Maths Mastery in EYFS

What is this document about?

This document is about how children are taught and will learn maths and mathematical skills in the early years at Holy Family. Within the wider National Curriculum, there are 3 aims for the teaching of mathematics. These are as follows:

Children should:

- become fluent in the fundamentals of mathematics,
- reason mathematically
- solve problems by applying their mathematics to a variety of problems

At Holy Family, these next steps for pupils after the Early Years heavily influence our approach to the teaching of Maths in Reception. Throughout our teaching, both in lessons on the carpet and in the provision, we have a progressive approach to teaching of mathematical concepts across the year, ensuring that children are building a firm foundation before moving on to the National Curriculum in Y1.

Why do I need to read this document?

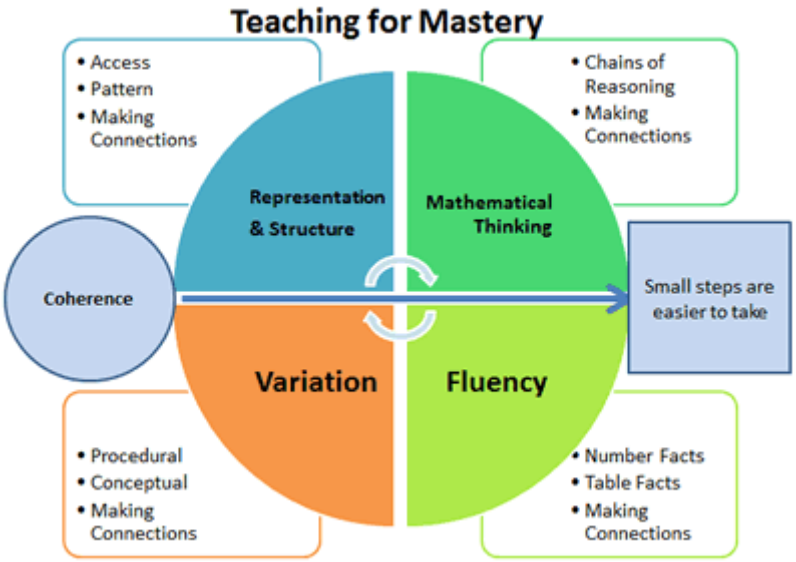
Teaching a child mathematics is complex and involves much more than the abstract concept of recognising numbers. Varying approaches and methods of teaching and learning are needed to ensure children build both a positive attitude towards maths and also the skills needed to be successful mathematicians. It is important for parents and staff to ensure they have a unified approach to the teaching of maths in order to help children thrive and succeed as mathematicians.

Who is this document for?

This document will be useful to anyone who is involved in life at Holy Family, staff, parents and visitors.

Where did the ideas come from?

The teaching of maths at our school is underpinned by the 5 Big Ideas in maths outlined by the National Centre for Excellence in the Teaching of Mathematics (NCETM) in 2017.



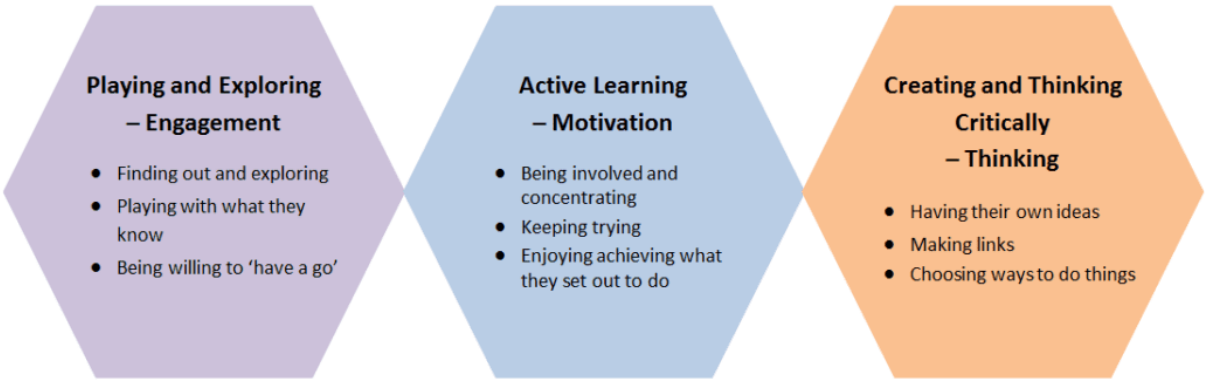
In addition to this, the Education Endowment Fund published a document in January 2020 which outlined 5 recommendations for the teaching of mathematics in Early Years and Key Stage 1, based on research undertaken about the effectiveness of early maths teaching.

These recommendations, and how we are adhering to them at our EYFS are as follows:

1. Develop practitioners understanding of how children learn mathematics:
2. Dedicate time for children to learn mathematics and integrate mathematics throughout the day:
3. Use manipulatives and representation to develop understanding:
4. Ensure that teaching builds on what children already know:
5. Use high quality, targeted support to help all children learn mathematics:

"By providing frequent and varied opportunities to build and apply this understanding, children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built." - EYFS, 2021

The characteristics of effective learning



The Characteristics of Effective Learning can be linked with all the ways children learn in the continuous provision time in the EYFS and maths is a large part of this. Mathematics particularly engages children's critical thinking and problem solving skills.

We discussed, as a staff group, our vision and goals for our children in EYFS alongside all areas of learning. We looked at the documentation above that suggests positive approaches to teaching mathematics and use the NCETM's Six Key Areas of Early Mathematics Learning to underpin our teaching of maths across our EYFS which, the NCETM say, will 'provide a platform for everything children will encounter as they progress through their maths learning at primary school, and beyond.'

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.

Children start our school with an understanding of some mathematical concepts such as number, shape and measure. In EYFS will ensure that children build on this existing understanding and that it will become more refined and that their depth of knowledge will be increased and they will become more fluent and confident mathematicians. We will combine all of the approaches above through a careful approach of both child and adult led teaching and learning.

Child – Led Teaching and Learning

Throughout the day, children will explore the classroom environment in some unstructured time that we call continuous provision. During that time, we have a careful triangle of the child-adult-environment working together to ensure the children are engaged and making progress. In our mathematics teaching, this continuous provision time is used in a variety of ways to provide children with mathematical learning opportunities.

Maths is everywhere!

The children will encounter mathematical concepts in all areas of the provision - from measuring spoonfuls of sand and size of containers in the sand to investigating capacity in the water area!

There are so many examples of maths in our classrooms, here are a few more:

- Comparing sizes of towers in the construction area
- Playing number games with friends using manipulatives
- Playing with a pretend ice cream shop using money made in the workshop
- Positional language outside




Adult – Led Teaching and Learning

Of course we know that there are areas of maths that need to be discreetly taught. In Reception, children have a 20 minute daily carpet time in order to revise and teach concepts that require whole class modelling and teaching. In Nursery, the provision time provides quality time to model mathematical concepts and we intend to consider number and mathematics in all we do. During carpet times, the children investigate counting skills and sing Nursery Rhymes and songs linked to ordinal numbers. There are opportunities for other

adult led activities to encourage mathematical skills such as cooking and PE lessons and movement.




Continuous Provision

In the continuous provision, there are opportunities for maths to be explored in different ways. Staff are reflective and, through weekly planning meetings, continually ask thoughtful questions about our practice and promotion of mathematics. We note enhanced opportunities on our weekly Continuous Provision planner including maths.

Indoors	
Water Area	Different weighted/sized jugs Numbers Manipulatives – animals, corks etc Measuring containers
Sand Area	Different sized containers/spoons Numicon for printing/counting Manipulatives – animals, pebbles etc
Loose Parts Play	Various sized and shapes manipulatives Objects for pattern making
Painting Area	Different sized resources – eg. Small, medium, large paintbrushes Shapes for printing
Play Dough Area	Numbers Measuring equipment Weighing Scales Different sized/shaped cutters
Construction Area	Measuring tapes 3D shape names Shadowing to match shapes Number flash cards
Workshop	3D shapes to create with Numbered pots of 10 pencils/pens Numbered pots of 5 glue/scissors

Home Corner	Different sized objects – small, medium, large Recipe books Weighing scales Positional language opportunities
Outside Play	Large games mats Large dice Number mats for counting natural materials Large construction Large water area for capacity
Message Centre/Mark Making	Numbered pen/pencil pots Different shaped/sized paper/card Mark making opportunities

Key Approaches

- We will use Concrete-Pictorial-Abstract approach. Using *concrete* objects that children can touch, move, transfer and experience in their hands first of all supports their understanding of what maths looks like. Moving on to *pictorial* representations such as images help to further support this application. *Abstract* concepts like recognising digits, place value and addition and subtraction can be explored after children have a deep understanding of the concrete and pictorial representations.

- Informal teaching that progresses to a more formal approach across the year as we explore different concepts and start to look at the more abstract aspects of mathematics. Lots of application of knowledge during our continuous provision time and targeted and quick support following the lesson for those children who have lacked understanding.

- Open ended questioning will encourage children to justify answers and explain their understanding. For example 'What do you notice?' instead of 'What is the answer?'

- Giving all children the confidence to believe and achieve in maths. We do this by calling everyone a mathematician and encouraging children in lessons with a mix of 'no hands up' and other strategies like lollipop sticks.

- Using a spiralling curriculum – by exploring a number a week, we explore different aspects of maths within that number, deepening understanding and repeating concepts such as time, measure and addition and subtraction rather than explicitly teaching these in one or two week blocks. This repetition or 'spiralling' helps to embed understanding throughout the year ready for accessing the National Curriculum.