



# **Maths Policy**

2024-25

## Intent

At Manor Farm Academy, we inspire all children to achieve their full academic potential: we have high expectations and provide children with the opportunities to be successful. We strive to ensure children become confident and fluent mathematicians, who can articulate their understanding using specific mathematical vocabulary and problem solve and reason within a variety of contexts. In order to achieve this, we teach high quality, well-sequenced lessons that continually revisit and build on prior knowledge, which in turn prepares children for their next phase of education.

We will deliver a curriculum that:

- Promotes enthusiasm and enjoyment for learning through exciting and interactive teaching and learning opportunities;
- Equips children to solve problems by applying prior knowledge;
- Develops logical thinking, reasoning and problem-solving skills through challenge, questioning, natural curiosity and investigative approaches;
- Develops confidence in children so that they can articulate and communicate understanding both written and verbally;
- Provides a rich environment that promotes independence;
- Encourages a range of strategies to solve problems;
- Links mathematical skills to everyday life;
- Maintains high expectations for all learners within mathematics.

## Implementation

The Subject Leader for Maths will lead and monitor, evaluate, review and celebrate good practice.

- The Maths curriculum will follow the White Rose Maths programme of study, adopting a mastery approach;
- Maths lessons will provide opportunities for children to explore concrete, pictorial and abstract approaches and will further develop children's reasoning and problem solving skills;

- Maths will further support children to develop rapid recall of timetables.

Each unit of learning in Maths will have:

- A pre-assessment which assesses the children's understanding of the objectives being taught in subsequent lessons;
- A cycle of lessons for each unit, which carefully plans for progression and depth, tailored to children's needs, based on findings from the pre-assessment;
- Daily opportunities to recap and revisit previously taught concepts;
- Opportunities to explore a range of problem solving and reasoning style challenges;
- Appropriate scaffolding to support learning;
- Challenges that deepen understanding.

In addition:

- The Maths Subject Leader will seek appropriate and relevant training and the opportunity to keep developing their own subject knowledge, skills and understanding, so they can support curriculum development and their colleagues throughout the school.

<b>Impact</b>
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At Manor Farm Academy, our pupils:

- Know what Maths is and why it is important to them and their future;
- Know how to apply Maths to 'real-life- contexts';
- Enjoy Maths and show inquisitiveness and curiosity through questioning and exploration;
- Feel challenged and supported to reach their full potential.

In addition, we measure the impact of our curriculum through the following methods:

- NTS assessments + EOY2/6 past paper assessments;
- Pre-assessments;
- Early Years Framework;
- Y4 MTC;

- Marking & Feedback (in line with Marking Policy);
- Book Looks;
- Learning walks;
- Pupil Discussions;
- Pupil Progress Meetings;
- Data and Question Level Analysis.

## Lesson Planning & Delivery

Maths planning and lesson delivery follows the White Rose Maths scheme (National Curriculum and 'Ready to Progress' mapping). Class teachers have the autonomy to adapt and amend planning and resources to suit the needs of their children, with their main aim of ensuring that learning is ambitious for all.

We show success in mathematics through:

### Lesson Planning & Delivery:

- Maths is taught five times per week – this consists of a **pre-assessment** and subsequent lessons linked to the objectives on the pre-assessment
- Pre-assessment and learning targets are taken directly from the 'steps' in the White Rose Maths scheme of work to ensure adequate pitch and progression for all
- All pre-assessments inform future planning and necessary amendments are made to meet the needs of children to ensure learning is personalised e.g. where a child shows they are secure in an area of the pre-assessment, they will access more challenging work (**Appendix 1**)

### Books (**Appendix 2**):

- Presentation is to a high standard and displays children's pride in their learning
- Learning journeys mirror the scheme of work 'steps'
- Worksheets are only be stuck in when needed to enhance and/or support the learning taking place e.g. providing an additional scaffold, displaying a worded problem etc
- Where possible, children are encouraged to record work in their books

### Effective Feedback:

- Pre-assessments and subsequent lessons are marked in line with the Feedback Policy
- Live feedback and marking is used to move learning forward, to either address misconceptions or through scaffolded support or challenge
- Self and peer marking will be evident through the use of purple pens
  - Where children have made errors in their work, there will be evidence of how children have corrected/re-calculated a problem
  - Children do not just replace an incorrect answer with a correct answer, without addressing misconceptions (**Appendix 2**)

### **Scaffold & Challenge (Appendix 3):**

*Ideas for scaffold:*

- Pre-teaching and/or Point of Need Intervention
- Modelling (silent/verbal/written in books)
- Working walls
- Highly scaffolded/worked examples (generic layers of support) that can be reduced
- Learning prompts/step by step guides
- Workshops/Guided Groups (evidenced with GW)

*Ideas for challenge:*

- Reasoning and problem solving questions provided by WRM
- Create, Investigate, Describe or Evaluate style questions
  - Step by step guides
  - Open-ended investigations
  - Creation of own problems
  - Evaluating effective methods
  - Considering multiple ways of solving/representing (CPA)
- Adaptation of questions – ‘what if...?’
- Written/verbal questioning

*Challenges do not always needed to be printed in the form of a sticker/additional task (at the end of a lesson). This could be displayed on a working wall for children to record and respond to in their books.*

**Appendix 1**

[LPA journey.pdf](#)

[MPA journey.pdf](#)

[HPA journey.pdf](#)

# Appendix 2

Handwritten multiplication problems:

$$\begin{array}{r} 34 \\ 1461 \\ \hline 28x \\ 11688 \\ 29220+ \\ \hline 40908 \\ 11 \end{array}$$

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Handwritten multiplication problems:

A.  $3 \times 8\frac{2}{7} = \frac{48}{7}$  or  $5\frac{6}{7}$  •  $3 \times 8 = 24 = 24\frac{0}{7}$  ✓  
 $\frac{3 \times 2}{7} = \frac{6}{7}$

B.  $2 \times 12\frac{2}{11} = \frac{48}{11}$  or  $4\frac{4}{11}$  •  $12 \times 2 = 24 = 24\frac{0}{11}$  ✓  
 $\frac{2 \times 2}{11} = \frac{4}{11}$

C.  $4 \times 6\frac{2}{11} = \frac{48}{11}$  or  $4\frac{4}{11}$  •  $6 \times 4 = 24 = 24\frac{0}{11}$  ✓  
 $\frac{4 \times 2}{11} = \frac{8}{11}$

Complete the subtractions.

$8 - 3 = 5$  ✓

$18 - 3 = 15$  ✓

What do you notice?  
 There are 10 ones and 5 more.

2.  $0.312 > 0.187$  ✓  $\Delta$  Find difference  
 I got the answer by looking at the ones column and realised that they were both the same so I looked at the tenths column and realised that in one column it has 0.3 and in the other 0.1 so I knew 3 is greater than 1 so the greater ✓  $\Delta 0.125$

3.  $0.458$   
 $0.4$   
 $0.05$   
 $0.008$

$0.606$   
 $0.6$   
 $0.006$

4. Draw arrows to show the position of each measurement.

20 cm, 0 m 75 cm, 130 cm, 1 m 65 cm

$\Delta$  What would 1235 cm be as m?  
 $\rightarrow 12$  m and 35 cm ✓

2. Work out  $4 \times 15$

Tens	Ones
10	1 1 1 1
10	1 1 1 1
10	1 1 1 1
10	1 1 1 1

$4 \times 5 = 20$  ✓  
 $4 \times 10 = 40$  ✓  
 $20 + 40 = 60$  ✓  
 $4 \times 15 = 60$  ✓

3. Complete the sentences to work out the multiplications.

a)  $3 \times 4 = 12$  ✓  
 $3 \times 10 = 30$  ✓  
 $12 + 30 = 42$  ✓  
 $3 \times 24 = 72$  ✓

b)  $4 \times 5 = 20$  ✓  
 $4 \times 10 = 40$  ✓  
 $20 + 40 = 60$  ✓  
 $35 \times 4 = 140$  ✓

How many counters are there?

37.35 ✓

$\Delta$  Can you show me 3.1 as a picture?

Handwritten representation of 3.1 using horizontal bars.

$\Delta$  Please check your corrections.

Ones:  $4 \times 4 = 16$  ✓  
 Tens:  $4 \times 20 = 80$  ✓  
 Total:  $80 + 16 = 96$  ✓  
 Multiplication:  $4 \times 24 = 96$  ✓



Mo, Kim and Max are thinking of different numbers.

Mo: My number is 43.

Kim: My number has 4 tens and 6 ones.

Max: My number is greater than Mo's and less than Kim's.

What number could Max be thinking of?  $44$  ✓

Could it be any other number?  $45$  ✓

5 Three children are working out the perimeter of a shape.

Teddy: 

	14	1	2	
11	12	13	3	
10			4	
9	8	7	6	5

Sam: 

		1	
	8	9	2
7			3
6	5	4	

Amir: 

		1	
	8	9	2
7			3
6	5	4	

Who is correct? Sam Amir ✓

What mistakes have the other children made?

Amir but 9 and 10 are in the same box.  
Ted counted the corners too. ✓

Why was Amir correct?  
→ Because he counted all of the sides.

Is the football heavier? No because the playground is aww. ✓

c) 
$$\begin{array}{r} 4631 \\ 4 \overline{) 18584} \\ \underline{16} \phantom{31} \\ 25 \phantom{84} \\ \underline{24} \phantom{4} \\ 14 \\ \underline{12} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

↓

$$\begin{array}{r} 1631 \\ 4 \overline{) 6524} \\ \underline{4} \phantom{524} \\ 25 \phantom{24} \\ \underline{24} \phantom{4} \\ 14 \\ \underline{12} \\ 24 \\ \underline{24} \\ 0 \end{array}$$
 ✓

### Appendix 3

True or false?

$$\frac{3}{5} \text{ of } 15 = 9$$

False because  $15 \div 5 = 3$  and you need to times it by the numerator so  $3 \times 3 = 9$  so  $\frac{3}{5}$  of 15 = 9

△ Show me

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

3+3+3=9

Create a missing number problem.

Your answer must be:

- A mixed number
- Have a denominator that is multiple of 3

△△ If 32 is the answer what could the question be?

8 of 1000    4 of 1600

8 of 400    16 of 96

4 of 96    1 of 96

32 of 96    16 of 192

2 of 192

△ Explain process

The process of finding 16 of 96 is:  $4 \times 4 = 16$  and  $16 \times 2 = 32$

✓ how did you know this? I knew that 4 is a factor of 32 and that  $12 \times 8 = 96$

△ Evaluate which is the most efficient method for solving this problem.

$$\frac{1}{6} \times 1 \frac{1}{6} = 1 \frac{1}{3} = 1 \frac{2}{6}$$

Partitioning is more efficient as it is easier to multiply it in a multiple step problem and it's faster than converting it to improper and converting it back.

$$1 \frac{1}{3} = \frac{28}{3} = \frac{56}{6} \quad 1 \frac{1}{6} = \frac{7}{6}$$

$$\frac{56}{6} - \frac{7}{6} = \frac{49}{6} = 8 \frac{1}{6}$$

8 Use the digit cards to write a division and then work it out.

△ Do you notice any patterns depending on how you arrange the digits?

8	2	5	3
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□	□	□
---	---	---

Annie and Teddy both have a skipping rope.  
Annie's rope is  $\frac{3}{4}$  m shorter than Teddy's rope.  
The ropes are  $\frac{13}{4}$  m altogether.  
How long is each skipping rope?

**Describe** the steps you would take in order to solve this problem.

### Evaluate

**What is the most efficient way of solving  $30 \times 4000$ ?**

Explain your choice of method. |

### Always, Sometimes, Never?

To add two mixed numbers, you have to convert them to improper fractions first.

### **Questioning**

*The extender – tell me more...*

*The unveiling – tell me something...*

*The chain – build on it...*

### Evaluate

- Can you demonstrate the answer using two or three different ways?
- Can you evaluate which method you prefer and why?
- Can you evaluate why someone may prefer one method more than another?
- Can you evaluate what you need to know so that the method can be used effectively?

### Create

- Can you create a different story for the for the calculation you have just done?
- Can you create a similar type of question?
- Can you create a similar question for the year above/below?
- Can you create a multi-step problem using the same skills?

### Describe

- Can you describe what you have done?
- Can you describe what you have found out?
- Can you describe what you know?
- Can you describe what you understand?
- Can you draw/write examples that describe your understanding?

### Investigate

- Can you investigate the solution to the problem?
- Can you investigate any patterns that you have noticed?
- Can you investigate different ways that the problem could be solved?
- Can you investigate how the answer would change, if part of the problem was altered?