STOCKPORT
METROPOLITAN BOROUGH COUNCIL



Learning Maths in the Early Years

A guide for parents and carers

early years
Stockport

Introduction

This guide will briefly explain *'the big ideas in early years maths'* and how you can further support your child with maths at home. Firstly, it is important to evaluate our own attitudes towards maths in order to help children become confident and capable mathematicians. Here are some key points to consider:

Maths can be fun and enjoyable for you and your child
We all learn best when we enjoy an activity so making it fun is essential for children in the early years. Not every child will enjoy every activity though and that is OK. You know your child best!

There is no such things as a 'maths person' or a 'maths brain'
We all know how easily children pick up on the things we say and we want them to hear positive messages around maths. Every child has the potential to succeed in maths and make progress at their own rate.

Maths does not need to be written down to be 'real maths'
Children learn best by 'doing' and learning through play is central to the early years curriculum. Maths does not have to always be recorded. You will be doing maths everyday with your child without even realising it!

Making mistakes and talking about them is an important part of learning maths
Children will make mistakes, and this is OK. In making mistakes, children learn to problem solve and explain their thinking. These are key skills needed to be successful in maths.

It's all about confidence
For children to be good at maths, they need to feel confident about giving it a go. Praising your child for their effort, not their ability, will increase their confidence and make them hungry to learn more.

The big ideas in early years maths

The **National Centre for Excellence in the Teaching of Mathematics** (NCETM) refer to six *big ideas* which 'collectively provide a platform for everything children will encounter as they progress through their maths learning at primary school, and beyond.' They are:

- **Counting and cardinality**
- **Comparison**
- **Composition**
- **Pattern**
- **Shape and Space**
- **Measures**

Look out for some top tips on how you can support your child at home

Counting and cardinality



There are *three main stages* to counting:

1. **Stable order** – this where children consistently say the number words in order
2. **One to one principle** – this is where children count every item in a set only once and use one number name per item
3. **Cardinal principle** - this is where a child understands that the last number word used represents the cardinality (total amount) of the set

So how can you help?

- ✓ Singing and playing number songs and rhymes and encouraging children to count using their fingers
- ✓ Playing counting games such as 'hide and seek'
- ✓ Counting steps, jumps and actions with you child
- ✓ Encouraging children to touch and count objects they can see
- ✓ Modelling counting objects in your own daily routine
- ✓ Encouraging your child to count out from a bigger group
- ✓ Dice games where children count out the number, they see on a dice
- ✓ Number hunts. For example, can your child find two leaves and two sticks in the park?

Comparison



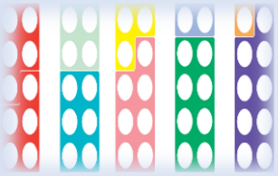
Comparing numbers involves knowing which numbers are worth more or less than each other. **In the early years children need to**:

- Compare groups of objects to say which is 'more'
- Explore equal groups
- Compare numbers and reason
- Explain when sharing might be unfair
- Know the one more and one less relationship between numbers

So how can you help?

- ✓ Allow children to sort and compare collections of objects in the house. For example, when tidying up
- ✓ Provide opportunities to compare objects of different sizes? For example, can they see that 5 small grapes are more than 3 large oranges?
- ✓ Ask children to make two unequal groups equal and bring this into their play
- ✓ Play 'track games' where children have to move counters onto bigger numbers
- ✓ Use the language of 'one more'. For example, by asking them to 'eat one more spoonful' at dinner time
- ✓ Ask children to make predictions in number songs when an object is added or taken away. For example, by saying 'there are 5 frogs on the log. If 1 jumps off how many will there be?

Composition



Composition refers to the knowledge that numbers are made up of two or more other smaller numbers and it involves 'part–whole' understanding. **In the early years children need**:

- Opportunities to see small numbers within a large collection
- Opportunities to partition (separate) a number into two or more groups
- Explore number bonds to 10 e.g. 10 is 5 and 5 and 10 is 9 and 1
- Begin to explore the value of teen numbers

So how can you help?

- ✓ Encourage children to make different arrangements and patterns with five objects
- ✓ Make a number with two different kinds of objects. For example, make a fruit skewer with five pieces of fruit, using bowls of grapes and strawberries to choose from
- ✓ Play skittles outdoors. How many bottles are still standing? How many have fallen? How many are there altogether?
- ✓ Explore songs such as 'Five Currant Buns' – show that the whole is still five, but some are in the shop and some have been taken away
- ✓ Plant seeds outdoors and discuss how many seeds can go in each pot. How many are there altogether?

Pattern



Developing an awareness of pattern helps young children to notice and understand mathematical relationships. **Children in the early years will begin to:**

- Continue, copy and make their own patterns
- Identify errors in patterns
- Identify the unit that repeats
- Make patterns with a range of different objects
- Notice patterns in the environment
- Explore action and sound patterns

So how can you help?

- ✓ Continue, copy and make patterns, firstly using identical objects of different colours, such as, blocks, Lego, beads and vehicles
- ✓ Use range of objects and natural materials to make patterns
- ✓ Make action patterns together. For example, by clapping and jumping
- ✓ Draw patterns outdoors using chalk
- ✓ Talk about patterns you see in your house, on fabric, in the garden and/or local environment
- ✓ Make fruit skewers or fruit faces and use the fruit to make a repeating pattern
- ✓ Create sound patterns by making shakers or using pots and pans
- ✓ Explore patterns in stories, songs and rhymes

Shape and Space



The areas of shape and space are about developing visualising skills and understanding relationships rather than just knowing vocabulary. **In the early years children need:**

- Opportunities to see things from different perspectives
- To represent spacial relationships using construction or through their drawings
- To be exposed to positional and directional language
- To begin to identify and describe 2D and 3D shapes and talk about their similarities and differences

So how can you help?

- ✓ Ride trikes and bikes through interesting routes and around obstacles
- ✓ Explore jigsaws, shape sorters and posting activities
- ✓ Engage in construction activities, for example, can they design and make a Lego model?
- ✓ Make a complete circuit with a train track and direct the train which way to go
- ✓ Treasure hunts. Hunt for hidden objects with directions
- ✓ Make dens and bug hotels outdoors
- ✓ Use recycled materials such as cereal boxes to make and describe models
- ✓ Make decorations by folding and cutting paper
- ✓ Bake biscuits using a variety of shape cutters

Measures



Learning how to measure and compare different objects is an important life skill. Children learn most about measurement when they are engaged in practical activities. **In the early years children need to:**

- Recognise attributes of objects, e.g. if they are long or short
- Compare and order objects based on their length, height weight and capacity
- Begin to estimate and make predictions
- Explore time by sequencing events and activities
- Explore specific time durations

So how can you help?

- ✓ Use the language of size to describe everyday items
- ✓ Roll and cut playdough worms and identify which are the longest and which are the shortest
- ✓ Measure and compare the height of family members
- ✓ Using balancing scales when baking to weigh ingredients
- ✓ Make ‘glitter bottles’ using different sized bottles, water and glitter. Discuss which bottles holds the ‘most’ and which bottle holds the ‘least’
- ✓ Use a calendar to count down to exciting events such as birthdays
- ✓ Use timers to time races outdoors
- ✓ Play ‘beat the timer’. Can they do 20 jumps before the timer runs out?

Maths is everywhere

Remember that maths is all around us! Young children need help to understand what maths is used for and you can do this by simply talking about the maths you use in your day-to-day routine. You can show them how numbers, size, shape and pattern are important in life by:

- Talking about the numerals they see in their environment
- Discussing shapes and patterns in their environment
- Counting and referring to quantity in your daily routine

Consider the following daily activities as Maths opportunities:

Getting dressed…

- ✓ Talk about the order in which to get dressed in, and which items to put on first and last
- ✓ Match pairs of things such as socks, shoes and gloves
- ✓ Count the buttons on their top, dress or coat
- ✓ Discuss colours, patterns, shapes and pictures on their clothes
- ✓ Time how long it takes to get dressed. Can they beat the timer?

The journey to school…

- ✓ Count the things they see such as cars, people and animals
- ✓ Look out for numerals on doors, buses and signs
- ✓ Look at shapes on road signs
- ✓ Discuss any patterns they see along the way, such as nature patterns
- ✓ Time how long it takes them to walk or ride to school
- ✓ Collect and count any special items such as conkers, feather and leaves

Going to the shop…

- ✓ Count the number of food items needed or number of items on the shopping list
- ✓ Count out items from the shelves
- ✓ Count coins to give to the shopkeeper
- ✓ Look for numerals on price labels
- ✓ Compare which shopping bag is the heaviest and which is the lightest

Bath time…

- ✓ Count the rubber ducks
- ✓ Sing ‘5 little ducks went swimming one day…’
- ✓ Fill different sized containers with water and explore which holds the most water. Use the language of ‘full’ and ‘empty’
- ✓ Explore objects that float and sink
- ✓ Explore how many objects they can count into a boat to make it sink

Useful links and resources

Number Blocks
https://www.bbc.co.uk/cbeebies/shows/numberblocks?page=2

Nursery rhymes and counting songs

https://www.bbc.co.uk/teach/school-radio/nursery-rhymes-counting-medley/zj94y9q

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Cbeebies *Helping your child to be epic at maths*

https://www.bbc.co.uk/cbeebies/grownups/help-your-child-with-maths

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NRICH *Activities for parents and children*

https://nrich.maths.org/14588

What to expect, when?

https://www.foundationyears.org.uk/files/2015/03/4Children_ParentsGuide_2015_WEB.pdf



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