

Phillimore Community Primary School



Maths Handbook 2026/2027

Maths Handbook – How we teach Maths at Phillimore

Maths Vision:

At Phillimore we strive to create an environment where pupils are confident and resilient learners who can transfer their mathematical skills to the world around them.

Our vision is for pupils to have a secure knowledge of key mathematical vocabulary and a deep understanding of number and place value. Pupils can work both independently and collaboratively to become effective problem solvers. Pupils are able to explain their reasoning clearly and see mistakes as part of the learning process. Pupils leave Phillimore in Y6 enthusiastic about mathematics and feel positive about developing their skills throughout the next stage of their education.

What qualities/skills/abilities do you want a Y6 child to have when they leave Phillimore?

65 responses



In order to achieve this as a school, we will:

Place a high emphasis on place value and number.

Give opportunities for the pupils to use manipulatives and visual resources.

Model reasoning skills through an I do, you do, we do approach.

Ensure problem solving and reasoning skills have a high importance and are taught daily in maths lessons.

Encourage pupils to explain their reasoning, using sentence structures to help support their answers.

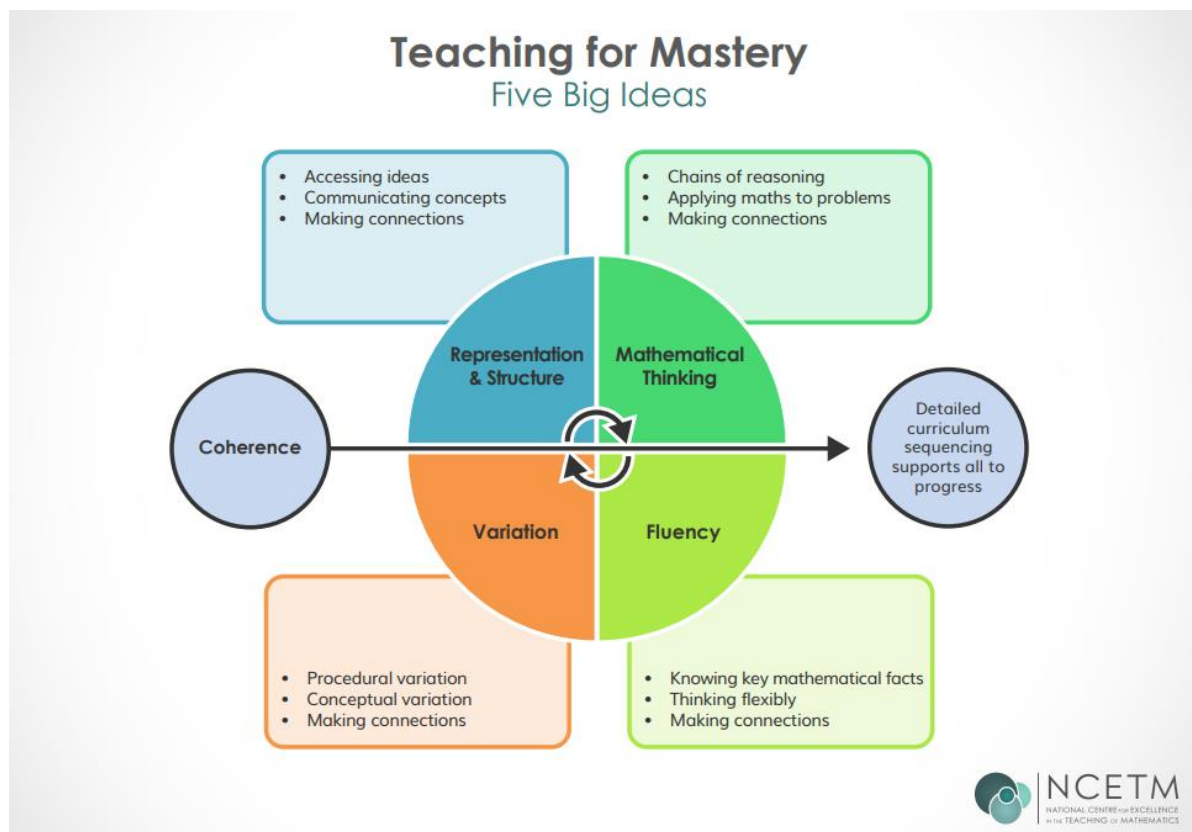
Give opportunities for pupils to work collaboratively and to explain their reasoning to each other.

Provide opportunities for pupils to apply maths skills to real life contexts.

Consolidate learning and make sure pupils are secure in a concept or skill before moving on. Recap and revisit previous learning with pupils.

Run competitions and challenges for pupils and offer a range of home learning opportunities for pupils to further their enjoyment of maths.

Teaching for Mastery



As a school we are participating in the Primary Teaching for Mastery programme funded by the NCETM (National Centre for Excellence in the Teaching of Mathematics).

Core Focus (The "Five Big Ideas")

The programme anchors mathematics teaching around five main principles:

- **Coherence:** Carefully sequenced lessons that build deep, connected understanding.
- **Representation and Structure:** Using concrete and visual models to expose mathematical concepts.
- **Mathematical Thinking:** Encouraging reasoning, pattern recognition, and generalising.
- **Fluency:** Combining quick recall of number facts with flexibility across strategies.
- **Variation:** Manipulating variables thoughtfully to draw attention to key mathematical features

Overview of the units taught

In the first term of the year (Autumn 1), maths lessons throughout school have a large focus on number. This involves pupils learning about place value (eg. That a 7 in 25,789 is seven hundreds) and the importance of knowing a method for the four operations: addition, subtraction, multiplication and division.

This is in line with the approach recommended by White Rose Maths Hubs. Here is an example of the Year 2 maths yearly overview:

Year 2 (v3)

[Scheme of learning](#)

[Supporting materials](#)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number Place value VIEW				Number Addition and subtraction VIEW				Geometry Shape VIEW			
Spring	Measurement Money VIEW		Number Multiplication and division VIEW				Measurement Length and height VIEW		Measurement Mass, capacity and temperature VIEW			
Summer	Number Fractions VIEW			Measurement Time VIEW		Statistics VIEW		Geometry Position and direction VIEW		Consolidation		

The consolidation unit at the end of the year gives teachers additional time throughout the year to recap and to ensure key concepts are embedded before moving pupils on. This is explained further in the Ready to Progress materials below.

RTP – Ready to Progress materials.

The Ready to Progress materials identify the most vital, foundational mathematical concepts and knowledge (called *ready-to-progress criteria* or RTP) that pupils need to master as they move from Year 1 to Year 6. They highlight key priority areas where teaching time can be weighted to help children access harder concepts.

Year 1 RTP Addition & subtraction

White Rose
MATHS

Ready to progress criteria	Block	Steps
1AS-1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.	Autumn Block 2	5 - Number bonds within 10 6 - Systematic number bonds within 10 7 - Number bonds to 10
1AS-2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.	Autumn Block 2	4 - Fact families - addition facts 8 - Addition - add together 9 - Addition - add more 10 - Addition problems 11 - Find a part 12 - Subtraction - find a part 13 - Fact families - the eight facts 14 - Subtraction - take away/cross out (How many left?) 15 - Subtraction - take away (How many left?) 16 - Subtraction on a number line
	Spring Block 2	2 - Add ones using number bonds 3 - Find and make number bonds to 20 6 - Subtract ones using number bonds 9 - Related facts 10 - Missing number problems

Maths lessons



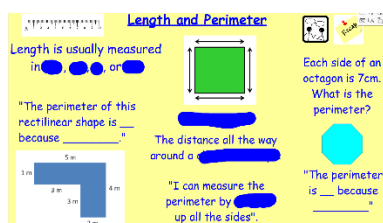
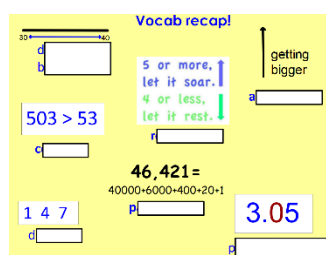
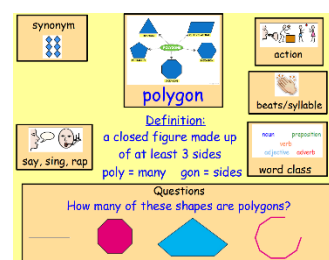
NCETM
NATIONAL CENTRE FOR EXCELLENCE
IN THE TEACHING OF MATHEMATICS



As a school, teachers follow the White Rose scheme of learning and use Gareth Metcalfe resources (I See Maths) and NCETM curriculum prioritisation materials to supplement this. Teachers make informed decisions as to the most effective way to deliver a lesson and will take time to embed key concepts before moving pupils on.

Maths lessons at Phillimore begin with a Flashback 4 slide which recaps recent learning as well as learning from previous units. Pupils can work with their partner, work on whiteboards or simply answer the questions independently. This gives the pupils a chance to apply the knowledge and skills that they have learnt. This practice of learnt skills helps pupils to retain the learning in their long-term memory and reduce cognitive overload.

This is followed by a maths vocabulary slide. This vocabulary slide includes all the key vocabulary pupils need to help them understand and access the current unit of learning. Stem sentences can also be included to help pupils articulate their understanding.



The main teaching then follows where there is an emphasis on coherence (one of the 5 big ideas of mastery). Small steps are built on throughout the lesson with STEM sentences and mini activities used throughout. A True or False reasoning question is then given to pupils where they can discuss and reason their thoughts with their maths partner. A plenary at the end of the lesson helps to recap on what has been taught and pupils are encouraged to self-assess their learning against the success criteria.

- Flashback 4
- Maths Vocabulary
- Recap of previous learning
- Checklist
- PowerPoint
- Copy of some questions they might get stuck on – I do, we do, you do,
- Activity
- True or False plenary
- Revisit checklist and self assessment.

Flashback 4
Year 4 | Week 5 | Day 3

1) Subtract 5 tens from 795 8×2

2) Round 584 to the nearest hundred.

3) What number is the arrow pointing to?

4) Calculate the perimeter of the rectangle.

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Developing reasoning skills

One of our current school priorities is to develop pupils' mathematical reasoning skills. This will not only help pupils in maths lessons but also later in life, enabling them to be better equipped to deal with challenges in the future. Pupils are exposed to reasoning questions daily and have opportunities to discuss their ideas with their maths partners or as a class. Teachers follow the *I do, WE do, YOU do* process with teachers explaining their reasoning for a question to model their thought process (I do). Pupils then complete a question together as a class (WE do) before the final part where pupils complete the challenges independently (YOU do). Questions often have a real-life context and relate to themes that pupils are familiar with.





How can we answer this question?

WE Do

When rounded to the nearest 10, there are 440 children at Phillimore School.

How many children could there be? Find all the possible answers.



At the end of each maths unit, two lessons are dedicated to reasoning questions which are linked to the learning covered in that unit. Blue questions are usually from the year group below, green questions are the expected level for the year group and purple challenge questions are to deepen pupil's understanding at a greater depth standard.

Hundreds	Tens	Ones
		

631 = + +

7 Tom has three digit cards.

3	8	6
---	---	---

He makes a 3-digit number greater than 500

What number could he have made?

Partition your number.

= + +

Tiny is thinking of a number.

- It is greater than 4,200 but less than 5,800
- The digits sum to 16

What number could Tiny be thinking of?

Give four possible answers.



Mastering Number

FS2-Y5 pupils take part in the Mastering Number programme which gives pupils the opportunity to explore concepts deeply through a mastery approach. Pupils explore manipulatives, understand key vocabulary and discuss maths with their classmates. This helps pupils to develop their reasoning skills and ensure they have a deep understanding of the fundamentals of maths (especially number) and articulate their reasoning.

6 or 7?

Look at this pattern again. Do you agree with Cal or Mo? Why?

Cal: I notice it's the same number, 2 times. There are 2 UNITS with the same value.

Mo: I notice it's a double because it's 2 of the same number.

There are _____. There is _____ times.

STEM sentences

Teachers are encouraged to use STEM sentences to help structure pupil's reasoning discussions. Sometimes the teacher will model how to use the STEM sentence before the whole class follows the process. Other times pupils will be asked to explain how to solve the question on the board using the STEM sentence. This helps pupils articulate their reasoning more effectively and justify the mathematical decisions that they are making.

WE Do $1853 - 625 = \underline{\hspace{2cm}}$

Th H T O

"Firstly, I know that 3 ones subtract 5 ones means I need to ex_____."

I can ex_____ a _____ for _____ ones."

Above, the STEM sentence is particularly useful to use it encourages pupils to explain the process of this column subtraction. Pupils therefore become familiar with mathematical vocabulary such as exchanging and regrouping and understand the process at a deeper level, embedding it in their long term memory.

Concrete, pictorial and abstract



In maths lessons, it is important that pupils see maths visually while also having a chance to feel and manipulate resources. This helps to reinforce their understanding, especially when new mathematical ideas and concepts are introduced.

CPA stands for Concrete, Pictorial and Abstract. This means that firstly the pupils will touch and manipulate resources (such as Numicon) physically to gain an understanding (**concrete**). They will then move into the **pictorial** where they will see visual representations, often on the Interactive Whiteboard. Finally the **abstract** is where the challenge comes in and pupils apply their learning so far. This also means that the maths problem may be presented to the pupils in a slightly different way than they have been taught so far to make sure that they deeply understand the concept.

Presentation policy

In maths books, pupils are expected to present their learning to a high standard. This includes using each box for a digit, leaving a line between each question and using a ruler for any mathematical drawing. Below is an example of the expectations required and this poster is displayed in all classrooms for the pupils to adhere to.

Maths Presentation and Marking Policy

- Champion Checklist at the top of the page.
- Short date on the Champion Checklist: 13/10/26
- An example on the Champion Checklist if needed.
- Use both sides of the book although pupils can start a new page each lesson.
- **1 digit per box** – set a high expectation for this!
- Question number in a circle or a bracket. No dots!
① 480 – 145
- Leave a line before starting the next question.
- Ruler used for drawing shapes, lines, number lines and methods etc.

Date: 13/10/26

WALT: I can subtract numbers with exchanging.

Context: Class dojos, goals in football, attendances and charity.

WILF: I can use base 10 to understand the concept of exchanging. I can subtract each column up starting with the ones (right hand side). If the top digit is larger than the bottom digit, I can exchange from the column to the left.

Example:
$$\begin{array}{r} 3407 \\ - 1625 \\ \hline 1782 \end{array}$$

Challenge: I can try the reasoning questions.

11)
$$\begin{array}{r} 512 \\ - 28 \\ \hline 34 \end{array}$$

6)
$$\begin{array}{r} 714 \\ - 287 \\ \hline 427 \end{array}$$

2)
$$\begin{array}{r} 211 \\ - 34 \\ \hline 177 \end{array}$$

7)
$$\begin{array}{r} 814 \\ - 6 \\ \hline 808 \end{array}$$

Evidence of WILF achieved.

Self-assessed and teacher assessed.

Examples on the checklist to support independence and reduce cognitive load.

Children regularly respond to feedback and challenges given.

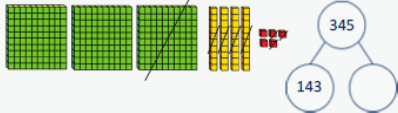
Red pen to edit learning and complete wishes.

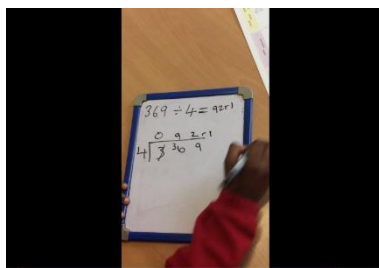
$$\begin{array}{r} 6508 \\ - 296 \\ \hline 6212 \end{array}$$

Calculation policy

Phillimore follows the White Rose Calculation Policy as it aligns with the curriculum covered daily in maths lessons. The policy includes visual examples of each calculation as well as STEM sentences and key vocabulary that is needed for each method.

Pupils have also helped to create calculation videos that show each step of the policy with an example. These videos are useful for parents and pupils to look at and use to help with home learning.

Subtract two numbers (no exchange) Mental strategies and introduction of formal written method.	$\dots \text{ones} - \dots \text{ones} = \dots \text{ones}$ $\dots \text{tens} - \dots \text{tens} = \dots \text{tens}$ $\dots \text{hundreds} - \dots \text{hundreds} = \dots \text{hundreds}$ 	<table border="1"><tr><td colspan="2">769</td></tr><tr><td>147</td><td>?</td></tr></table> <table border="1"><thead><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td>7</td><td>6</td><td>9</td></tr><tr><td>1</td><td>4</td><td>7</td></tr><tr><td colspan="3"><hr/></td></tr></tbody></table> <table border="1"><thead><tr><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>7</td><td>6</td><td>9</td></tr><tr><td>-</td><td>1</td><td>4</td></tr><tr><td colspan="3"><hr/></td></tr></tbody></table>	769		147	?	Hundreds	Tens	Ones	7	6	9	1	4	7	<hr/>			H	T	O	7	6	9	-	1	4	<hr/>		
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Arithmetic

Pupils in Year 2 and Year 6 take an Arithmetic test as part of their SATS assessments. This test assesses the pupils on their understanding of number including fractions, decimals (Y6) and percentages (Y6). Pupils learn a range of methods as they progress through school and are encouraged to choose a method that they are comfortable with. By the end of Year 6 however, pupils should be competent at using short methods for each operation.

Here are some example questions from the optional Year 2 SATS arithmetic test:

11	$20 + \boxed{} = 70$	
		1 mark

20	$92 - 60 = \boxed{}$	
		1 mark

Here are some example questions from the Year 6 SATS arithmetic test:

13	<input type="text"/> - 100 = 1,059	1 mark

29	45% of 460 =	1 mark

Champions checklist

Each lesson, pupils stick in a Champions Checklist before they begin their learning. This checklist includes a WILF that explains what teachers are looking for and gives pupils a success criteria. Where needed, worked examples are added. This gives pupils a useful prompt and helps to encourage independence whilst reducing cognitive load.

Date: 13/10/26		1	2	3	4	5
WALT:	I can subtract numbers with exchanging.					
Context:	Class dojos, goals in football, attendances and charity.					
WILF:	<div> <div>+</div> <div>-</div> <div>Add</div> <div>Subtract</div> </div> <div> <div>0</div> </div>					
Example:	<div> <div> $\begin{array}{r} 6 \cancel{1} 2 \\ - 56 \\ \hline 16 \end{array}$ <p>"I exchanged one ten for ten ones. I then did 12 ones subtract 6 ones which made 6 ones."</p> </div> <div> $\begin{array}{r} 2 \cancel{3} 4 0 7 \\ - 1625 \\ \hline 1782 \end{array}$ <p>"I exchanged one hundred for ten tens. I then did 10 tens subtract 2 tens which made 8 tens."</p> </div> </div>					
Challenge:	I can try the reasoning questions.					

Date:	02/09/2026	1	2	3	4	5
WALT	Read and write numbers up to 10,000,000 and determine the value of each digit	0				
Context:	Football transfers, attendances and charity.					
WILF:	I can write the question number in a circle then pick a number.					
	I can write this number in my book with 1 digit per square.					
	Underneath I can then write the number in words using the vocabulary sheet to help me.					
Example	432,705 <u> </u> (0 is usually represented by “and”) Four hundred and thirty-two thousand, seven hundred and five. (Hyphens between two-digit numbers eg. forty-seven).					

Times tables

The government has announced that from 2021, Year 4 pupils all around the country will be tested on their times tables knowledge. Being confident with times tables helps pupils in many areas of the maths curriculum including: short division, area and perimeter, word problems and how to multiply larger numbers such as 900×3 to give a few examples.

If your child is in the one of the following year groups, their aim by the end of the year is to be confident and to respond quickly to these times tables:

- **Y1 – 2,5 and 10**
- **Y2 – 2,3,5 and 10**
- **Y3 – 2,3,4,5,8 and 10**
- **Y4 – 2,3,4,5,6,7,8,9,10,11 and 12**
- **Y5/Y6 – ALL up to 12×12**



Times tables competitions

Classes throughout school run their own times tables competitions within class. There are also monthly school competitions with the winners earning a mini gold trophy! Each month has a different times tables focus and pupils can collect times tables from the maths display to learn. They are always very exciting and competitive!

Times tables grids

Each week pupils are given the following times tables grids to fill in. They are set a challenge to beat their score each week and aim for full marks. Once they have achieved full marks, the challenge is to complete it in a quicker time each week. Here is an example grid.

These are available from Class 9 if parents would like to complete them at home with their children too.

Times Table challenge!									
	3	4	10	6	9	5	2	7	8
5									
3									
10									
9									
2									
4									
6									
7									
8									

My Name:

My Time:

Helping your child at home



As a school we subscribe to **IXL** maths each year. It is a fantastic resource, full of maths questions on all topics. Pupils can select their year group and the questions that come up are about everything they are learning about in school. Should a child have forgotten their password, they can ask their teacher or Mr Wray. IXL has greatly helped pupils improve their arithmetic and reasoning skills and pupils that use it have made more than expected progress.

Times Tables Rock Stars is suitable for all ages and pupils absolutely love it! They can customise their avatar, challenge their friends and become quicker and quicker at solving their times tables. There is a display in the dining hall which shows the fastest pupils in the school!

Timestables.co.uk is a great website for practising times tables. Pupils can choose which times tables to practise and challenge themselves at the Multiplication tables check (MTC) which pupils complete at the end of Year 4.

Learn your times tables

At timestables.co.uk you can easily practise all of your tables. The arithmetic problems are clear and simple so you can immediately get started on practicing your tables. Select one of the times tables you wish to practise from the list below and show what you can do on the speed test, Multiplication Tables Check or printout great worksheets.

Which times tables do you want to learn?

1 times table	2 times table	3 times table	4 times table
5 times table	6 times table	7 times table	8 times table
9 times table	10 times table	11 times table	12 times table

Practise the Multiplication tables check



Multiplication tables check

Play against other players!



Multiplayer Speed Quiz

As a parent/carers, if you ever want to know what you can do to help your child in maths, please speak to your child's class teacher or visit Mr Wray in Class 9.