



Mountford Manor

Curriculum Policy

Maths

“Mathematics has beauty and romance. It’s not a boring place to be, the mathematical world. It’s an extraordinary place; it’s worth spending time there.”

— *Marcus du Sautoy, British mathematician*

Whole-school curriculum Intent:

At Mountford Manor Primary School, children are supported, guided and inspired through our excellent teaching practises, to achieve academic success through a [knowledge-engaged](#) approach to the curriculum, which centres around a key stimulus.

Developing the whole child is at the centre of everything we do and our intention is that the curriculum extends opportunity, raises aspiration and opens children's eyes to the world beyond their immediate environment.

Through our values based approach, the curriculum encourages children to become kind, considerate and accepting individuals who make positive contributions to their community and beyond.

At Mountford we aspire for children to **Make the Most** of their **Potential**.

To do this, we strive for children to;

- Be **Motivated Learners**
- Seek **Meaningful futures**
- Become **Proud citizens**

In order for us to ensure our pupils "Make the Most of their Potential" 5 instrumental **Golden Threads** underpin and weave through everything we do at the school. We believe these threads enable children to have the essential knowledge and skills that they need to be educated citizens.

1. **Embed values** and a sense of community
2. **Develop oracy** through immersing pupils in a language rich environment
3. **Cultivate a sense of value** in the love of reading
4. **Enable and facilitate opportunities** and **experiences** to accumulate advantage; inspiring ambition and aspiration.
5. **Encourage curiosity**; pupils want to pupils do more, to know more; and therefore, remember more.

How the **5 Golden Threads** are embedded in our Maths Curriculum

Golden Thread	How this is embedded in Maths
Embed Values	Through learning about how to solve different fluency, reasoning and problem-solving activities; children develop an appreciation of a growth mindset. As a school we value the importance of failure in learning and children grow their resilience and perseverance through this process. This supports pupils in becoming rounded; valuable citizens.
Develop Oracy Skills	Children are given opportunities to talk and discuss their ideas and reasoning in daily maths lessons. Sentence stems are used to support maths talk and discussion. Children are made aware of and encouraged to use a range of mathematical vocabulary throughout their journey through the school. Vocabulary is used to help children to make connections between concepts and ideas.
Cultivating a culture of readers	Where possible, children are encouraged to read through a range of problems and use their comprehension skills to pick out key information and facts. Children are also given opportunities to read a number of Non-fiction text of which includes learning about various mathematical and scientific discoveries.
Giving exposure to real life opportunities and experiences	As part of the Master Approach to the teaching of Maths, children are encouraged to use and explore maths in real-life situations and throughout the school maths is put into context. The school encourages the use of real life concrete and pictorial resources to aid children in demonstrating various representations and structures. Maths is highly valued at the school and success is celebrated both with peers and the wider community. Where possible, children learn about various careers where maths plays an important role.

Encourage curiosity

In maths “practice makes permanent” and children understand by doing more will enable them to know and remember more. Through Maths, children build upon their prior number fluency; reasoning and problem-solving skills which enable them to develop a wider curiosity; motivating them to learn further.

Maths Intent: The Mastery Model of Learning

Mathematics is an important, creative discipline that helps us to understand and change the world we live in. We want all primary pupils at Mountford Manor to experience the beauty, power and enjoyment of mathematics and to develop a sense of curiosity about the subject.

We foster positive ‘Can-Do’ attitudes, believe all children can achieve in mathematics and teach for secure and deep understanding of mathematical concepts so that they can be applied across different contexts and in real-life situations. We embrace mistakes as an essential part of learning and provide challenge through rich and sophisticated problems before acceleration through new content.

We aim for all pupils to:

- Enjoy learning mathematics, develop a ‘can do’ approach and understand how it relates to real life situations
- Become fluent in the fundamentals of mathematics so that they develop deep and secure conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Solve problems by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios
- Reason mathematically and follow a line of enquiry, developing and presenting justifications, arguments or proofs using accurate mathematical language to communicate with clarity.

Maths Implementation

Maths in the Early Years:

In the Foundation Stage, maths is taught through a carefully sequenced combination of whole class input, small group adult-led activities alongside continuous provision. At Mountford Manor we continue this approach into Year 1 in a way that builds on EYFS practice in order to meet the appropriate National Curriculum objectives

Maths in Key Stages 1 and 2

Maths learning for each year group is planned from the relevant National Curriculum objectives. These are blocked into themes or units and then divided into manageable steps to create a coherent mathematical journey through the learning.

New learning is taught through the daily maths lesson and regular practice and review sessions are used to practice, consolidate, and revisit previous learning.

Daily Maths Lessons
New manageable step
Learn together: modelling, representing, use of language to develop conceptual understanding Practise together: assessment for learning Independent intelligent practice

Regular Deliberate Practice Session Maths On Track (MOT)
Practise, Review, Intervene
Practise to make skilled Intervention Arithmetic Developing fluency

Typical Lesson Design

Learning Together

Clear learning objective.

Road Map: Progression of learning (Unit).

Hook: Introduction

Teach It: live modelling with explicit use of misconceptions and accurate mathematical language to build conceptual understanding.

Your Turn: Support, challenge, and assessment for learning – are the children ready for independent practice? Identify children who need further support.

Independent Intelligent Practice

- (Do It) About 5 examples, standard and non-standard examples to develop procedural fluency
- (Secure It) Mistakes or misunderstandings (true or false, spot the mistake, reason, and explain) to challenge and develop conceptual fluency
- (Deepen It) Apply learning to new problems to challenge and deepen mathematical thinking

Review Learning: Hinge style question utilised for AFL.

Skills Session

- Deliberate practice past and present
- Fact Fluency
- Arithmetical Fluency
- Pre-teaching
- Intervention

Maths Impact

What you will see in our classrooms is:

- Children who feel like they can be successful in mathematics
- Children developing conceptual understanding of the mathematics they are learning
- Children explaining their mathematical thinking using appropriate mathematical language and representations.

- Equitable provision to meet the needs of individuals and groups within each setting

Assessment of endpoints

In addition to the ongoing formative assessment in lessons, in the Foundation stage, pupils are ultimately assessed against the Early Learning Goals, but this does not constitute the full Educational Programme of Study. To this end, termly ‘Ready to Progress’ criteria are used to ascertain if pupils are ‘on track’ with reference to the Educational Programme and these are assessed on a termly basis.

In KS1 & 2, Key Performance Indicators identify the essential learning that all children need to have a secure understanding of, in order to successfully progress to the next stage of learning and meet at least expected standards by the end of key stages 1 and 2. These are assessed regularly to support teacher judgments.

Curriculum Map (Progression and sequencing):

In Early Years teachers follows the Early Learning Goals set out in the EYFS Framework.

To reach ‘Goal’ pupils must;


ELG 11 Numbers
1) Children count reliably with numbers from one to 20,
2) Place number 1-20 in order
3) Say which number is one more or one less than a given number.
4) Using quantities and objects
5) Add and subtract two single-digit numbers by counting on or back to find the answer.
6) Solve problems, including doubling, halving and sharing.

ELG 12 Shape, space and measures:
Children use everyday language to talk about size, weight, capacity, position, distance, time and money
To compare quantities and objects
Solve problems.
Recognise, create and describe patterns.
Explore characteristics of everyday objects and shapes
Use mathematical language to describe objects and shapes.

This is mapped out across the year.

Key Stage 1 and 2 – KPI progression

At Mountford Manor we have adopted the CanDo maths scheme. This scheme is based directly on the National Mathematics Curriculum objectives.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Term 1	<ol style="list-style-type: none"> Count up to 30 Order numbers up to 30 Write and interpret mathematical statements $+$, $-$ and $=$ Recognise rectangle, square, triangle and circle 	<ol style="list-style-type: none"> Read and write 2-digit numbers Compare and order numbers up to 100 Recall and use addition facts to 10 Find 10 more or less than a 2-digit number Add two 2-digit numbers Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces 	<ol style="list-style-type: none"> Read and write 3-digit numbers Compare and order numbers up to 1000 Finding 10 or 100 more or less than a given number Recognise and count in tenths Recognise horizontal, vertical, perpendicular and parallel lines 	<ol style="list-style-type: none"> Read and write 4-digit numbers Compare and order numbers up to 10,000 Round any number up to 4-digits to the nearest 10, 100 or 1000 Classify quadrilaterals 	<ol style="list-style-type: none"> Read and write numbers up to 1,000,000 Compare and order numbers up to 1,000,000 Compare and order decimals with up to 3 decimal places Round numbers to 1 decimal place, nearest whole number and 10, 100, 1000, 10000 Count forwards and backwards with positive and negative numbers 	<ol style="list-style-type: none"> Read, write and order numbers up to 10,000,000 Multiply and divide numbers by 10, 100 and 1000 Multiply numbers up to 4 digits by a 2-digit number choosing efficient methods Divide numbers up to 4 digits by a two-digit number choosing efficient methods and interpreting the remainders Calculate intervals across zero Describe and plot positions on a 2-D grid as coordinates in the four quadrants Reflect and translate shapes
Term 2	<ol style="list-style-type: none"> Write numbers to 100 in numerals Compare and order numbers to 100 Identify one more and one less than a given number Represent and use number bonds within 10 (addition facts) Represent and use number bonds within 10 (subtraction facts) Recognise cuboids, pyramids and spheres 	<ol style="list-style-type: none"> Know that addition is commutative and subtraction is not Subtract two 2-digit numbers Recall and use subtraction facts to 10 Understand how multiplication can be represented Know that multiplication is commutative and division is not Understand how division can be represented Describe turns using right angles 	<ol style="list-style-type: none"> Add numbers with up to 3-digits mentally Subtract numbers with up to 3-digits mentally Know and use multiplication facts for 3, 4 and 8 multiplication tables Know and use division facts for 3, 4 and 8 multiplication tables 	<ol style="list-style-type: none"> Add and subtract numbers with up to 4-digits mentally Know and use multiplication facts for 6, 7 and 9 multiplication tables Know and use division facts for 6, 7 and 9 multiplication tables 	<ol style="list-style-type: none"> Add and subtract whole numbers with more than 4 digits choosing efficient methods Add and subtract decimals with up to 3 decimal places choosing efficient methods Multiply and divide whole numbers and decimals by 10, 100 and 1000 Identify and use multiples, factors and prime numbers. 	<ol style="list-style-type: none"> Simplify fractions Compare and order fractions, including fractions > 1 Know and use simple fraction, decimal and percentage equivalents Compare and classify 2-D and 3-D shapes Know and use angle properties of straight lines, at a point and shapes Draw simple shapes using given lengths and angles
Term 3	<ol style="list-style-type: none"> Represent and use number bonds for 11 to 16 (addition facts) Represent and use number bonds for 11 to 16 (subtraction facts) Measure length and height 	<ol style="list-style-type: none"> Know and use multiplication facts for 2, 5 and 10 multiplication tables Know and use division facts for 2, 5 and 10 multiplication tables Read scales in divisions of 1, 2, 5 and 10 Use standard units to measure length, mass and height 	<ol style="list-style-type: none"> Compare and order fractions with same numerator or same denominator Add numbers with up to 3-digits using a formal written method Subtract numbers with up to 3-digits using a formal written method Choose efficient methods to add and subtract numbers up to 3-digits 	<ol style="list-style-type: none"> Add and subtract numbers with up to 4-digits using a formal written method Know and use multiplication facts for 11 and 12 multiplication tables Know and use division facts for 11 and 12 multiplication tables Choose efficient methods to add and subtract numbers up to 4-digits 	<ol style="list-style-type: none"> Multiply numbers up to 4-digits by 1 or 2-digits using a formal written method Divide numbers up to 4-digits by 1-digits using a formal written method of division Use known facts and place value to multiply a whole number by a decimal Multiply decimal numbers (1 or 2 decimal places) by 1-digit using a formal written method 	<ol style="list-style-type: none"> Add and subtract fractions with denominators that are not multiples of each other Add and subtract mixed numbers Multiply simple pairs of proper fractions Divide proper fractions by a whole number
Term 4	<ol style="list-style-type: none"> Represent and use number bonds within 20 (addition facts) Represent and use number bonds within 20 (subtraction facts) Recognise and find one half Recognise and find one quarter Use the language position, direction and movement 	<ol style="list-style-type: none"> Recognise and find one third Recognise and find three quarters Tell the time to quarter to/past and 5 minute intervals Calculate change Combine coins to make amounts 	<ol style="list-style-type: none"> Multiply 2-digit by 1-digit numbers mentally Divide 2-digit by 1-digit numbers mentally Multiply 2-digit by 1-digit numbers using a formal written method 	<ol style="list-style-type: none"> Multiply 2-digit by a 1-digit using the distributive law Multiply 3-digit by a 1-digit using a formal written method Divide a 3-digit by a 1-digit number Use place value, known and derived facts to multiply and divide mentally Identify acute and obtuse angles 	<ol style="list-style-type: none"> Compare and order fractions whose denominators are all multiples of the same number Read and write decimal numbers (up to 3 decimal places) as fractions Understand that per cent relates to 'parts per 100', and write percentages as a fraction with denominator 100 Convert between adjacent units of metric measure 	<ol style="list-style-type: none"> Find percentages of an amount Use simple ratio to compare quantities Convert between different units of metric measure Calculate the area of triangles/parallelograms Calculate volumes of cuboids Use simple formulae expressed in words Find possible values in missing number problems involving one or two unknowns
Term 5	<ol style="list-style-type: none"> Add and subtract 1 and 2-digit numbers up to 20 Know the days of the week and months of the year Tell the time to the hour and half past 	<ol style="list-style-type: none"> Construct and interpret pictograms using 2s, 5s and 10s Recall factor-product relationships for 2, 5 and 10 multiplication tables 	<ol style="list-style-type: none"> Calculate fractions of amounts Add and subtract fractions with the same denominator Tell the time to the nearest minute Calculate durations of events 	<ol style="list-style-type: none"> Divide 1 and 2-digit numbers by 10 and 100 Add and subtract fractions with the same denominator beyond the whole Find families of equivalent fractions Recall factor-product relationships for 6, 7, 9, 11 and 12 multiplication tables 	<ol style="list-style-type: none"> Convert mixed numbers to improper fractions and vice versa Add mixed numbers and proper fractions with denominators that are the same and multiples of each other Subtract proper fractions from mixed numbers with denominators that are the same and multiples of each other Multiply fractions and mixed numbers by a whole number 	
Term 6	<ol style="list-style-type: none"> Represent multiplication using concrete objects and pictorial representations Represent division using concrete objects and pictorial representations Recognise and know the value of different denominations of coins and notes 		<ol style="list-style-type: none"> Measure the perimeter of shapes Identify angles in shapes Interpret bar charts Recall factor-product relationships for 3, 4 and 8 multiplication tables 	<ol style="list-style-type: none"> Add and subtract decimal numbers (up to 2 decimal places) including measures and money Find the area of rectilinear shapes by counting squares Describe and plot positions on a 2-D grid as coordinates in the first quadrant Convert between analogue and digital 12 and 24-hour clocks and other units of time 		

Below is an overview of the WHF, Year 1 maths curriculum coverage. The national curriculum objectives and CanDo KPI's are woven through each termly plan, ensuring that children have time to practise, apply and master maths through a variety of different contexts, including continuous provision.

	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12	Wk 13
Term 1	Year 1 Term 1 Sue R WHF maths planning (continuity from Reception to Year 1)						Geometry: 2D shape	Number: Addition + subtraction within 10			Number: Place value to 30		Geometry: 3D shape
Term 1 compared to CanDo overview	CD- see matching document for term 1 in Making 'Continuous Provision Work in Year 1' Team						CD- term 1	CD- term 1 (to 6) and 2 (7 to 11)			CD- mix of term 1 & 2 (up to 100). This Y1 overview goes to 100 over course of the year		CD- term 2
Term 2	Term 1 consolidation	Number: Addition + Subtraction within 20			Measure: Time O'clock	Number: Place value to 50			Measure: length and height		Fractions of objects/shapes		Geometry: position + direction
Term 2 compared to CanDo overview		CD- term 2 (7-11), 3(11-16) and 4 (17-20) Term 5-unit 12			CD- term 5	CD- mix of term 1 & 2 (where CD goes up to 100). This Y1 overview goes to 100 over course of the year			CD- term 3		CD- term 4		CD- term 4
Term 3	Term 2 consolidation	Number: Multiplication + division			Number: Fractions of quantities + number		Measure: Time Half past	Measurement: volume + weight	Number: Place value to 100		Measurement: money	Term 3 consolidation	
Term 3 compared to CanDo overview		CD- term 6			CD- term 4		CD- term 5	CD- term 4	CD- mix of term 1 & 2 (up to 100). This Y1 overview goes to 100 over the year		CD- term 6		

To ensure a consistent and sequenced approach to the teaching of calculation, teachers adhere to the methods set out in the [School Calculation Policy](#)

The Teaching and Learning of Maths

At Mountford Manor, we approach teaching and learning of Maths through 6 Key Principles. These 6 principles are key to effective teaching but by its very nature, teaching is a creative profession so there is no prescribed formula for the way they are implemented in the classroom. .

These 6 Key Principles are;

1.CHALLENGE

With the mastery learning model, rather than prejudging potential outcomes and stifling expectations by setting a host of differentiated learning objectives, there is a single challenging learning objective (Challenge for all). Staff are expected to consider what each individual student needs to achieve it and adjust their lesson accordingly.

All students may have different starting points but should aspire to the learning objective and a teacher should tailor and adapt their teaching;

- focused questioning;
- adult/ peer help with starting their sentences;
- Modelled and worked examples
- Manipulatives and practical apparatus to support learning

It is about equity of opportunity, not all getting exactly the same to reach the objective. The aim is to keep students in the challenge zone.

2.EXPLANATION

Three key principles should guide explanations:

1. Plan in to schemes of learning how to **link to and build on something already known**. a. Begin each lesson with a short review of previous learning (Rosenshine, 2012)

2. Allow for the **limitations of the working memory** when asking students to take on board new information, giving instructions, asking them to sort key bits of information etc. a. Present new information in small steps with student practice after each step (Rosenshine, 2012)

3. Where possible try to make the **abstract concrete** – think about and plan, how to make abstract ideas make sense:

- a. Drawing diagrams; demonstrations; sharing and discussing images; taking the learning outside etc.
- b. Provide scaffolds for difficult tasks (Rosenshine, 2012)
- c. Direct explicit instruction (Kirschner, Sweller, Clarke, 2006)

3.MODELLING

Explain the key ideas, then model how to do it / what to do with it. This falls in to two main categories:

1. **Model the creation of products/procedures**. For example: write an essay, *show* them how to do it. Write it out on the board and discuss how/why you are doing each step as you go. Question them on what is being done. Explain, out loud, thought processes. If mistakes are made, point them out.
2. **Deconstruct expert examples and use worked examples** – have an excellent finished product and share it, discuss why it is good.

4.PRACTICE

Plan in time, during the lesson and over a series of lessons, for students to practice using new knowledge and skills. Consider the type of practice and its purpose:

1. Practice for fluency and long-term retention – repeating things in order to master them; coming back to things in subsequent lessons etc.
2. Deliberate ‘intelligent’ practice at the outer reaches of ability – allowing students to make connections and see patterns. Practising at the outer reaches of ability means students will have to layer skills and use them with agility. a. Guide student practice (Rosenshine, 2012)
- b. Require and monitor independent practice (Rosenshine, 2012)

5.FEEDBACK

Plan in how you will give feedback during/after lessons and – for this feedback to be meaningful -how you will allow students to respond this feedback. Feedback is a two way process and the teacher should use the students’ feedback to inform future planning.

Moreover, it is our goal to nurture independent and agile learners who have the skills to be successful in an increasingly globalised and rapidly changing world. To achieve this, we must equip students to be critical and reflective learners in their own right by ‘learning how to learn’. Students need to be engaged in their own learning, be part of the creation of their ‘next steps’ and have the opportunity to assess their own work and that of their peers in a meaningful and useful manner.

1. Engage students in weekly and monthly review (Rosenshine, 2012)
2. Guide student practice

6.QUESTIONING

Some questions can be planned for but some should be responsive to what is happening in the lesson. When considering planned questions, they should be to:

1. Check for understanding – i.e. hinge questions that students should be able to answer at a certain point in the lesson, before they move on. a. Ask a large number of questions and check the responses of all students, b. Check for understanding (Rosenshine, 2012)
2. Provoke deeper thinking
3. Increase the ratio of participation and thinking of all students

Inclusion and the Maths Curriculum

When teaching at Mountford Manor, staff are aware of children's individual needs and how to best scaffold teaching and learning, to enable access for all. Teachers consider; a range of resources, classroom organisation and management strategies to ensure optimal access for all learners, including those with physical and learning needs. Teachers have access to specialist support for advice on target setting and assessment. All SEND pupils are identified (through the Swindon Core Standards paperwork and on the Mountford Manor' SEND register). Their progress is systematically recorded and monitored in individual provision maps / Termly SEN assessments.

Monitoring and Assessment

EYFS

In EYFS the new skills and knowledge learnt in Maths is evidenced by collecting photos and work produced by a child and placing it in their Learning Journeys.

Children's Maths knowledge and skills are assessed by judging them against the Early learning goals set out in the EYFS Profile documentation.

Key Stage 1

In KS1 the new skills and knowledge learnt in Maths is evidenced by using a combination of work in books; summative and unit tests; and pupil's responses to key maths problems and questions in the classroom.

Children's Maths knowledge and skills are assessed by teacher judgement. These judgements are matched against the key indicators for each year group.

In Year 2, objectives taken from the KS1 assessment framework are also used to support teacher judgements in regards to children's readiness to move on to the next stage of learning (KS2).

The process of assessing and monitoring is integral to identifying strengths and gaps in understanding which will inform future teaching and learning.

Key Stage 2

In Key stage 2 new skills and knowledge learnt in Maths is evidenced by using a combination of work in books; summative and unit tests; and pupil's responses to key maths problems and questions in the classroom.

Children's Maths knowledge and skills are assessed by teacher judgement. These judgements are matched against the key indicators for each year group.

In Year 6, objectives taken from the KS2 assessment framework are also used to support teacher judgements in regards to children's readiness to move on to the next stage of learning (KS3).

The process of assessing and monitoring is integral to identifying strengths and gaps in understanding which will inform future teaching and learning.

Review

To be reviewed December 2023 by Sam Bullas (Maths Lead) and Lee Edmonds (Principal at Mountford Manor).