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**St Simon’s Mathematics Statement of Intent**

**Intent***Why do we teach this? Why do we teach it the way we do?*

The purpose of teaching Mathematics at St Simon’s Catholic Primary School is to assist in the fulfilment of the school’s mission statement. It is our aim that each child will reach their full potential that will be realised both for the glory of God and the service of others.

Mathematics is fundamental to daily life. We want all pupils at St Simon’s Catholic Primary School to experience the enjoyment of mathematics and develop a sense of curiosity about the subject with a clear understanding. At St Simon’s we promote the fact that everybody can ‘do’ maths and we build upon understanding through a smooth transition from concrete, to pictorial and then to abstract representations. This aims to foster a deeper understanding of the maths being learned so that children can make rich connections across the areas of maths and use their knowledge in other subjects with real confidence.

**Implementation**What do we teach? What does this look like?

Our curriculum is shaped by our school vision, to STRIVE to be the best we can be for the Glory of God.

The aims of teaching Mathematics at St Simon’s Catholic Primary School are to enable pupils to:

* Become **fluent** in the fundamentals of mathematics, including numeracy, geometry, measurement, algebra, statistics, ratio and proportion so that they develop a conceptual understanding where they can ‘hold’ numbers and images in their head and have the ability to recall and apply knowledge rapidly and accurately.
* **Reason mathematically** by following a line of enquiry, establishing relationships and making generalisations as well as justifying their ideas using mathematical language with progressive precision.
* **Solve problems** by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and **resiliently** seeking solutions especially when problems are presented in unfamiliar contexts. They will also be accustomed to solving problems with real-life scenarios where applicable.
* Have an appreciation of number and number operations, which enables **efficient mental calculations** and written procedures to be performed fluently and accurately.

**In line with the National Curriculum, we ensure that children in KS1:**

* Develop confidence and mental fluency with whole numbers.
* Can count accurately (forwards and backwards) and in 1s, 2s, 5 and 10s.
* Have a firm grasp of place value.
* Have an excellent understanding of the four operations and develop more sophisticated methods to answering questions based on this as they move through school.
* Can recognise, describe, draw, compare and sort different shapes and use the related vocabulary.
* Can describe and compare different quantities such as length, mass, capacity/volume, time and money.
* Know number bonds to 5, 10 and 20 (Year 1) and 100 (Year 2).
* Read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge.

**In line with the National Curriculum, we ensure that children in Lower KS2:**

* Become increasingly fluent with whole numbers and the 4 operations, including number facts and the concept of place value.
* Develop efficient written and mental methods for all four operations.
* Perform calculations accurately with increasingly large whole numbers.
* Develop their ability to solve a range of problems, including with simple fractions and decimal place value.
* Draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them.
* Can use measuring instruments with accuracy and make connections between measure and number.
* Have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work (by the end of Year 4).
* Read and spell mathematical vocabulary correctly and confidently, using their growing word-reading knowledge and their knowledge of spelling.

**In line with the National Curriculum, we ensure that children in Upper KS2:**

* Extend their understanding of the number system and place value to include larger integers.
* Develop the connections between multiplication and division with fractions, decimals, percentages and ratio.
* Develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation.
* Are introduced to the language of algebra as a means for solving a variety of problems.
* Use geometry and measures to consolidate and extend their knowledge of number.
* Classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.
* Are fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages (by the end of Year 6).
* Read, spell and pronounce mathematical vocabulary correctly.

**Our teaching and learning**

At St Simon’s Catholic Primary School, mathematics is an integral part of the children’s school life. Maths is taught every day of the week through a methodical and progressive curriculum design that is supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge. Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts. Teachers use precise questioning in class to test conceptual and procedural knowledge and assess children regularly to identify those requiring intervention as well as those ready to develop a deeper understanding.

Maths is taught 4 times per week plus an additional ‘Big Maths’/Mental Arithmetic lesson every week in both key stages. In addition, pupils in KS2 are also tested on their times tables each week and use ‘Times Table Rockstars’ to support this.

The school’s assessment policy supports ongoing, daily informal assessment and is used to inform planning, regrouping and any necessary intervention or extension. Accurate assessment records are maintained through SIMS, which the Senior Leadership Team uses three times per year to monitor and review the progress of all pupils.

**Fluency / Reasoning / Problem solving**

Our aim is to ensure that the three core areas of the national curriculum are covered in all our lessons: fluency, reasoning and problem solving. We offer the children the opportunity to have varied and frequent practice of their maths skills with the focus on their ability to recall and apply their knowledge rapidly and accurately (particularly with regard to their understanding of the four operations in their weekly ‘Big Maths/Mental arithmetic’ focused lesson). Reasoning is a key area in all our lessons as our children need to be able to describe, explain and prove their ideas to be successful in this subject.

**Vocabulary**

Mathematical vocabulary is an essential part of each lesson and the children need to understand this within the area they are studying and be able to make rich connections across other areas within this subject. Each lesson provides children with the opportunity to reason through their ideas, use their mathematical language to explore a line of enquiry and problem-solve routine and non-routine problems.

**Curriculum design**

To ensure whole school consistency and progression, we have adapted the White Rose Maths scheme, supplemented by NCETM resources to ensure that staff at all levels understand the pedagogy of the approach. New concepts are shared within the context of an initial related problem, which children are able to discuss in partners. This initial problem-solving activity prompts discussion and reasoning, as well as promoting an awareness of maths in relatable real-life contexts that link to other areas of learning. Teachers use careful questions to develop children’s discussions and their reasoning. The class teacher then leads children through strategies for solving the problem, including those already discussed. Key questions check prior learning and the start to each lesson uses the White Rose ‘Flashback 4’ principle to ensure that any areas of maths that are not frequently revisited are addressed.

Independent work provides the opportunity for all children to develop their fluency further, before progressing to more complex related problems. Mathematical topics are taught in blocks, to enable the achievement of ‘mastery’ over time. Pupils who grasp concepts are challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with are given the chance to consolidate their understanding, including through additional practice before moving on. Support is determined during each lesson to ensure secure understanding based on the needs of the child in each cohort.

During lessons, mistakes and misconceptions are used as an essential part of learning. Similarly, if during a lesson, a child has clear misconceptions then the aim is for this to be addressed in the first instance (within the lesson wherever possible). If this is identified at the end of the lesson or later in the day when books are checked then the aim is for that child or group of children to have same-day intervention to give them the opportunity to address this at the outset before it becomes embedded.

**Homework**

**Foundation Stage**

Homework is set using tasks on Education city. Two mathematics tasks are set on a weekly basis. The class teacher is responsible for assessing the results of the homework tasks set.

**Key stage one**

Homework is set using the CGP Maths Homework books that are differentiated for each year group. One ‘teaching’ page is used at home (with parental support) and the children then complete the related ‘task’ page as independently as possible. Homework tasks are set to link in with completed classwork and are explained in class before set as homework. The class teacher is responsible for assessing the results of the homework tasks set.

* Some pupils in Year 1 access EYFS homework on Education City.
* Some pupils in Year 2 use the Year 1 Maths CGP book.

**Key stage two**

Homework is set using the CGP Maths Homework books that are differentiated for each year group. One ‘teaching’ page is used at home (with parental support) and the children then complete the related ‘task’ page as independently as possible. Homework tasks are set to link in with completed classwork and are explained in class before set as homework. The class teacher is responsible for assessing the results of the homework tasks set. In addition, teachers set times table practice using the App ‘Times Table Rockstars’ and the progress of this is measured via the teacher logon to the App.

* Some pupils across KS2 access the Maths CGP books from previous year groups.

**Impact***What will this look like?*

By the time children leave St Simon’s Catholic Primary School they will:

Have reached their full potential that will be realised both for the glory of God and the service of others as confident and proficient mathematicians.

This will be evident through:

* A fluency in the fundamentals of the four operations of mathematics.
* A secure conceptual understanding and an ability to recall and apply knowledge rapidly and accurately.
* A clear understanding of different concepts using concrete materials, pictorially and in more abstract forms.
* An ability to solve problems by applying their mathematics to a variety of situations with increasing sophistication, including in unfamiliar contexts and in real-life scenarios.
* A confidence to approach problems knowing that an answer may not be derived in the first instance.
* A firm grasp of mathematical reasoning, following a line of enquiry and explaining their ideas using refined mathematical language.

The integral nature of the Mathematics curriculum at St Simon’s creates rich opportunities for children to access fundamental skills including:

* A **spiritual** understanding and appreciation of others in realising how one person’s ideas can help others to improve.
* Being **trusted** to work independently and in collaboration with others to develop and implement ideas.
* Increased **resilience** to face new problems and realise that they may not get the right answer first time yet continue to try and improve regardless through a process of self-reflection.
* An **inquisitive** nature to explore and ask questions about new areas of maths, using prior learning to solve new problems placed in different contexts and to understand that to try new things is to take a risk.
* Being **valued** and respected for their ideas and contributions, recognising that everybody has strengths in different areas.
* A sense of **exceptional** achievement.

We hope that as children move on from St Simon’s to further their learning, their accuracy and confident use of maths will enable them to succeed in all aspects of their life and in whatever career path they choose to follow.