Maths Policy for academic year 2019/20

Date Ratified	Review Date
October 2019	October 2020

Revision History

Date of Revision	Summary of Changes	Approved	Approved

Mossley CE Maths Policy

Maths philosophy

Our vision for Maths at Mossley is for all children to be able to access the curriculum at the relevant stage, through an engaging, enjoyable approach to learning. By developing pupils' ability to calculate fluently, reason with mathematical concepts and solve problems, we aim to provide our students with an understanding of the essential everyday skills needed for financial literacy, the concepts used in science, technology and engineering, and skills needed in most forms of employment.

Aims

The aims for teaching mathematics at Mossley CE Primary School are:

- To understand the importance of maths in an everyday context.
- To become fluent in the fundamentals of mathematics so that knowledge can be applied rapidly and accurately.
- To be able to reason logically when posed with mathematical challenges.
- To provide children with the ability to select and use a range of mathematical tools effectively.
- To promote and provide opportunities for children to develop the core learning skills of confidence, determination, curiosity, aspiration, teamwork, independence, communication and focus.
- To develop a practical understanding of the ways in which information is gathered and presented.
- To explore features of shape and space, and develop measuring skills in a range of contexts.
- To develop sustainable learning for pupils for the future.

Teaching and learning styles

Mossley CE Primary School has introduced and is developing a Mastery approach to learning in Mathematics; the mastery of the maths curriculum is something that we want *all* pupils to acquire to help them develop a secure understanding of the mathematical concepts they focus on every day. We strongly believe that this mastery of mathematics means a deep, secure and adaptable understanding of the subject in three key areas, for all children:

- fluency (rapid and accurate recall and application of facts and concepts)
- a growing confidence to reason mathematically
- the ability to apply maths to solve problems, to conjecture and to test hypotheses.

To make the mathematical concepts that our children focus on more understandable and accessible, we aim to provide them with strategies that allow them to physically manipulate numbers, use pictorial representations, and find the most efficient method to solve a mathematical challenge. Each child at Mossley will be given the opportunity to learn in a variety of ways to support their needs:

Concrete – Pictorial – Abstract (CPA)

Concrete – students should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.
Pictorial – students should then build on this concrete approach by using pictorial representations. These representations can then be used to reason and solve problems.
Abstract – with the foundations firmly laid, students should be able to move to an abstract approach using numbers and key concepts with confidence.
Our expectation is that all children access the appropriate areas of the Maths curriculum, using the different learning styles mentioned above to narrow the gap between the most and least able learners, thus allowing pupils to move through the programmes of study at broadly the same pace. However, the scrutiny of a pupil's understanding will be made before deciding to progress to the next stage of learning. Those that grasp concepts rapidly will be challenged through deeper thinking challenges and sophisticated mathematical problems before any acceleration through new content.
Those who are not sufficiently fluent with earlier material will consolidate their understanding through next day intervention.

We believe that all students, when introduced to a key new concept, should have the opportunity to build competency in this topic by taking the concrete-pictorial-abstract approach. During our daily lessons, we encourage children to ask, as well as answer mathematical questions. We develop their ability to independently select and use appropriate concrete apparatus to support their conceptual understanding and build procedural fluency. They have the opportunity to independently access and use a wide range of resources, such as: bead strings, number lines, Base 10 apparatus, place value counters, Numicon, multilink, place value cards, Cuisenaire rods and other small apparatus to support their work. We develop the children's ability to represent problems using visualisation skills, jottings and pictorial representations such as Empty Number Lines, the 'Singapore Bar Model' and their own ideas. ICT is used in mathematics lessons for modelling ideas and methods. Wherever possible, we provide meaningful contexts and encourage the children to apply their learning to everyday situations.

Maths timetable

The new National Curriculum places a great emphasis on mental recall. At Mossley, we have adapted the daily timetable to incorporate extra Mental Maths sessions to the daily Maths lesson:

KS1 - 15 minutes of Rapid Recall followed by 1 x 45-minute Maths lesson.

KS2 – 15 Minutes of Rapid Recall followed by 1 x hourly Maths lesson
(Rapid Recall – a session focused on specific calculation fluency which relates to each year groups curriculum)

Mathematics curriculum planning

Mathematics is a core subject in the National Curriculum, and we use the new Mathematics Programmes of Study: Key stages 1 and 2 (dated September 2013) as the basis for our school curriculum, ensuring we teach the relevant statutory

content. We have adopted the White Rose Maths Hub Mastery Scheme of Work which places number as a priority and a large proportion of time is spent reinforcing number to build competency. The scheme ensures teachers stay in the required key stage and support the idea of depth before breadth. It also ensures students have the opportunity to stay together as they work through the schemes as a whole group. The scheme also provides plenty of time to build reasoning and problem solving elements into the curriculum. Other resources such as Nrich, NCETM and Mymaths are used to supplement the teaching. The school's Calculation Policy details the approach and learning progression in the main operations of addition, subtraction, multiplication and division, and also includes examples of how CPA can be used to support pupils' learning in each area. It is a working document that all staff are expected to apply.

We carry out the curriculum planning in mathematics in three phases (long-term – a yearly overview, medium-term – term-by-term objectives and short-term – weekly lesson plans). Our long-term plans provide an overview to ensure the appropriate content is covered in each year group.

Our medium-term mathematics plans, give details of the main teaching objectives for that theme or topic and provide the structure of the 'mastery' approach to our curriculum design and organisation. This means that areas of Maths will be taught in longer 'blocks'.
For Number, Addition and Subtraction, Multiplication and Division, and Fractions, these blocks will be taught in a progressive manner across the year. Blocks relating to other areas of Maths may only be taught once and not re-visited until the following year.

The short-term plans contain the specific learning objectives and expected outcomes for each lesson, and give details of how the lessons are to be taught. The subject leader and class teacher often discuss them on an informal basis as part of the subject leader's monitoring, as well as when more formal monitoring takes place.

Early years foundation stage

Mathematics in Reception follows the Statutory Framework for the Early Years Foundation Stage and works towards the two Early Learning Goals for:

- Numbers
- Shape, Space and Measures.

This underpins the curriculum planning for children during their time in the Foundation Stage. At Mossley, we provide children the opportunities to develop their understanding of number, measurement, pattern, shape and space through a combination of short, formal teaching, as well as a range of planned structured play situations which offer children plenty of scope for exploration. We believe that children learn best when they are active so we try to ensure that Mathematics is incorporated into many of the different areas of the learning

environment. Mathematics in the Foundation Stage offers open ended challenges which develop children's Mathematical language as well as their problem solving skills.

Links with other curriculum areas

Although much of the Mathematics is taught during a daily lesson, we constantly aim to make meaningful cross-curricular links through our termly topics. We hope to provide engaging mathematical problems which relate to the real world and encourage children to use their prior embedded knowledge.

Mathematics and Computing

On a regular basis, we aim to incorporate ICT into daily maths lessons to enhance learning. Teachers can use software and I –pad apps to provide engaging learning opportunities. The i-pads are distributed on a weekly timetable, along with the computer suite, so that pupils can independently access a visual, dynamic and interactive method to understand concepts.

Presentation of Maths work

Our expectation at Mossley is that all children present their work in a neat and logical manner. Children are expected to write the short date in the top left corner of the page, followed by an "I Can" title which is their objective for the lesson. The children are aware that they should be applying "DUMTUMS" (Date, Underline, Miss a line, Title, Underline, Miss a line, Start) to every piece of work. A ruler must be used for the drawing all lines. The emphasis of neatly produced work is important as poor presentation and careless setting out can lead to incorrect calculations.

Marking of Work

The marking of children's work must be kept in line with the schools 'Marking' policy. This means that work is highlighted with pink and green pens. The pink highlighter is used to indicate any misconceptions or mistakes made. Pupils are expected to return to these during the lesson, and when they complete their 'next steps' at the beginning of the next lesson – children's responses will be completed in purple pencil (KS1) and purple pen (KS2). The green highlighter is used to indicate what children have done well. Teachers are encouraged to provide a 'praise' comment, followed by a next step to further challenge the pupils at a greater depth – this will also be responded to in purple pen/pencil.

Maths Learning Environment

We aim to create a rich and stimulating Maths environment that promotes learning and independence through Maths Working Walls in each classroom. Maths Working Walls and resource areas in the classroom will:

- Support the children with their Maths.
- Contain information relevant to current teaching (key vocabulary, models/images, success criteria, targets).
- Include Maths resources clearly accessible for the children.
- Be clear/large enough for children to read.
- Be changed regularly so it doesn't become just 'wallpaper'.

Assessment

At Mossley, we use a range of assessment tools to closely monitor the progress that our children make. Termly summative assessments, as well as weekly and daily

formative assessments, are used in all classes to provide a thorough and balanced picture of progress in learning.

Assessment for learning

Assessment for learning forms the core of our assessment in maths. At the beginning of a unit, children will complete a 'Cold Task' to assess their understanding of the mathematical concepts covered in that unit. This highlights any gaps in learning as well as any misconceptions pupils may have. Then, after a sequence of teaching and learning opportunities, children will be given a 'Hot Task' to measure the progress they have made from the beginning of the unit.

During the sequence of teaching in each unit, teachers will constantly be assessing understanding and knowledge throughout daily lessons so that children are appropriately challenged and supported. This allows for rapid intervention during the lesson as well as post-lesson or next day intervention.

Summative assessment

Three summative assessments happen over the course of the year, each at the end of a term of work. At Mossely, we use assessments written by White Rose Maths Hub which tests the areas covered in specific terms. This is used to closely monitor the achievement and progress made over a term, and identify key areas of learning where progress has been made, as well as areas where progress hasn't been sufficient. By using this form of assessment as a diagnostic tool, teachers are informed about the areas that they may need to revisit so that any gaps in learning can be covered. Some of the evidence used to judge where our pupils are currently working at is accumulated from day to day class work, but there is an emphasis on evidence that comes from specific tasks and tests used to assess the degree of retention, independence and breadth of application shown.

Teachers in Year 2 and 6 will also use the statutory End of Key Stage National Curriculum tasks and tests as one part of the assessment picture for each child.

We give parents the opportunity to discuss their child's progress and attainment each term in a teacher/parent meeting. We also write a summary of each child's progress and achievement in the Annual Report for parents.

Governors

Mossley CE Primary has a designated link governor who:

a) Meets with the Mathematics Subject Leader at least once a term to find out about;
   - the school's systems for planning work, supporting staff and monitoring progress;
   - the allocation, use and adequacy of resources; and
   - how the standards of progress are changing over time.

b) Visits School and talks to pupils about their experiences of Mathematics;

c) Attends training and other events relating to the Mathematics curriculum;

d) Reports jointly with the Subject Leader, both for the School Prospectus and to the governing body with recommendations, when appropriate.

e) Is understanding and supportive of our aims in the learning and teaching of Mathematics and to review this policy annually.
f) Challenges data through the 'CPP' subcommittee of the governing body.
g) Measures the effectiveness of the policy through feedback, data collection and SLT challenge.
h) Monitors the policy implementation against the objectives in the School Development Plan (SDP).

The role of Subject Leaders

The Mathematics Leaders will:

- Provide a strategic lead and direction for Mathematics in the school;
- Provide support and advice to staff in the delivery of the Mathematics programme of study;
- Remain informed about current developments in the subject by attending INSET sessions and being involved in independent research and reading;
- Disseminate relevant information to staff;
- Deliver Staff Meeting sessions to staff, to support staff development;
- Monitor and evaluate teaching and learning of Maths;
- Monitor standards in the subject, through planning and work scrutiny, statistics, quality of teaching and pupil assessments;
- Order and maintain resources to enhance effectiveness of Maths teaching within the school;
- Consider with staff and work with SMT members in the evaluation and planning of actions included within the School Development Plan.
- Meet with the Head of Teaching and Learning, half-termly, to discuss progress of pupils.

The Class Teacher will:

- Be responsible for the teaching of Maths as set out in the policy.
- Provide planning and reviews for the Head Teacher and Maths leader to have access to.
- Provide samples of maths work to the Maths leader when required.
- Assess children's work in order to detail future planning.

Special needs provision

The daily mathematics lessons are inclusive to pupils with SEND. Where required, children's SEN Support Plans incorporate suitable objectives from the New National Curriculum for Mathematics or Development Matters and teachers keep these objectives in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the Mathematics lesson. Maths focused intervention programmes are available in school to help children with gaps in their learning and mathematical understanding. These are delivered on a 1:1 basis by trained support staff and overseen by the class teacher. Within the daily mathematics lesson teachers must not only provide differentiated activities to support children with SEND but also activities that provide appropriate challenges for children who are high

achievers in mathematics. It is vital that all children are challenged at a level appropriate to their ability.

Teachers have been trained in how to identify children with dyscalculic tendencies and how best to support such learners.