

Mathematics:

Teaching and Learning Policy

# Sinai Jewish Primary School

February 2021

Intent

Our vision at Sinai is for every child to enjoy and succeed in mathematics. Maths is a core subject that is taught explicitly every day from Reception to Year 6. We strive to improve pupils’ enjoyment, resilience, understanding and attainment in maths. We place great emphasis on deepening conceptual understanding and mastery of number. Mathematical concepts are further enhanced by using and applying these skills across other areas of the curriculum. All lessons are interactive, fast-paced and fun – with all pupils fully engaged.

We have the vision and ethos that all can achieve, enjoy and thrive in Maths. Maths is about investigating, discovering and making mistakes. It is a multi-discipline, cross-curricular subject where children can apply and use their skills in a variety of ways.

All children will become fluent in the fundamentals of mathematics, be able to reason mathematically and solve problems by applying their mathematics to a variety of problems.

Implementation

At Sinai we follow Mathematics Mastery. Teachers from Reception-Year 4 use the planning provided by Mathematics Mastery as a basis for all lessons. Year 5 and 6 plan and teach using the White Rose Maths Hub, with the lesson structure and ideologies from Mathematics Mastery.

The programme includes five integrated components, which work together to build specialist expertise, develop teachers, improve maths lessons and drive change.

It enables all learners to enjoy and succeed in mathematics. We want learners to think about maths beyond what is tested in national examinations and to be equipped with an understanding of mathematics that will be relevant and useful in their future studies and in the world of work.

It provides learners with a deep conceptual understanding of mathematical principles, the ability to confidently communicate in precise mathematical language, while becoming mathematical thinkers.

All year groups follow a 6-part structured lesson. This ensures the lesson is pacy and allows opportunities to teach creatively, give feedback and assess learning.

Do Now: Quick task to introduce the lesson or recap prior learning.

New Learning: Introduces the main mathematical concepts for the lesson.

Talk Task: Focuses on practising the new learning by talking about the maths using key vocabulary.

Develop Learning: Builds on New Learning content and helps pupils deepen their understanding of the concepts.

Independent Task: Enables pupils to practise their learning independently.

Plenary: Recap on the lesson, checking understanding and celebrating success.

When you walk into a Mathematics lesson at Sinai you can expect to see the class working together on the same topic, whilst at the same time addressing the need for all pupils to master the curriculum and for some to gain greater depth of proficiency and understanding.

Teaching is pacy, focused and engaging to ensure that learning is sufficiently embedded and sustainable over time. Long-term gaps in learning are prevented through pre teaching and effective intervention. More time is spent on teaching topics to allow for the development of depth and sufficient practice to embed learning.

Every Mathematics Mastery lesson provides opportunities for pupils to communicate and develop mathematical language through:

- Sharing the key vocabulary at the beginning of every lesson in the [Do Now](http://toolkit.mathematicsmastery.org/the-mm-lesson/1-do-now) section, and insisting on its use throughout;

- Modelling clear sentence structures and expecting pupils to respond using a full sentence;

- [Talk Task](http://toolkit.mathematicsmastery.org/the-mm-lesson/3-talk-task) activities, allowing pupils to discuss their thinking and reasoning of the concepts being presented;

- [Plenaries](http://toolkit.mathematicsmastery.org/the-mm-lesson/6-plenary), which give a further opportunity to assess understanding through pupil explanations.

**Maths Meetings**

Maths Meetings are a vital part of the Mathematics Mastery programme. They consolidate key areas of mathematics or introduce new topics to the class. Meetings occur at least 3 times a week for 10-15 minutes (R-Y6), covering several curricular areas, broken down into short segments.

Meetings incorporate songs, rhymes, poems and chants, to ensure full participation and enjoyment. They provide opportunities to develop number sense, give students repeated practice of basic skills and concepts (fluency, consolidation, mastery of what has been taught) and establish a routine for starting mathematical thinking in the day, building classroom culture, and making connections with mathematics in everyday life.

**Planning**

Mathematics is a core subject of the National Curriculum, and we use the National Curriculum 2014 as the basis for our implementation of the Programmes of Study for Mathematics.

When planning for objective coverage, all teachers are expected to:

* Teach the lesson in 6-parts
* Implement the Concrete, Pictorial and Abstract (CPA) approach to introducing, exploring and applying mathematical concepts
* Consider key questions and mathematical vocabulary
* Provide opportunities for verbal and written/drawn reasoning (explaining and using mathematical vocabulary to explain methods or reasoning)
* Include relevant problem-solving opportunities, where children are expected to draw on and apply multiple concepts to address or approach a challenge
* Modelling of all skills and approaches
* Opportunities to explore maths concepts/objectives at ‘greater depth’
* Include all learners, providing relevant support for those with additional needs
* Make use of progression documents to aid with differentiation.

**Early Years Foundation Stage (EYFS)**

The programme of study for the Foundation stage is set out in the EYFS Framework. Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shape, spaces and measures. Reception lessons happen daily and follow Mathematics Mastery. They include elements of a 6-part lesson and at least once a week, children take part in a teacher led activity. The lessons provide all children with an opportunity to be interactive learners through the use of repeated vocabulary and manipulatives.

Maths within the EYFS is developed through purposeful, play based learning and will be experienced throughout the indoor and outdoor provision.

**Challenge & Problem Solving**

Throughout the school we teach in mixed ability sets with additional intervention teaching for our quicker graspers and pre-teaching and intervention for lower attainers.

Challenge and problem solving is at the heart of every Maths lessons and is accessed by all children. It places focus on the learner making sense of mathematical ideas and encourages students to believe in their ability to think mathematically. Challenges deepen learners' understanding, rather than accelerating into new mathematical content.

Both provide an entry point that allows all students to be working on the same problem. The open-ended nature of problem solving allows high attaining students to extend the ideas involved to challenge their greater knowledge and understanding.

Challenge and problem solving is an aspect of lessons that children enjoy. It allows students to work at their own pace and make decisions about the way they explore the problem. Pupil’s reasoning is not limited to a specific answer; therefore, those at different attainment can experience success.

**Marking & Presentation**

Marking should be efficient so it leads learning and addresses misconceptions. We believe that marking is most effective when it is completed as soon as possible: either in the lesson or immediately after the lesson.

Next steps should be provided when:

- Learning Objective has been mastered.

- Misconceptions have arisen.

It is important for teachers to distinguish between a pupil’s simple slip and an error that reflects a lack of understanding. For slips it is often enough to simply indicate where each slip occurs and to encourage pupils to correct the mistake using their green pen. If an error demonstrates a lack of understanding, then the teacher should take an alternative course of action and ensure a same day intervention takes place.

Successful independent learning and challenge should be celebrated with positivity and encouragement.

**Resources**

A key approach to the Mathematics Mastery programme is the use of concrete, pictorial and abstract representations. We believe that children require the need to manipulate objects in order to make sense of, and develop, mathematical ideas. Manipulatives are used from EYFS through to KS2, as they support children’s mathematical thinking, reasoning and problem solving. Concrete Maths manipulatives allow the learner to make sense of the problem at hand by touching them and playing with them. Exploring the patterns and relationships, make a huge difference between understanding for depth or just for procedure.

Year 1-3 currently have specialised Maths Manipulative Boxes, which allow a table of children to have access to concrete resources throughout lessons.

We are encouraging children to become independent learners, which is why the manipulative boxes work so well. It gives learners the choice of which manipulative they think would best suit the task and then allow them to reflect on and explain what they did.

Year 3 and Year 4 will have frequent access on Times Table Rock Stars, which will allow them to gain in confidence, fluency and speed.

Impact

Mathematics Mastery is not just being able to memorise key strategies and answer questions accurately and quickly. It involves knowing ‘why’ as well as knowing ‘how’. It ensures knowledge is applied appropriately, flexibly and creatively and to new and unfamiliar situations. Assessment is continuous and on-going throughout the school year. Children’s knowledge and understanding is regularly assessed in class through questioning, small group interventions and constructive marking and feedback.

The exploration of mathematics should be interactive and engaging, with content made relevant to children’s real-world experiences and contextualised in order to support consolidation and retainment of knowledge and skill.

**How do we assess?**

**EYFS**

In EYFS, children work towards the Early Learning Goals in Number and Shape, Space and Measures and each child is baselined and assessed against the Development Matters throughout the year. The children are constantly assessed and targets and next steps for learning are revised weekly.

**Year 1 – Year 6**

White Rose Maths Hub tests are used to formally assess the children’s mastery of concept from Year 1 to Year 6. Children complete Arithmetic and Reasoning and Problem-Solving assessments at the end of every term. White Rose Maths Hub tests provide high level questioning and include elements of Mastery. Alongside this, end of unit tests are also used to support teachers planning and next steps. Equally, they allow teachers the opportunity to support those with gaps in learning and adapt interventions accordingly to support groups of learners.

Teachers use these tests to inform their judgement of whether a child is working below, towards, at or above age-related expectations.

Teachers carry out question analysis after every test and use the tests to inform their planning. This high level of questioning is incorporated into lessons to ensure children are continually exposed to key vocabulary. Whole class misconceptions are then revisited in additional lessons or added into Maths Meetings.

National Curriculum Tests take place at the end of Year 2 and Year 6, with the addition of the MTC check at the end of Year 4.

#### Review

This Mathematics Teaching and Learning policy will be reviewed by the Maths curriculum leader/s and the Senior Leadership Team.

Ratified by Curriculum Committee: 03.02.21

Date for next review of this document: Feb 2024