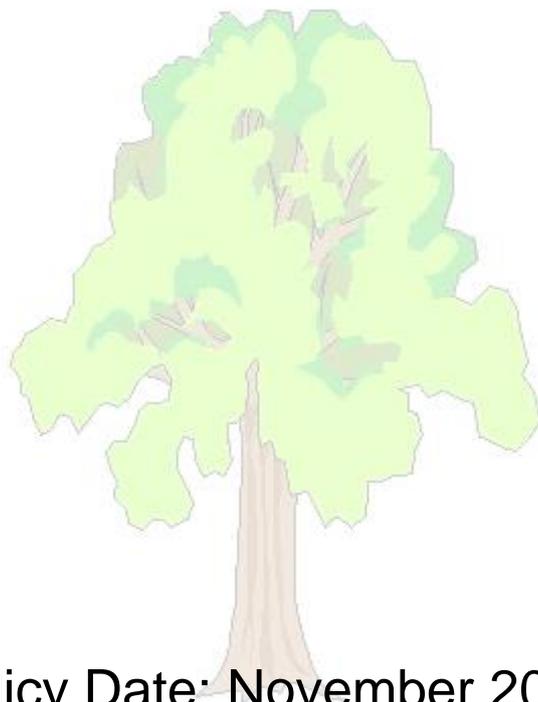


Mathematics Policy



Policy Date: November 2020

Review Date: September 2021

Author: Dee McKenzie

Senacre Wood Primary School Mathematics Policy

Introduction

The National Curriculum states that:

“Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history’s most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.”

At Senacre Wood Primary, we recognise that mathematics pervades all aspects of our lives and helps us to make sense of our world. With this in mind, this policy promotes the basic and wider understanding of mathematics, and aims to instil an enjoyment of the subject by supporting children to engage with it and build upon their own understanding to promote further learning.

The aims of the 2014 National Curriculum are for our pupils to:

- Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.
- Problem solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering.

The National Curriculum sets out year-by-year programmes of study for key stages 1 and 2. This ensures continuity and progression in the teaching of mathematics. Alongside the 2014 Curriculum, and this maths policy, we have also written a new calculation policy which we believe will allow our pupils to be successful and ensure consistency in teaching and learning across all areas of mathematics.

The EYFS Statutory Framework Early adopters version (2020) sets standards for the learning, development and care of children from birth to five years old and supports an integrated approach to early learning. This is supported by the ‘Development matters’ non statutory guidance.

The EYFS Framework, in relation to mathematics, aims for our pupils to:

- Have a deep understanding of number to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10.
- Verbally count beyond 20, recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Aims and Objectives

At Senacre Wood Primary we want pupils to be able to solve problems, to reason, to think logically and to work systematically and accurately. To enable us to do that, we want to teach maths in a way that:

- Creates positive attitudes towards the subject where pupils feel competent and confident in using and applying mathematical knowledge, concepts and skills.
- Promotes the concept that acquiring Maths knowledge and skills provides the foundation for understanding the world around them.
- Ensures the delivery of Maths is filled with cross curricular opportunities
- Develops mental strategies.
- Encourages children to use mathematical vocabulary in order to confidently communicate, ask questions reason, explain and learn from mistakes.
- Allows time for pupils to work independently and in cooperation with others including time for partner talk in order to stimulate and develop a curiosity for Maths.
- Challenges children to stretch themselves and take risks in their learning
- Creates a sense of awe and wonder surrounding Maths
- Provides children with the opportunity for low entry-high ceiling challenges

We also aim to provide a stimulating and exciting learning environment that takes account of different learning styles and uses appropriate resources to maximise teaching & learning.

Breadth of Study

It is important that children are allowed to explore Maths and present their findings not only in a written form but also visually and verbally; to that end the school have adopted the CPA approach: concrete, pictorial, abstract. This will allow the children to experience the physical aspects of Maths before finding a way to present their findings and understandings in a visual form before relying on the abstract numbers

Careful planning and preparation ensures that throughout the school children engage in:

- Practical activities and games using a variety of resources.
- Problem solving to challenge thinking
- Individual, paired, group and whole class learning and discussions
- Purposeful practise where time is given to apply their learning
- Open and closed tasks
- A range of methods of calculating e.g. mental, pencil & paper and using a calculator
- Working with computers as a mathematical tool

Through our creative approach to teaching and learning we also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas.

Planning

Long Term Planning

The National Curriculum for Mathematics 2014, Development Matters and the Early Learning Goals (Number and Numerical patterns) provide the long term planning for mathematics taught in the school.

Medium Term Planning

National Curriculum aims have been mapped out for each year group (please see Maths overview).

Years 1-6 use the White Rose Maths Hub schemes of learning as their medium term planning documents which breaks each strand into small steps.

These schemes also provide teachers with exemplification for maths objectives and are broken down into fluency, reasoning and problem solving, key aims of the National Curriculum. They support a mastery approach to teaching and learning and have number at their heart. They ensure teachers stay in the required key stage and support the ideal of depth before breadth. They support pupils working together as a whole group and provide plenty of time to build reasoning and problem solving elements into the curriculum.

Short Term Planning

The above schemes of learning support daily lesson planning. These are further supported through the use of classroom secrets, NCETM mastery documents and NCETM reasoning documents.

Where possible, all classes have a daily mathematics lesson. In key stage one lessons are 45-60 minutes and in key stage two at least 60 minutes. Teachers will plan and deliver lessons that suit the particular learning styles of the children within the year group. They will use their own judgement and formative assessment to ensure a flexible approach is adopted which recognises the pace of learning within the classroom. Individual, paired and group work will be used across a series of lessons and, where appropriate, children will be given the option of three challenges or open-ended problem solving tasks to demonstrate their understanding.

Across a range of lessons children should be allowed to engage in mathematical discussion (talk partner or group work), investigations, problem solving, practical experiences and written methods, as well as allowing for time to demonstrate their understanding through gap tasks.

EYFS planning is based on the medium term plans and delivered as appropriate to individual children with thought to where the children are now and what steps they need to take next. Teachers of the EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. Mathematics activities such as numbered whiteboards, sorting trays, counting games and shape challenges are woven in Morning activities. When child initiated activities are set up, maths resources that will spark certain knowledge are set up to ensure planned observations naturally arise in their play.

Lessons and Environment

In all lessons, learning objectives and success criteria are clearly displayed and discussed.

Each classroom will be resourced with materials to support the delivery of Maths; such items might include number lines, place value counters, base 10 equipment, multiplication tables, 100 squares, 2D and 3D shapes, multilink cubes, dice and other smaller items. Extra resources and larger materials such as games, scales, trundle wheels and measuring cylinders are stored in the maths cupboards outside Year 5 and Year 6.

Children should be encouraged to use whatever resources are available to them in the classroom and which they feel would be beneficial to help them when completing Maths work.

Each classroom should have a display dedicated to Maths; this should be in the form of a working wall but may also include a maths knowledge organiser. Within all maths displays, pupil voice should be evident. Maths working walls are also evidenced within a class working wall book which pupils are able to refer to, to support future learning.

The working wall will also display key sentence stems, appropriate to the year group, to support pupils with forming sentences to show their reasoning within maths.

The emphasis in lessons is to make teaching interactive and lively, to engage all children encouraging them to talk about mathematics. Lessons involve elements of:

- Instruction – giving information and structuring it well.
- Demonstrating – showing, describing and modelling mathematics using appropriate resources and visual displays.
- Explaining and illustrating – giving accurate and well-paced explanations.
- Questioning and discussing.
- Consolidating through the use of varied fluency activities.
- Reflecting and evaluating responses – identifying mistakes and using them as positive teaching points.
- Summarising – reviewing mathematics that has been taught enabling children to focus on next steps.

For more information, please refer to:

- Teaching and learning policy

Within the EYFS, staff use split inputs and small groups rotating these around an independent group practising skill on the carpet. As Teacher Direct Maths is as active and hands on as possible, photos, questioning and observations are key to formative assessment. These are recorded in learning Journeys and, to ensure pupils develop their understanding, they have regular opportunities to build on next steps in their play but also 1:1 sessions.

Special Educational Needs and Disabilities (SEND)

Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, children's EHCP's incorporate suitable objectives. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson.

Short term maths focused intervention in school helps children with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher. Within the daily mathematics lesson, teachers have a responsibility to not only provide differentiated activities to support children with SEND but also activities that provide sufficient challenge for children who are high achievers. It is the teachers' responsibility to ensure that all children are challenged at a level appropriate to their ability.

SEND targets are planned based on the non-statutory "Teaching Maths in Primary Schools" 2020 which ensures pupils progress from one year to the next with core concepts to support them with future learning.

Equal Opportunities

Positive attitudes towards mathematics are encouraged, so that all children, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics.

The aim is to ensure that everyone makes progress and gains positively from lessons. Lessons involving lots of visual, aural and kinaesthetic elements will benefit all children including those for whom English is an additional language (EAL).

Differentiated questions are used in lessons to help children as well as planned support from Teaching Assistants and other adults.

Marking- please refer to Marking and Feedback Policy

Assessment

Assessment is an integral part of teaching and learning and is a continuous process. Teachers make assessments of children daily through;

- Regular marking of work.
- Analysing errors and picking up on misconceptions.
- Asking questions and listening to answers.
- Facilitating and listening to discussions.
- Making observations using pink and green observation slips

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short term planning evaluated in light of these assessments.

To support this, teachers will maintain an assessment grid which tracks the children's progress and understanding across a range of assessment criteria objectives. This will be updated regularly and

informed by tests, assessment questions, observations of pupils work and work in children's books. Completed assessment grids can then be used to identify next steps and therefore inform planning.

To ensure consistency in levelling of pupils, the subject leader will complete moderation of a cross section of pupils.

Pupil Progress meetings are timetabled five times yearly. During these meetings, progress of pupils is discussed. Each term, interventions are considered and put in place where appropriate. Targets for these are based on the non-statutory guidance for teaching maths in primary 2020 as well as gaps within the assessment grids.

Long term, Year 2 and Year 6 complete the national tests (SATs) and Year 4 complete the multiplication screening check.

Within EYFS, Baseline assessments are given to determine what the children are capable of independently before formal teaching begins.

Online resources

IXL is a fully interactive online mathematics learning tool for children which is used by teachers to support mathematics learning both in class and at home. Children are set homework on IXL in line with the homework policy and are encouraged by school to access it regularly at home to support areas of mathematical learning.

Timetables Rock Stars (TTRS) is a carefully sequenced online programme designed to boost the recall of tables. Teachers can select which times tables they practice each week.

Role of the Maths Subject Leader

- To lead in the development of maths throughout the school.
- To monitor the planning, teaching and learning of mathematics throughout the school.
- To help raise standards in maths.
- To provide teachers with support in the teaching of mathematics.
- To provide staff with CPD opportunities in relation to maths within the confines of the budget and the School Improvement Plan.
- To moderate teachers' assessment.
- To monitor and maintain high quality resources.
- To keep up to date with new developments in the area of mathematics.