

Sacks Morasha Mathematics Policy 2014

Philosophy Statement

At Sacks Morasha Jewish Primary School, we feel that pupils should be actively involved in experiencing the mathematical curriculum in a variety of ways. It is important that pupils have the tools to carry out problems of different complexities in a range of areas.

Mathematics is a creative and highly interconnected 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.

The Aims

We strive for each child to be a confident mathematician by the end of Year 6 and therefore we aim for all our pupils to:

- Become fluent in the fundamentals of mathematics, through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations and developing an argument, justification or proof using mathematical language.
- Solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

To achieve this we must:

- Teach mathematics in line with the New National Curriculum.
- Develop a progressive understanding of mathematical concepts, skills and attitudes.
- Ensure that pupils have access to a broad and balanced mathematical curriculum encompassing the topics of number, measurement and geometry.
- Create a stimulating and exciting mathematical environment.
- Encourage a positive attitude towards the learning of mathematics and an enthusiasm for the subject.
- Promote an understanding of mathematics within all aspects of the primary curriculum,
- Provide a differentiated mathematics curriculum to meet the needs of all children through the continuity of experiences.
- Promote an understanding of mathematics within real life situations.
- Make mathematical links within other subjects where appropriate.
- Develop the correct use of mathematical vocabulary and language.
- Develop the pupils' understanding of mathematics through practical tasks, problem solving and investigation.

Organisation

The curriculum for the Foundation Stage follows Mathematics from the revised Early Years Foundation Stage Curriculum (EYFSC).

In Years 1 to 6, the objectives from the New National Curriculum for Mathematics are taught, supporting the children in their progression towards the appropriate National Curriculum levels at Key Stages 1 and 2.

Planning at Key Stage and whole school level ensures continuity and progression in mathematics.

Planning and evaluation for mathematics takes place on a weekly basis by the teacher or year group.

Lessons are evaluated daily according to whether the children have achieved the learning objectives.

Numeracy lessons are structured with an introduction, a main consolidating activity and a plenary.

In the Reception year, children receive approximately 3 lessons each week where Mathematics form the focus of the lesson, Key Stage 1 children receive approximately four hours of numeracy each week, Key Stage 2 children approximately five hours per week.

Resources

Teachers should take the objectives from the Scholastic book based on the New Primary Curriculum.

Numeracy Schemes:

Teachers can follow a range of schemes as long as they have been approved by the Maths Co-ordinator. These include Hamilton, Abacus, Scholastic and the National Strategies.

Other resources

All classrooms should all have cubes, dice, 2D and 3D shapes, numicon, counters, rulers, clocks, money, dienes apparatus, cuisenaire rods, number fans, number cards, number lines and number squares. Calculators, compasses and protractors should also be available in KS2 classrooms.

Extra equipment may be stored in the maths cupboard in Year 2.

Role of ICT

- Children are taught how to use calculator at the end of KS2.
- All pupils have access to computers and have opportunities to apply ICT in their study of mathematics.
- A range of differentiated mathematical software is available. Children can use 'purplemash' for work in many areas such as drawing graphs, time and pattern.
- Cross curricular links to ICT are noted in planning.
- All classrooms are fitted with an interactive whiteboard to ensure that interactive teaching tools and programs can be used to aid the teaching of mathematics and to provide motivation including the Smart Notebook software.

Cross Curricular Links

We are aware that teaching in Numeracy is made more meaningful when

opportunities to link with other curriculum areas are identified. Science, ICT and Design Technology in particular, lend themselves easily to links with Mathematics. Patterns and relationships can be depicted in a creative and colourful way through Art. Links can also be made with Jewish Studies. When a relevant mathematical link is made this should be included in the WALT and highlighted at the beginning of a lesson.

Mathematical Environment

Every class should have a numeracy display board which should be interactive and feature mathematical vocabulary. Problem solving should feature strongly on the boards and these should be updated regularly as stated in the display policy.

Assessment

Pupils are given a baseline assessment at the start of each year which is taken from the NFER tests. The children are also tested from NFER in February. All year groups should use rising stars test during assessment week which is at the end of each half term. Before the end of each term these levels should be collated to get an overall level for the term. Additionally, APP levels should be in each maths book/folder so they are accessible for the children.

Interventions

Once the data has been analysed pupil progress meetings will take place and children who are not making progress will have interventions set up which can be run during class time or before school.

Homework

In Key Stage 1 children receive 1 x 15/20 minute homework a week.

In Key Stage 2 children receive 1x 45 minute homework a week.

Homework should be relevant to and build on what is being taught in class.

Appendix

This appendix sets out some examples of formal written methods for all four operations to illustrate the range of methods that could be taught. It is not intended to be an exhaustive list, nor is it intended to show progression in formal written methods. For example, the exact position of intermediate calculations (superscript and subscript digits) will vary depending on the method and format used.

For multiplication, some pupils may include an addition symbol when adding partial products. For division, some pupils may include a subtraction symbol when subtracting multiples of the divisors.

Addition and Subtraction

789 + 642 becomes

$$\begin{array}{r} 789 \\ + 642 \\ \hline 1431 \\ \hline 1 \quad 1 \end{array}$$

Answer: 1431

874 - 523 becomes

$$\begin{array}{r} 874 \\ - 523 \\ \hline 351 \end{array}$$

Answer: 351

932 - 457 becomes

$$\begin{array}{r} 8 \quad 12 \quad 1 \\ 932 \\ - 457 \\ \hline 475 \end{array}$$

Answer: 475

932 - 457 becomes

$$\begin{array}{r} 1 \quad 1 \\ 932 \\ - 457 \\ \hline 475 \end{array}$$

Answer: 475

Short Multiplication

24 × 6 becomes

$$\begin{array}{r} 24 \\ \times 6 \\ \hline 144 \\ \hline 2 \end{array}$$

Answer: 144

342 × 7 becomes

$$\begin{array}{r} 342 \\ \times 7 \\ \hline 2394 \\ \hline 2 \quad 1 \end{array}$$

Answer: 2394

2741 × 6 becomes

$$\begin{array}{r} 2741 \\ \times 6 \\ \hline 16446 \\ \hline 4 \quad 2 \end{array}$$

Answer: 16 446

Long Multiplication

24 × 16 becomes

$$\begin{array}{r} 24 \\ \times 16 \\ \hline 144 \\ 240 \\ \hline 384 \end{array}$$

Answer: 384

124 × 26 becomes

$$\begin{array}{r} 124 \\ \times 26 \\ \hline 744 \\ 2480 \\ \hline 3224 \\ \small{1 \quad 1} \end{array}$$

Answer: 3224

Short Division

98 ÷ 7 becomes

$$\begin{array}{r} 14 \\ 7 \overline{) 98} \\ \underline{7} \\ 28 \\ \underline{28} \\ 0 \end{array}$$

Answer: 14

432 ÷ 5 becomes

$$\begin{array}{r} 86 \text{ r}2 \\ 5 \overline{) 432} \\ \underline{40} \\ 32 \\ \underline{30} \\ 2 \end{array}$$

Answer: 86 remainder 2

496 ÷ 11 becomes

$$\begin{array}{r} 45 \text{ r}1 \\ 11 \overline{) 496} \\ \underline{44} \\ 56 \\ \underline{55} \\ 1 \end{array}$$

Answer: $45\frac{1}{11}$

Long Division

432 ÷ 15 becomes

$$\begin{array}{r} \overline{) 432} \text{ r } 12 \\ \underline{300} \\ 132 \\ \underline{120} \\ 12 \end{array}$$

Answer: 28 remainder 12

432 ÷ 15 becomes

$$\begin{array}{r} \overline{) 432} \\ \underline{300} \text{ } 15 \times 20 \\ 132 \\ \underline{120} \text{ } 15 \times 8 \\ 12 \end{array}$$

$$\frac{\cancel{12}}{\cancel{15}} = \frac{4}{5}$$

Answer: $28 \frac{4}{5}$

432 ÷ 15 becomes

$$\begin{array}{r} \overline{) 432} \cdot 8 \\ \underline{300} \\ 132 \\ \underline{120} \\ 120 \\ \underline{120} \\ 0 \end{array}$$

Answer: 28.8