

Early Years Library

READ THE
INTRODUCTION
TO THIS SERIES

Part of the **Numeracy** Series

NUMBERS AND COUNTING

What do we
mean by
numbers and
counting?

Becoming familiar with numbers, numerals (written numbers) and learning to count are important skills for early numeracy. Children learn to count out loud in the correct order, recognise numerals and sequence numbers from 0 to 10. As they become more confident with numbers and counting, children learn that the numbers they say, and the numerals they know, represent quantity and they can compare sets that have 'more' and 'less'.

Why is it
important

Young children will engage with numbers, numerals and number problems spontaneously and should be supported to explore and experiment with numbers and counting in their everyday environments and learning activities to develop a positive attitude to numeracy. Allowing children to explore and experiment with numbers, counting, and numerals in play allows them to practise and develop their early numeracy skills. Children can then apply these skills to new settings and new problems they come across with increasing confidence and familiarity.

Learning to count out loud

Children learn to count out loud in order, repeating verbally a number list. It does not necessarily mean they understand that the words stand for a certain quantity.

Most commonly used strategies in evidence-based manuals:

- Demonstrate counting out loud for children and encourage them to join in on counting activities, asking them what numbers they think come next
- Have children do physical actions and activities to separate one number from another, e.g. clapping, stomping, jumping etc.
- Use a variety of props (such as counting wands or puppets) to engage children in activities and encourage them to say numbers out loud
- Use songs and videos to provide a scaffold for children to practise counting out loud

Inspiring Ideas

- Get children ready to race, tidy up or sing a song by counting up or down: “We’re going to go on 5-ready? 1...2...3...4...5... GO!”
- Clap and Count! When singing a song which involves counting, encourage children to clap, stomp or jump once for each number they sing to help children separate one number from another.
- While counting aloud to ten, children start as curled up and small as possible, as they count they can slowly expand, stand up, and reach to the ceiling, ending up as tall as possible when they reach ten. They can then be supported to count backwards from ten, while slowly curling into a ball!

Tip

Providing opportunities for children to count backwards, for example in countdowns, can help them to practise counting in sequence. This can help to reinforce their learning and supports them to start counting from starting points other than one.

Recognising numerals

Children learn to recognise numerals (written numbers) and can name them. This does not necessarily mean they understand that the numerals stand for a certain quantity.

Most commonly used strategies in evidence-based manuals:

- Identify numerals for children throughout activities by pointing them out and naming them to help children become more familiar with numerals
- Ask children about what numerals they recognise and encourage them to describe what numerals look like (e.g., the number eight is two circles)
- Introduce numerals to children by using visual displays and tools such as print outs of numerals, foam number manipulatives, number lines and charts, or number dice

Inspiring Ideas

- Number Hunt: Hide various numerals around the classroom in lots of different forms (e.g. labels, number cards, foam numbers). Have children roam around the classroom and find as many target numbers as they can, bringing them back to show their peers.
- When children spot a numeral, challenge them to find the same numeral in their environment. *"You've spotted an 8! Can you find another 8? An 8 looks like two circles, one standing on top of the other!"*
- What's your numeral? Using a number line, support children to find their age from the numerals. *"So, you are four years old! Yes, that's a '4'! How old is your sister/ brother/ friend? Can you find their age?"* Encourage children to start at 1 and count up to their age by pointing to each numeral on the number line.

Tip

Support children to trace important numerals like their age, or numerals that they see in activities as a way of reinforcing their learning.

Tip

Point out numerals in children's environment: price tags in shops or role play, numbers on street signs and clocks, and labels on food containers.

Learning the order of numbers

Children learn the sequence of numerals and can count in order. Over time, children will know which numbers come directly before and after one another and can line up numerals in the correct sequence. Learning the order of numbers and being able to recite them in order does not necessarily mean children understand that these stand for a certain quantity.

Most commonly used strategies in evidence-based manuals:

- Demonstrate saying numbers out loud as numerals are placed in sequence to reinforce the order of numbers for children
- Use visual tools such as number cards, number manipulatives, number lines and number charts to help children visualise the sequence of numbers
- Talk to children about what numbers come before and after target numbers, and ask them to help you count along number lines and charts

Inspiring Ideas

- Support children to count along magnetic numbers from 1 to 5. *“What number comes next? 1...2...3...4...5...? 6! That’s right! Can you find the 6 and add it to the other numbers?”*
- Detective game! Every night, one of the mischievous numbers from the number line goes missing! Can children be number detectives and figure out which number has disappeared? Support children to count along the number line and shout out the number that is missing.
- Practise ‘counting on’ with children by starting to count on a number line from numbers other than 1. *“Let’s start at 3 today! We can miss out 1 and 2... so, 3...4...5”*

Matching numbers and numerals to quantity

Children develop an understanding that the numbers they say, and the numerals they know, represent quantity. Children learn to recognise the link between numbers and quantity by counting objects, counting things that can't be moved (e.g., dots on dice or dominoes), counting repetitions (five jumps, two steps forward), and representing numbers on their fingers. Children can then link these quantities to the appropriate numerals.

Most commonly used strategies in evidence-based manuals:

- Demonstrate counting objects out loud for children, discussing the activity and 'tagging' one object to one number as you go. Encourage children to copy and continue counting out quantities in the same way to help them practise
- Use visual tools such as number cards, number charts, numeral manipulatives, dice, and counting manipulatives (e.g., figurines, tokens, linking cubes, or beans) to help children match numerals to the correct number of items

Inspiring Ideas

- Jump and Count! Have children line up and get ready to jump! Hold up signs with different numerals on them. *"What number is this? A three, yes! Jump forward three times!"*
- After building a small world of animal homes, give each home a 'house number' by placing a numeral (1 to 5) next to each house. *"Can anyone tell what the number on the pigsty is? Number 3! Yes! Can we find 3 pigs to put into house number 3? So how many bears live in number 4?"*
- Number Bingo! Have children take turns to roll a dice. When they have counted the dots on the dice, they can put a counter on to their bingo card which has the numerals 1 to 6. First to fill up their card wins!

Tip

Using fingers to count is an easy way of helping children to link the numbers they know and say out loud to quantity.

Comparing and matching quantity

Children develop an understanding of numbers having higher and lower values, translating to more or less in terms of quantity. Children can count the number of objects in two sets and compare these to explain which group has more. Children link this knowledge to understanding that, for example, five is 'more than' three, both by knowing that the quantities they represent are different and by their number place value.

Most commonly used strategies in evidence-based manuals:

- Demonstrate to children how to count and compare different sets, and discuss your findings with children to make comparisons
- Ask children about the different numbers and quantities they see and count, reinforcing correct answers and counting through discussion
- Use visual tools such as number cards, number charts, number dice, and counting manipulatives (e.g., dominoes, tokens, blocks, or beans) to help children visualise number and quantity as they contrast and compare groups

Inspiring Ideas

- When playing a board game with a dice, prompt children to count the number of dots on the dice, then compare how many moves they are able to make to the other players. *"You rolled a 6, so you can move six spaces! I rolled a 2, you can move more spaces than me! 6 is more than 2! Oh look, we both rolled a three! That's the same number of spaces... those numbers are equal."*
- Share blocks out unevenly into three groups of 5, 6 and 7. Support children to count how many blocks are in each pile. *"We need to build the tallest tower, which group has more blocks? Yes, that group does look the biggest, let's build the towers and check! So, 7 is more than 6 and 5"*
- Using a number line, support children to add quantities of leaves, toys or counters that match the appropriate numerals. *"Which group has the most leaves? And which has the least? Here's 3 leaves, that's more leaves than 2! That's right! But 3 leaves is less than...?"*

Counting and set production

Children can count and produce sets. This includes counting out sets of objects, spaces (e.g. the spaces on a board game) and repetitions (e.g. five jumps or two steps forward). As children develop, they will eventually be able to count moving targets or things that they can't currently see a set of (for example, the number of cars that have driven past their window).

As children become more confident with counting, they will produce sets of larger numbers, be able to look at a small group of items and understand how many there are without having to count them all (also known as 'subitising') and develop their understanding of how numbers are added together or taken away from one another in different combinations to make the same total (known as 'number bonds').

Most commonly used strategies in evidence-based manuals:

- Use visual displays and tools such as number charts, number dice, and everyday objects in the classroom (e.g., toys, blocks, cups, pens etc) so children can practise producing sets of different numbers
- Invite children to count sets as they complete everyday activities in the classroom and beyond, demonstrating for support as necessary
- Talk to children about how they can use their counting skills to solve everyday problems and tasks (e.g., making sure everyone had a plate for snack, gathering enough teddies for their classmates, making sure they have enough pegs to hang out clothes, or making sure they have the right number of lids for their jars)

Inspiring Ideas

- During role play, ask the shopkeeper for different numbers of items from your shopping list. *"I would like 3 bananas and 2 tins of baked beans, please."*
- On a walk or drive, support children to count how many buses, signs or red cars they spot on their journey.
- Children take turns setting the table for snack time or for a teddy bear's picnic. Each person or teddy needs a plate, cup and spoon. *"How many teddies/ people are there? 7! How many plates do we need? Yes! Let's count out 7 plates, 7 cups and 7 spoons then set the table!"*

NUMBERS AND COUNTING

Ordinal numbers

Children develop an understanding of numbers as first, second, third, etc., in a sequence

Most commonly used strategies in evidence-based manuals:

- Talk to children about the order of things when you notice an opportunity during the day
- Label the different positions in sequences children see in everyday activities
- Use visual displays and tools such as number cards, number lines and charts, and toys to help children visualise the sequence of numbers and label the order they appear in

Inspiring Ideas

- When children are waiting patiently in a line to go inside point out where they are standing in the line! *"You are first in line, you are second in line, and you are third... Who is going to wash their hands first?"*
- Toy Race! Set up a race between 3 toy cars or balls on a slope. *"Let's guess which car will arrive first. Which one might come second? Shall we check and see? Let's race!"* After the races, children can put the cars behind signs that say '1st', '2nd' and '3rd'. *"This sign says 'first', we can put all our fastest cars here!"*
- Form a line using chairs or individual circle mats and ask children where they would like to sit on the bus. *"Teddy is driving us today, so they are in the first seat! Which seat would you like to be in? The fifth seat! Good choice!"*

Tip

Expose children to the language of 'first', 'second', and 'third' etc. during everyday routines and fun activities like role play so children can build their knowledge and experiences of ordinal numbers.