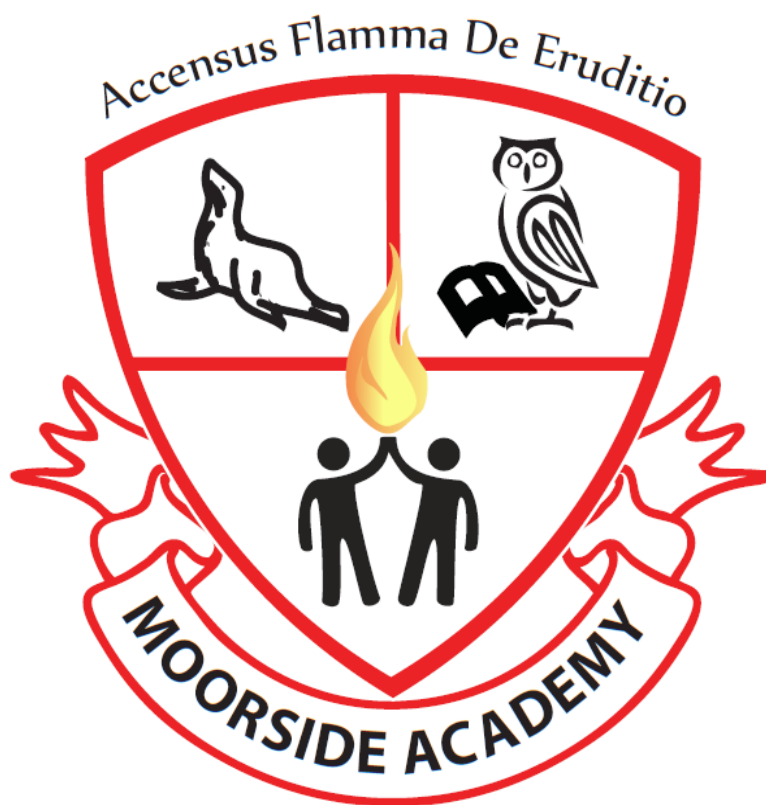


# Moorside Community Primary Academy.

Back Lane,  
Skelmersdale.  
WN8 9EA.



## **MATHEMATICS POLICY**

## Curriculum Intention

**Our curriculum is vital in ensuring we fulfill our school motto – ‘Lighting the flame of learning’. The planning of the curriculum must be seen by all as the key to pupils’ development as successful learners who are ambitious for their futures. This is only possible when the content of our curriculum engages children in learning.**

At Moorside Academy our primary aim as educators is to ensure that our pupils are safe, happy and ready to learn. The ethos of our school is that the foundations are built firmly on peace and respect, regardless of an individual’s role in the academy. Our children and their families are at the heart of everything that we do here at Moorside and our curriculum has been developed in partnership with our children to be stimulating and engaging and to promote a lifelong love of learning. Our nurturing approach ensures that our curriculum is fully inclusive for all learners and we work hard to challenge all of our children and develop in them the resilience that will accompany them on their future learning journey

### **Mastery approach to mathematics**

Our philosophy for our children is that they...

- Have **imaginative** ideas
- **Ask** questions
- Make **mistakes** and use them to learn new things
- Are **organised** and systematic
- Describe, **explain** and **discuss** their work
- Look for **patterns** and **connections**
- **Keep going** when it is difficult.

*From Dr Helen Drury ‘Mastery Mathematics –Teaching to transform achievement.’ (2014)*

When teaching Mathematics for mastery, the whole class moves through topics at broadly the same pace. Each topic is studied in depth and the teacher does not move to the next stage until all children demonstrate that they have a secure understanding of mathematical concepts.

### **Time to Think Deeply About the Mathematics**

Students are given time to think deeply about the Mathematics and really understand concepts at a relational level rather than as a set of rules or procedures. This slower pace leads to greater progress because it ensures that students are secure in their understanding and teachers do not need to revisit topics once they’ve been covered in depth. Taking a mastery approach, differentiation occurs in the support and intervention provided to different pupils, not in the topics taught, particularly at earlier stages. There is no differentiation in content taught, but the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher attainers challenged through more demanding problems which deepen their knowledge of the same content. Pupils’ difficulties and misconceptions are identified through immediate formative assessment and addressed with intervention. This may take place alongside the teacher within the classroom or through targeted sessions in a smaller group setting. Pupils are taught Mathematics in their class group; the school does not teach children by ability groupings.

## Aims

Our mathematics philosophy at Moorside is that every child matters. We have a commitment to ensure that every child has the opportunity to make accelerated progress within every year group at school, with no 'ceiling' being put on children and their progress. Careful assessments, tracking and intervention allow for this to happen in a rigorous and thorough way across the academy.

We believe every child needs to develop their confidence and independence in mathematics conceptual understanding as well as their mental arithmetic and rapid recall of number facts. Children should also fine tune their ability to fluently use mental methods and recall mathematical knowledge, skills and understanding quickly.

We also aim to provide a cross curricular approach to mathematics, ensuring that mathematics is stimulating, challenging and purposeful to the children. This enables children to apply their knowledge, skills and understanding in different contexts, including the world we live in. 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.

At Moorside, we follow the National Curriculum for Mathematics, which aims to ensure that all pupils:

- become **fluent** in the fundamentals of Mathematics, including 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
- can **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

The content and principles underpinning the Mathematics curriculum that we follow at Moorside (The White Rose Scheme) reflect those found in high performing education systems internationally.

The principles and features that characterise this 'mastery' approach are:

- Teachers reinforce an expectation that all pupils are capable of achieving high standards in Mathematics.
- The large majority of pupils' progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention.
- Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge.
- Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem.
- Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up.

We are committed to provide a 'fail-safe' climate, whereby children see mistakes as a way of enhancing learning. We want to develop resolute and determined children, especially when solving mathematical problems, in a practical, hands-on manner with the ability to answer open questions using the correct mathematical language, in a confident manner.

Our final aim is to involve parents, wherever possible, as partners to the learning process.

### **Teaching and learning / Curriculum organisation**

The National Curriculum 2014 forms the basis of teaching and learning from Years 1 - 6. The Early Learning Goals are followed to ensure continuity and progression from the Foundation Stage through to the National Curriculum.

Through the use of The White Rose Scheme alongside the National Curriculum, a detailed, structured curriculum is mapped out across Key Stage 1 and Key Stage 2, ensuring continuity and supporting transition. Effective mastery curricula in Mathematics are designed in relatively small carefully sequenced steps, which must each be mastered before pupils move to the next stage. Fundamental skills and knowledge are secured first. This often entails focusing on curriculum content in considerable depth at early stages.

At Moorside, the time allocated for Mathematics is in line with recommendations for Key Stages 1 and 2. Additional time has also been allowed for intervention sessions within, directly before or directly after the whole class Mathematics lesson.

A coherent programme of high quality curriculum materials is used to support classroom teaching. Concrete and pictorial representations of Mathematics are chosen carefully to help build procedural and conceptual knowledge together. Exercises are structured with great care to build deep conceptual knowledge alongside developing procedural fluency. The focus is on the development of deep structural knowledge and the ability to make connections. Making connections in Mathematics deepens knowledge of concepts and procedures, ensures what is learnt is sustained over time, and cuts down the time required to assimilate and master later concepts and techniques. 'Inspire' text books and work books which provide a highly scaffolded learning framework with problem solving at its core. The textbooks allow teachers and pupils to explore each topic in real depth. The textbooks have been researched in huge detail which means that teachers don't have to spend time creating resources from scratch. The varied examples have been specifically chosen to stretch pupils into harder concepts, create depth and generate dialogue providing teachers with better expert resources than if they were developing materials on their own. The programme encourages extensive practice to develop fluency and mastery, so that every child – across all prior attainment groups – can succeed in Mathematics.

In addition to the daily numeracy lessons, teachers carefully plan opportunities for children to use and apply their knowledge, skills and understanding in our themed, topical approach to teaching. Teaching 'Numeracy across the curriculum' makes the learning more purposeful and allows children to apply what they have learnt in other contexts. We also plan for Numeracy Enrichment weeks which allow for children to have intense contextualized mathematics opportunities, making best use of learning outside the classroom opportunities.

## **Calculation**

All staff are to use the latest Calculations Policy as a base to develop written methods for calculation for each of the four operations in each class, alongside the arithmetic development in the Inspire scheme. The aim is for children to be able to use the methods confidently, progressively and accurately, fully appreciating the need for and need to understand why the methods are carried out, being able to use the correct vocabulary consistently. The appendix to the National Curriculum 2014 should also be used as a reference to supplement the teaching of calculations.

## **Differentiation / Inclusion / SEN / AGT.**

In school we aim to meet the needs of **ALL** our children by providing a variety of approaches and tasks appropriate to challenge all abilities in the most appropriate way, developing the concept/knowledge development as each session progresses. This will enable children with learning and /or physical needs to take an active part in all learning and practical activities/ Investigations and to achieve the goals they have been set. Some children will require closer supervision and more adult support to allow them to progress whilst and some children will be extended through the learning at a faster pace.

Children who are not making acceptable progress will be placed on termly intervention maps and may have 'Pupil Passports' set up and acted upon to 'bridge the attainment gaps.'

An Able, Gifted and Talented (AGT) register has been set up and is evaluated throughout the year to identify if the AGT children have made desired / accelerated progress. This helps evaluate and plan for subsequent learning opportunities which challenge such children. All prior attainment groups are monitored to ensure all make progress.

## **Narrowing the gaps, Pupil Progress and Intervention**

Throughout the year the coordinator analyses summative assessment data to find areas of misconception within school, which is fed back to teachers to act upon and this also can trigger intervention for children / groups.

The coordinator also uses the Assessment Coordinators 'Closing the gaps' documentation to find gaps and to determine if a gaps had been closed. We actively look at the progress and attainment a variety of groups to track progress and plan subsequent intervention to narrow or close the gaps. Some of the groups are:-

- Boys and Girls
- Ever 6 and Non-Ever 6
- Special Educational Needs and Non-Special Educational Needs
- Differing Terms of Birth
- Children with English as an Additional Language
- At Age Related Expectations and not at Age Related Expectations
- Expected and accelerated progress (put on math-e-magician wall display in the hall)
- LPA, MPA and HPA

All groups are scrutinised at each of the 3 assessment weeks during each academic year (1 per term) and information is fed back to all teaching staff and subsequently support staff. All information

is carefully evaluated and filtered into the writing process of the School Improvement Plan for Mathematics.

The pro-formas that each teacher completes at the termly Pupil Progress meetings are also scrutinised to detect children who are not making expected or better progress, so that intervention can be carried out and mapped on an intervention map. Intervention maps are then evaluated termly to determine what impact they have had on the progress of specific highlighted children.

### **Assessment of mathematics**

Assessment in numeracy follows the procedures and protocols set out in the Assessment Policy. Assessments are made in all areas of the National Curriculum and we use Key Learning Indicators of Performance (KLIP's) to assess/measure progress.

Formative assessments enable class teachers to plan and differentiate effectively according to the ongoing needs of the children and to implement Wave 2 and/or Wave 3 interventions where appropriate rather than waiting for the results of summative assessments. Interventions are also evaluated at several stages through their progression to decide on effectiveness and impact.

Each term there is a different focus in the scrutiny of numeracy work and progression through the school and differentiation between groups in the different areas is monitored. Staff are given feedback and supported where necessary take recommended actions.

Further monitoring opportunities may include

- Learning Evaluations – triangulations between observing, looking at books and interviewing children
- Tests
- End of KS1 and KS2 SAT's
- 'Early Years Foundation Stage Profile' and 'Development Matters' and 'Ofsted Early Outcomes'
- 2 year assessment check

Numeracy is assessed termly using past test papers. In Year 1, staff use KLIP's in more detail to assess numeracy. Internal tracking is on a points progress system (see Assessment Policy)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>POD</b>	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes
<b>Nursery</b>	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes

Reception	- Development Matters -Government baseline - Teacher Judgement	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes	- Development Matters -Ofsted Early Outcomes	- Development Matters Government baseline - Teacher Judgement -Ofsted Early Outcomes -ELG's
Year 1	- KLIPs Teacher Assessment	-KLIPs	- KLIPs Teacher Assessment	- KLIPs	- KLIPs Teacher Assessment	-KLIPs GDS KS1 Tests
Year 2	SATS Baseline 2019 Teacher Assessment	SATS 2017 Teacher Assessment	SATS 2018 Teacher Assessment	SATS 2019	SATS LATEST+ Teacher Assessment	XXXXX
Year 3	Baseline Testbase End of year tests	XXXXX	Testbase Mid year tests	XXXXX	Repeat Testbase End of year tests	XXXXX
Year 4	Baseline Testbase End of year tests	XXXXX	Testbase Mid year tests	XXXXX	Repeat Testbase End of year tests	XXXXX
Year 5	Baseline Testbase End of year tests	XXXXX	Testbase Mid year tests	XXXXX	Repeat Testbase End of year tests	XXXXX
Year 6	Y6 SATS – 2019	Y6 SATS - 2018	Y6 SATS - 2017	Y6 SATS - 2019	Y6 SATS LATEST	XXXXX

## **Marking**

Each child has their own workbook. The workbook is marked in accordance with the school Marking and Feedback Policy. The workbook can be peer marked, self-marked or teacher marked.

## **Resources / ICT**

Resources are stored centrally in the key Stage One corridor (class based resources and Learning Outside the Classroom resources). We also have the ICT suite that supplements the teaching of mathematics.

## **Induction / Trainees**

New members of staff will have induction to mathematics expectations with the subject coordinator and then be supported by them. Trainee Teacher's will have all expectations outlined to them, as well as being supported, by their class based mentor.

## **Monitoring**

Monitoring of the standards of children's work and of the quality teaching in mathematics is the responsibility of the mathematics subject leader. The work of the mathematics 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.

The mathematics subject leader gives the Headteacher an annual summary in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement. The Headteacher allocates regular management time to the mathematics subject leader so that he can review samples of children's work and undertake lesson observations of mathematics teaching across the school.

A named member of the school's Governing Body is briefed to oversee the teaching of Numeracy. This governor meets with the subject leader to review progress in line with Governor monitoring cycle.

All children are provided with equal access to the Mathematics curriculum. We aim to provide suitable learning opportunities regardless of gender, ethnicity of home background.

## **Role of the Subject Leader**

The Subject Leader should be responsible for improving the standards of teaching and learning in Mathematics through:

Monitoring and evaluating Mathematics:

- Pupil progress
- Provision of Mathematics, including intervention strategies
- The quality of the learning environment
- The deployment and provision of support staff
- Taking the lead in policy development
- Auditing and supporting colleagues in their CPD, particularly staff who are new to school
- Purchasing and organising resources
- Keeping up to date with recent developments in Mathematics and sharing important pedagogy.



## **Policies**

The following policies all support the teaching of Mathematics at Moorside Academy:

- Assessment
- Curriculum
- Monitoring
- Marking and feedback
- Special Educational Needs
- Gifted and Talented
- Calculations Policy – Use of Base 10

Z Shimmin- Numeracy Subject Coordinator

This policy will be reviewed as part of the school's ongoing monitoring cycle.