



Maths in Reception: A Guide for Parents

The Catholic School of St Gregory The Great
Believe and Achieve





Our Vision

We believe that maths is an important foundation stone to learning that embraces every part of life. At Saint Gregory's, we want all our pupils to experience the **beauty** and **power** of mathematics and develop a sense of **curiosity** and **enthusiasm** for the subject. We strive for all pupils to **believe and achieve** and recognise themselves as mathematicians.

We aim for all pupils to:

- become **fluent** in the fundamentals of maths
- develop **conceptual understanding**
- develop the ability to **recall and apply knowledge** rapidly and accurately
- see and describe the **structure, relationships, connections, patterns** and **rules** they encounter
- **reason** mathematically, using **maths language**
- **logically and systematically apply** maths to **solve problems**
- become **self-motivated** and **resilient**
- recognise the **maths** in **every-day life**
- **believe** that maths is something **we can all do**
- recognise and become comfortable with opportunities to **learn from mistakes**
- **gain enjoyment of maths** through a growing self confidence in their own abilities



Six Key Areas

There are **six key areas** of early maths learning, which collectively **provide a platform for everything** children will encounter as they progress through their maths learning at primary school and beyond.

These are:

Cardinality and counting: understanding that the cardinal value of a number refers to the quantity or 'howmanyess' 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 of 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.



Playing and Learning

Play is meaningful, joyful, actively engaging and socially interactive. It creates powerful learning opportunities for every area of development, including maths. Children are “hands on” learners and acquire knowledge through playful interaction with people and objects. Play can boost interest and motivation, strengthen creative thinking and problem solving and enhance memory and retention.

*“Children are born ready, able and eager to learn. They actively reach out to interact with other people, and in the world around them. Development is not an automatic process, however. It depends on each unique child having opportunities to interact in **positive relationships** and **enabling environments**.”*

Development Matters 2012

At Saint Gregory’s we are committed to providing these positive relationships and enabling environments, through which children can gain access to the wonderful world of maths! We know that enjoyable experiences become memorable ones, so learning through play, songs, rhymes etc., in nurturing groups and stimulating environments are powerful components of a child’s maths journey in Reception class at Saint Gregory’s.

“Play is our brain’s favourite way of learning.” Dianne Ackerman

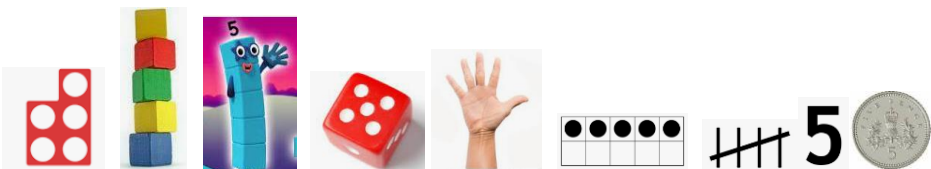


Teaching for Mastery in Early Years

The EYFS Framework, which all state-funded primary schools use, states:

*“Developing a **strong grounding in number is essential** so that all children develop the necessary building blocks to excel mathematically. Children should **be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.** By providing **frequent and varied opportunities** to build and apply this understanding - such as using manipulatives, including **small pebbles and tens frames** for organising counting - children will **develop a secure base of knowledge and vocabulary** from which mastery of mathematics is built.... It is important that children develop **positive attitudes and interests in mathematics**, look for **patterns and relationships**, spot **connections**, ‘have a go’, **talk** to adults and peers **about what they notice** and not be afraid to make mistakes.”*

Research shows that foundational knowledge, particularly proficiency in number, gives pupils the ability to progress through the curriculum at increased rates later on. Therefore, in Reception, we aim to teach so children have a **deep and secure understanding** of number. We want to develop children’s **number sense** so they can see numerical patterns and connections, understand how numbers are made up and how they relate to each other. We use many different representations of number, including objects and pictures, to expose their underlying structure and relationships.



Children sometimes need lots of practice to recognise numbers in different forms. We play matching games and encourage children to recognise and make different amounts in our indoor and outdoor areas.

Counting



When counting, children need to understand that we **say one number for each object counted**, that **the final number we say is how many objects there are**

altogether and that we **can count the objects in any order** and **the total stays the same** - facts that may now seem self-evident to us but for young children can take time and practice to perfect and understand.

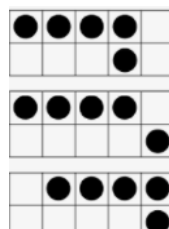
Recognising amounts



It is also important for children to **recognise small amounts *without counting*** (subitizing). This **helps with partitioning numbers** into their component parts, a **crucial skill for efficient adding and subtracting** later on. Initially this is done with real objects, and as children progress, with different arrangements of dots. Using a dice is a good way to practice this skill, before moving onto objects in different arrangements.

Understanding the total is the same if objects move

Often, children don't understand that if we move objects into another arrangement the total stays the same. We practise this with many different types of objects - a useful tool is a **tens frame** (excellent for showing the tens structure of our number system) used to move counters around.



Reasoning and oracy



*The development of children's **spoken language** underpins all seven **areas of learning and development**. Children's back-and-forth interactions from an early age **form the foundations for language and cognitive development**. The number and quality of the conversations they have with adults and peers throughout the day in a language-rich environment is crucial. (EYFS Framework 2021).* When children explain their thinking and engage in adult guided talk, it helps them understand maths relationships, what is happening, how a problem can be solved and what they could do differently. Reasoning in Reception could be:

- spotting and explaining mistakes (e.g. 1,2,4,5,6,7)
- explaining how we know something (e.g. 3 and 2 is 5)
- true and false statements (e.g. adding 1 to a number makes it bigger).

Problem solving

Problem solving in maths allows children to use their maths in lots of contexts and new situations. It allows them to seek solutions, spot patterns and think about the best way to do things. In Reception, it might include:

- spotting patterns
- estimating amounts of objects
- predicting how many times they can do something in a minute
- sharing objects between friends
- finding different ways to make numbers (e.g. 5 could be $5+0$, $4+1$, $3+2$).



How can I help at home?

- First and foremost, **have fun** and **model positive attitudes** to maths as these have been shown to have a significant effect on a child's maths learning.
- **Count** – stairs, money into a box, toys into a toy box.
- **Sing** counting songs, e.g. Ten Green Bottles. Google search *bbc nursery rhymes*.
- Ask children to say **how many** without counting.
- Frequently **play games** using **dice/dominoes** and encourage children to say how many dots without counting (games available to borrow from our school maths games library). Provides family fun and practice in a whole host of skills.
- Do some **baking** together – great for all areas of maths!
- Ask children to **help lay the table** with enough knives, forks, spoons etc., for everyone.
- Collect, **sort and group items** e.g. stones, feathers, conkers, leaves.
- **Make / continue patterns** of items, building blocks, toys, items from nature.
- **Spot numbers** in the environment – on buses, house doors, clocks, phones etc.
- Use **tens frames** often e.g. for **reward charts** or **scoring points in games**.
- Deliberately **make mistakes**; children need to know that it's normal to make them and it's fun to spot them.
- Watch **Numberblocks** on Cbeebies. It's a programme written by maths specialists and models maths concepts and number representation brilliantly!
- **Hide numbers** in different formats around the house for children to find / match.
- **Play** outdoor maths games like **skittles, hopscotch**.
- Allow children to **make up their own games** and decide how to score points.
- **Read books** with maths concepts e.g. The Very Hungry Caterpillar, One is a Snail Ten is a crab, What's the Time Mr Wolf, The Doorbell Rang.
- Draw attention to **more and less**.
- Try some activities from the **NRICH** website for **EYFS**.
- **Ask questions** such as "How many more?", "How many altogether?", "How many would I have if..."
- See the **school website** for great maths weblinks.

Remember - all the maths related benefits of doing the above activities can be gained by doing them in your home language!

From the Maths and EYFS Teams