Moor End Primary School

Mathematics Policy

Updated September 2021

Coordinator – Mr P Sumner

POLICY DOCUMENT FOR MATHEMATICS

Rationale

Mathematics is a tool for everyday life. It is a whole network of concepts and relationships, which provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems.

At Moor End, we are developing a mastery approach to the teaching of mathematics. At the centre of this approach is the belief that all pupils have the **potential to succeed**. All children should have access to the same curriculum content and, rather than being extended with new content from other year groups, they should deepen their conceptual understanding by reasoning and problem solving.

Aims

- To develop a growth mindset about ability to learn mathematics,
- To develop a positive attitude towards the subject,
- Competence and confidence in mathematical knowledge, concepts and skills;
- To become confident and proficient with number, including fluency with mental calculation and looking for connections between numbers,
- To create problem solvers, who can reason, think logically, work systematically and apply their knowledge of mathematics,
- To develop mathematical language which children can use appropriately,
- Initiative and an ability to work both independently and in cooperation with others;
- An ability to use and apply mathematics across the curriculum and in real life;

Teaching and Learning

- Teachers plan from the White Rose/NCETM/Lancashire mastery medium term plans, which allow time to focus on topics by teaching in blocked units. These also address the aims of the 2014 National Curriculum of fluency, reasoning and problem solving. The class work together on the same key point, whilst at the same time challenging and supporting pupils to gain depth of understanding and proficiency.
- Teachers plan on a weekly planning proforma and produce Prowise, or equivalent for each lesson.
- Lessons will contain a combination of practice me fluency work, use me reasoning tasks and show me problem solving activities. Lessons will not always contain all three.
- Pupils should work in mixed ability groups when appropriate.
- Precise questioning during lessons ensures that pupils develop fluent technical proficiency and think deeply about the underpinning mathematical concepts.
- Pupils are encouraged to make rich connections across mathematical ideas to develop deep interconnected understanding.
- Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems rather than accelerated onto new content.
- Additional support may be given in the following ways: further use of representations, careful directed questioning, additional time or activities to consolidate understanding and use of flexible grouping.
- New concepts are introduced by using a concrete, pictorial, abstract approach. See calculation policy.
- Every Maths lesson should show progress and/or help children to deepen their understanding and should build on prior knowledge, therefore all children should be challenged.

- Maths vocabulary should form part of every lesson and it should be used in the correct way in order to develop children's knowledge. Stem sentences should be used where appropriate.
- Every classroom should have helpful, appropriate, display materials, including maths vocabulary. There should be a clearly defined maths area/ working wall, with resources that can be easily accessed by the children.
- All calculations should follow the calculations policy, according to individual needs.
- All adults working with the children should be used effectively in order to develop the children's knowledge and they should be aware of the focus children for the class where appropriate.

(See also reasoning policy)

Early Years Foundation Stage (EYFS)

Teachers support children in developing and expressing their understanding of problem solving, reasoning and numeracy in a broad range of contexts through exploration. Teachers offer opportunities for these skills to be practised, in order to give children confidence and competence in their use.

This Area of Learning and Development includes seeking patterns, making connections, recognising relationships, working with numbers, shapes, space and measures, and counting, sorting and matching. Children use their knowledge and skills in these areas to solve problems, generate new questions and make connections across other Areas of Learning and Development. Mathematical understanding will be developed through whole class sessions as well as stories, songs, games and imaginative play.

Assessment and Record Keeping

- Assessment is continuous and ongoing. There should be assessment opportunities in every lesson. White Rose/Lancashire and NCTEM assessment materials can be used to plan appropriate assessment activities.
- Assessment values knowing 'why' and 'how', as well correct answers.
- Assessment does not solely focus on the need to memorise key facts and procedures and answer test questions accurately and quickly.
- Assessment values applying mathematics to new and unfamiliar situations.
- Each term, children's progress is assessed against the schools tracking statements on the maths grid, taken from Lancashire KLIPS. Teachers will then use this to identify gaps.

Inclusion

Pupils with special educational needs and individual education plans:

- Within the daily mathematics lesson teachers provide activities to support children who find mathematics difficult. Children with SEN are taught within the daily mathematics lesson and are able to take part at their level through the support of a Teaching Assistant and appropriate activities and resources.
- Where applicable children's IEPs incorporate suitable objectives from the Numeracy Framework.
- Intervention Groups will take place at times throughout the year, in order to give further support to children working below national expectations.

Contribution in Mathematics to Teaching in Other Curriculum Areas

English

The teaching of mathematics contributes to children's understanding of language improving their communication skills and their ability to understand the meaning of technical words.

Mathematics can be drawn upon in English lessons, for example:

- An understanding of statistics (percentages) might support children when analysing persuasive texts;
- Graphs may be drawn when plotting a story to indicate numerically the rising action, climax and falling action within the text;
- When reading/writing recounts, the language of time (time adverbials) and days, months, years will often be used.

Computing/ICT

The effective use of ICT can enhance the teaching and learning of mathematics when used appropriately. When considering its use, we take into account the following points:

- ICT should enhance good mathematics teaching. It should be used in lessons only if it supports good practice in teaching mathematics;
- Any decision about using ICT in a particular lesson or sequence of lessons must be directly related to the teaching and learning objectives for those lessons;
- ICT should be used if the teacher and/or the children can achieve something more effectively with it than without it;
- Useful suggestions as to integrating ICT is given in the ICT section of the Lancashire Interactive Planning tool (National Curriculum 2014).

Science

Almost every scientific investigation or experiment is likely to require one or more of the mathematical skills of classifying, counting, measuring, calculating, estimating and recording in tables and graphs. In science pupils will for example order numbers, including decimals, calculate simple means and percentages, use negative numbers when taking temperatures, decide whether it is more appropriate to use a line graph or bar chart, and plot, interpret and predict from graphs.

Art and Design, Design and Technology

Measurements are often needed in art and design and design and technology. Many patterns and constructions are based on spatial ideas and properties of shapes, including symmetry. Designs may need enlarging or reducing; introducing ideas of multiplication and ratio. When food is prepared a great deal of measurement occurs, including working out times and calculating cost; this may not be straightforward if only part of a packet of ingredients has been used.

History, Geography and Religious Education

In history and geography children will collect data by counting and measuring and make use of measurements of many kinds. The study of maps includes the use of co-ordinates and ideas of angle, direction, position, scale and ratio. The pattern of the days of the week, the calendar and recurring annual festivals all have a mathematical basis. For older children historical ideas require understanding of the passage of time, which can be illustrated on a time line, similar to the number line that they already know.

Physical Education and Music

Athletic activities require measurement of height, distance and time, while ideas of counting, time, symmetry, movement, position and direction are used extensively in music, dance, gymnastics and ball games.

Personal, Social and Health Education (PSHE) and Citizenship

Mathematics contributes to the teaching of personal, social and health education, and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become

increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views.

Equalities

All children at Moor End have an equal entitlement to access the new Maths curriculum and make progress in order to attain the best they can in the subject.

Greater Depth Children

Within the daily mathematics lesson, teachers provide activities to support and challenge children who are more able in maths. They are taught within the daily mathematics lesson and are able to take part at their level through the challenge of the activity, sometimes with the support of a Teaching Assistant/teacher and other appropriate activities and resources, which the teacher plans into the daily maths lesson.

Roles and Responsibilities

Leadership in maths focuses on raising attainment and improving the provision in the subject. Through links to other areas of the curriculum the subject engages pupils and staff so that learning develops and improves.

1. Subject Leader (Mr Sumner):

- Ensures teachers understand the requirements of the National Curriculum and helps them to plan lessons.
- Lead by example in the way they teach in their own classroom;
- Prepare, organise and lead INSET, with the support of the Head teacher;
- Work co-operatively with the Year 1 teacher on the Mastery approach;
- Monitor different aspects of maths teaching and learning, feeding back to SLT and staff on findings and future actions;
- Attend INSET provided by LA numeracy consultants;
- Work with the NCETM to enhance the mathematic provision across school;
- Be available to discuss with the head teacher, class teachers, parents and numeracy governor the progress of maths in the school.

2. Class Teachers:

- To deliver a Daily Maths lesson to their pupils which is engaging and motivating, is informed by the Maths Framework (2014) and is accessible to all children.

3. Pupils:

- To develop their skills, understanding and attainment in Maths through engagement with the lesson, behaviour conducive to learning, independent work and thought and confidence to challenge or ask for help.

4. Parents / Carers:

- To support their children's learning in maths by taking an interest in their child's progress, encouraging the children to complete maths homework and having a good relationship with the class teacher so that queries and problems regarding maths can be dealt with easily.

Monitoring and Review

Monitoring of the standards of children's work and of quality of teaching in mathematics is the responsibility of the headteacher and link governor supported by the subject leader. The work of the subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.