> <p>Key times of day, class routines. Exploring the continuous provision inside and out. Where do things belong? Positional language.</p>			Phase	Just Like Me!			It's Me 1 2 3!			Light and Dark		
			Number	Match and sort Compare amounts			Representing 1, 2 & 3 Comparing 1, 2 & 3 Composition of 1, 2 & 3			Representing numbers to 5. One more and less.		
			Measure, Shape and Spatial Thinking	Compare size, mass & capacity Exploring pattern			Circles and triangles Positional language			Shapes with 4 sides. Time		

# Key Representations



## Notes and guidance

When teaching counting, consider the **counting principles** at all times. At this early stage, ensure that children are counting real-life objects. They could start by subitising and counting objects that are identical before moving on to subitising and counting objects that have slight differences such as size or colour. Make sure that the objects are of the same type e.g. apples, cubes, books.

Encourage children to put objects into a line when counting so they have a clear start and end point.

The five frame can be used to support children to **subitise** and compare numbers within 5

Numerals may be introduced to children but they are not expected to write them at this stage. They could use informal jottings and/or drawing to record their thinking.