Somerdale
Educate
Together

Mathematics in Year Two

White Rose Maths

Number Sense Maths
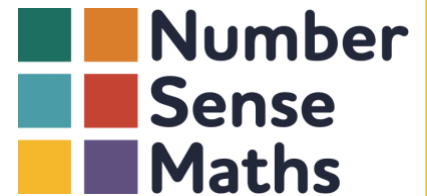
A guide for parents

Learn Together to Live Together

This guide is designed to inform families of how Maths is taught and how to support at home. It has been created using guides from White Rose Mathematics to support.

What is our approach to mathematics?

At Somerdale Educate Together, we use a scheme called White Rose Maths. This is a mastery-based approach aligned to the aims and objectives of the National Curriculum. It is rooted in the belief that all children can achieve in Mathematics.

Putting Number First

The White Rose scheme has number at its heart, and a significant amount of time is spent reinforcing number so that children can confidently access the rest of the curriculum.

Depth before Breadth

We ensure that children have a deep understanding of concepts, rather than rushing on. Opportunities to revisit previously learned skills are built into later blocks of learning.

Fluency, reasoning and problem solving

The White Rose scheme develops these three areas to ensure children have the knowledge and skills they need to become confident mathematicians.

Concrete, Pictorial, Abstract

Research shows that all children, when introduced to a new concept, should have the opportunity to build competency using the concrete, pictorial, abstract approach. This features throughout the schemes of learning.
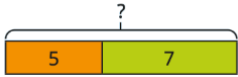
Concrete

Children should have the opportunity to work with physical objects/concrete resources, in order to bring the maths to life and to build understanding of what they are doing.

Pictorial

Alongside concrete resources, children should work with pictorial representations,
making links to the concrete. Visualising a problem in this way can help children to reason and to solve problems.

Abstract

With the support of both the concrete and pictorial representations, children can develop their understanding of abstract methods.

This Booklet

The aim of this booklet is to give you, as parents, a better understanding of the key concepts your child will be learning and how they are taught. It provides ideas and resources so you can support your child at home. This booklet is available to download from the curriculum section of our website, with elements hyperlinked so you can easily access the resources.

What will my child learn in mathematics this year?

Overleaf is an overview of the maths that your child should be learning at any point in the year. You'll notice that the White Rose scheme spends lots of time building strong number skills in Key Stage 1 and Key Stage 2. These essential core skills lay a solid foundation for more complicated learning later on.

Sometimes the class might be a little behind or ahead of the scheme schedule. That's fine; White Rose deliberately build flexibility into their schemes to allow for this. You can check the year group medium term planner on the class page for further information.

Year Two Overview

Click the image below to link to the White Rose website. This will give you more information on the small steps that are taught in each of these blocks.

	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 term	Number — **Place value** FREE TRIAL — VIEW				Number — **Addition and subtraction** — VIEW					Geometry — **Shape** — VIEW		
Spring term	Measurement — **Money** — VIEW		Number — **Multiplication and division** — VIEW					Measurement — **Length and height** — VIEW		Measurement — **Mass, capacity and temperature** — VIEW		
Summer term	Number — **Fractions** — VIEW			Measurement — **Time** — VIEW			**Statistics** — VIEW		Geometry — **Position and direction** — VIEW		Consolidation	

Progression of Skills

White Rose is a very carefully planned scheme of work. Overleaf, you can see an overview of how key skills are taught for addition, subtraction, multiplication and division. It follows the same concrete, pictorial, abstract approach.

It also includes some sentence stems and key questions that we use to help children.

You may also find the 'Maths with Michael – Parent Guide' videos and downloadable parent guides on the White Rose website

useful. These give a broad overview for parents of place value, subtraction, multiplication, division, fractions and algebra.

Addition

Year 2	• Recall and use addition facts to 20 fluently, and derive and use related facts up to 100
	 • Add numbers using concrete objects, pictorial representations, and mentally, including:
	     • a two-digit number and 1s
	     • a two-digit number and 10s
	     • 2 two-digit numbers
	     • adding 3 one-digit numbers
	 • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Progression of skills	Key representations		
Add ones to any number (related facts) Make links to known facts.	I know that … and … = … so … and … = … 	… more than … is … so … more than … is … 	What do you notice? Can you continue the pattern? $5 + 2 = 7$ $15 + 2 = 17$ $25 + 2 = 27…$
Add three 1-digit numbers Prompt children to understand that addition can be done in any order and to make links to known facts.	… and … are a bond to 10 $10 + … = …$ 	Double … + … = … 	What do you notice? Which addition is the easiest to calculate? $8 + 9 + 1 =$ $8 + 1 + 9 =$ $9 + 1 + 8 =$

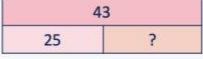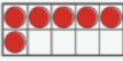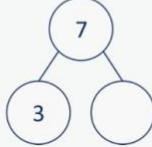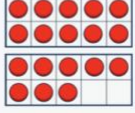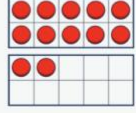| Progression of skills	Key representations		
Add 2-digit numbers (not across a ten) Lining up ones and tens in columns will support with later written methods.	… ones + … ones = … ones … tens + … tens = … tens 		3 ones $+ 1$ one $= 4$ ones 4 tens $+ 2$ tens $= 6$ tens 6 tens $+ 4$ ones $= 64$
Add 2-digit numbers (across a ten) Begin to exchange 10 ones for 1 ten.	There are …. ones, so I do/do not need to make an exchange. … ones = … ten and … ones 		5 ones $+ 7$ ones $= 12$ ones 12 ones $= 1$ ten and 2 ones 4 tens $+ 3$ tens $+ 1$ ten $= 8$ tens 8 tens and 2 ones $= 82$
Missing numbers Solve missing number problems and use the inverse to check.	How many more do you need to make …? $6 + \square = 10$ $10 - \square = 6$	If … is a whole and … is a part, then … is the other part. $\square + 3 = 7$ $7 - 3 = \square$ 	… can be partitioned into … and … $10 + 8 = 12 + \square$
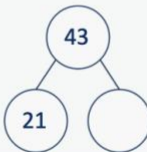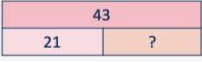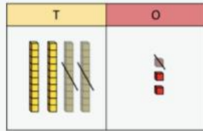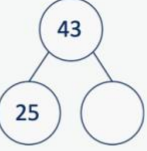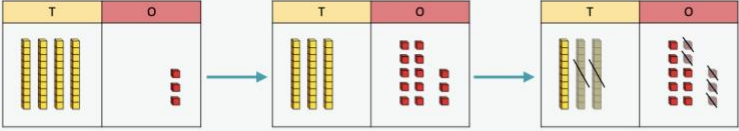
Subtraction

- Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100
- Subtract numbers using concrete objects, pictorial representations, and mentally, including:
  - a two-digit number and 1s
  - a two-digit number and 10s
  - 2 two-digit numbers
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Progression of skills	Key representations

Subtract ones from any number (related facts)
 	
Make links to known facts.
	I know that … minus … = …
	so … minus … = …
	
	   … less than … is …
	so … less than … is …
	   What do you notice? Can you continue the pattern?
	$8 - 3 = 5$
	$18 - 3 = 15$
	$28 - 3 = 25…$

Subtract across a 10 Partition the number being subtracted to bridge through a ten.	… can be partitioned into … and … $13 -$ (5) → (3)(2) Make links with related facts. $33 -$ (5) → (3)(2)
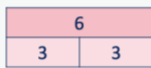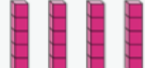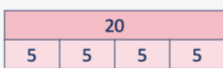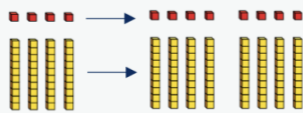
Subtraction

Progression of skills	Key representations
Subtract multiples of 10 Make links to known facts within ten.	… ones − … ones = … ones so … tens − … tens = … tens $5 - 2 = 3$ $50 - 20 = 30$ What is the same? What is different?

Subtract 10s from any number
 	
Make links to known facts.
	… tens − … tens = … tens
	… tens and … ones = …
	
	   To subtract … I need to subtract 10 … times.
	   I know that … minus … = …
	so … minus … = …
	
	$50 - 20 = 30$
	$54 - 20 = 34$

Subtraction

Progression of skills	Key representations
Subtract two 2-digit numbers (not across a ten)	$\dots$ ones $-$ $\dots$ ones $=$ $\dots$ ones $\dots$ tens $-$ $\dots$ tens $=$ $\dots$ tens 43 / 21 / ◯ 43 / 21 / ? 3 ones $-$ 1 one $=$ 2 ones 4 tens $-$ 2 tens $=$ 2 tens 2 tens and 2 ones $=$ 22
Subtract two 2-digit numbers (across a ten) Begin to exchange 1 ten for 10 ones.	I need to make an exchange because I do not have enough ones to subtract $\dots$ ones. 43 / 25 / ? 43 / 25 / ◯ 3 ones $-$ 5 ones (I need to exchange 1 ten for 10 ones) 13 ones $-$ 5 ones $=$ 8 ones 3 tens $-$ 2 tens $=$ 1 ten 1 ten and 8 ones $=$ 18
Missing numbers Solve missing number problems and use the inverse to check.	How many do you need to subtract to make $\dots$? $10 - \square = 6$ $6 + \square = 10$	If $\dots$ is a whole and $\dots$ is a part, then $\dots$ is the other part. $7 - 3 = \square$ $\square + 3 = 7$ 7 / 3 / ◯	$\dots$ can be partitioned into $\dots$ and $\dots$ $18 - \square = 12 + 2$

Multiplication

Year 2	• Recall and use multiplication facts for the 2, 5 and 10 multiplication tables. • Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication ($\times$) and equals ($=$) signs. • Show that multiplication of two numbers can be done in any order (commutative).

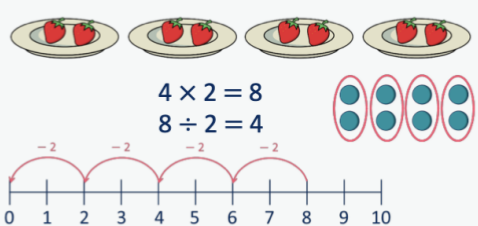| Progression of skills	Key representations
Link repeated addition and multiplication Encourage children to make the link between repeated addition and multiplication.	There are $\dots$ equal groups with $\dots$ in each group. There are $\dots$ altogether. 6 / 3 / 3 $3 + 3 = 6$ $2 \times 3 = 6$ 20 / 5 / 5 / 5 / 5 $5 + 5 + 5 + 5 = 20$ $4 \times 5 = 20$
Use arrays Encourage children to see that multiplication is commutative.	There are $\dots$ rows with $\dots$ in each row. There are $\dots$ columns with $\dots$ in each column. 3 lots of $5 = 15$ $5 + 5 + 5 = 15$ 5 lots of $3 = 15$ $3 + 3 + 3 + 3 + 3 = 15$	I can see $\dots \times \dots$ and $\dots \times \dots$ $3 \times 5 = 15$ $5 \times 3 = 15$ $3 \times 5 = 5 \times 3$
Double Encourage children to make links with related facts.	Double $\dots$ is $\dots$ Double $4 = 4 + 4$ Double 4 is 8	Double $\dots$ is $\dots$ so double $\dots$ is $\dots$ Double 4 is 8 Double 40 is 80
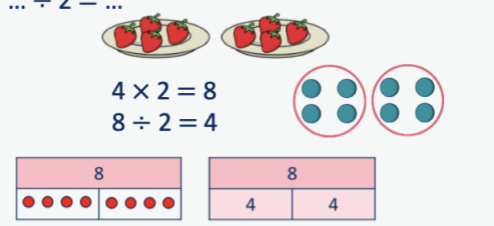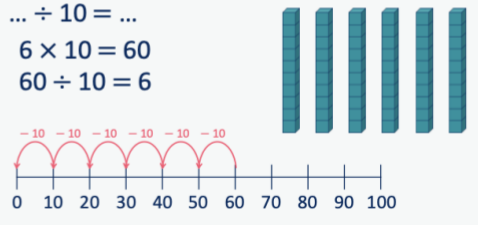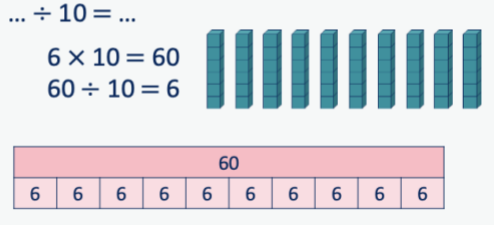
Multiplication

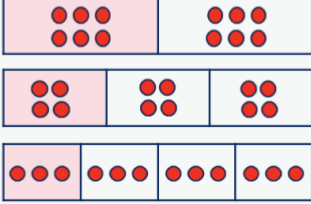| Progression of skills	Key representations	
The 2 times-table Encourage daily counting in multiples both forwards and back. Notice that all multiples of 2 are even numbers.	... lots of 2 = ... × 2 = ? / 2 2 2 2	... times 2 is equal to ... $1 \times 2 = 2 \quad 2 = 1 \times 2$ $2 \times 2 = 4 \quad 4 = 2 \times 2$ $3 \times 2 = 6 \quad 6 = 3 \times 2$ 0 2 4 6 8 10 12 14 16 18 20 22 24
The 10 times-table Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.	... lots of 10 = ... × 10 = ? / 10 10 10 10 10 10	... times 10 is equal to ... $1 \times 10 = 10 \quad 10 = 1 \times 10$ $2 \times 10 = 20 \quad 20 = 2 \times 10$ $3 \times 10 = 30 \quad 30 = 3 \times 10$ 0 10 20 30 40 50 60 70 80 90 100 110 120
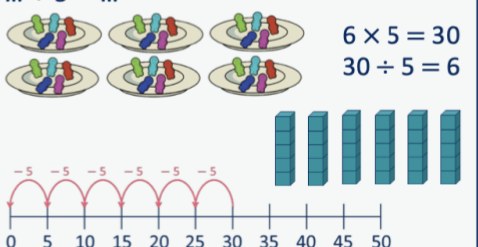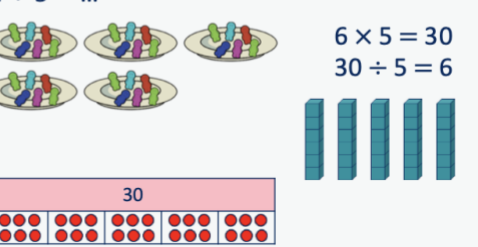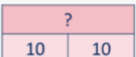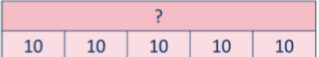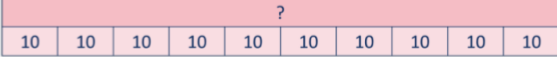
Multiplication
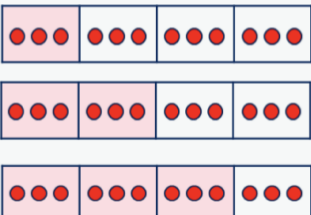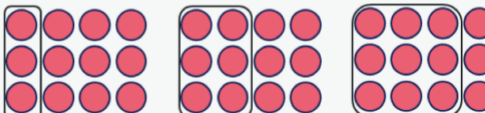
Progression of skills	Key representations	
The 5 times-table Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.	... lots of 5 = ... × 5 = ? / 5 5 5 5 5	... times 5 is equal to ... $1 \times 5 = 5 \quad 5 = 1 \times 5$ $2 \times 5 = 10 \quad 10 = 2 \times 5$ $3 \times 5 = 15 \quad 15 = 3 \times 5$ 0 5 10 15 20 25 30 35 40 45 50 55 60
Missing numbers Make links to known facts.	... is equal to ... groups of ... 18 socks, how many pairs? 0 2 4 6 8 10 12 14 16 18 20	... times ... is equal to ... $\square \times 2 = 18$ $18 = 2 \times \square$

Division

Year 2	• Recall and use division facts for the 2, 5 and 10 multiplication tables. • Calculate mathematical statements for division within the multiplication tables and write them using the division (÷) and equals (=) signs. • Recognise, find, name and write fractions $\frac{1}{3}, \frac{1}{4}, \frac{2}{4}$ and $\frac{3}{4}$ of a quantity.

Progression of skills	Key representations	
Divide by 2 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts and halving.	There are … equal groups of 2 … ÷ 2 = … $4 \times 2 = 8$ $8 \div 2 = 4$	… shared equally between 2 is … Half of … is … … ÷ 2 = … $4 \times 2 = 8$ $8 \div 2 = 4$
Divide by 10 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	There are … equal groups of 10 … ÷ 10 = … $6 \times 10 = 60$ $60 \div 10 = 6$	… shared equally between 10 is … … ÷ 10 = … $6 \times 10 = 60$ $60 \div 10 = 6$

Division
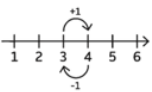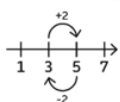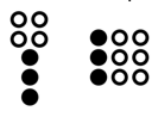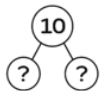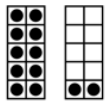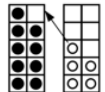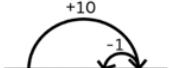
Progression of skills	Key representations	
Divide by 5 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	There are … equal groups of 5 … ÷ 5 = … $6 \times 5 = 30$ $30 \div 5 = 6$	… shared equally between 5 is … … ÷ 5 = … $6 \times 5 = 30$ $30 \div 5 = 6$
Missing numbers Bar models are useful to show the link between multiplication and division.	… divided by 2/5/10 is equal to … $\square \div 2 = 10$ $\square \div 5 = 10$ $\square \div 10 = 10$	

Division

Progression of skills	Key representations	
Unit fractions In Y2 the focus is on finding $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$ Bar models are useful to show the link between division and finding a fraction.	The objects have been shared fairly into … groups. $\frac{1}{\square}$ of … is …	There are … equal parts. There is … part circled. $\frac{1}{\square}$ is circled.
Non-unit fractions In Y2 the focus is on finding $\frac{2}{4}$ and $\frac{3}{4}$ Prompt children to notice that $\frac{2}{4}$ is equivalent to $\frac{1}{2}$	The objects have been shared fairly into … groups. $\frac{\square}{\square}$ of … is …	There are … equal parts. There are … parts circled. $\frac{\square}{\square}$ is circled.

Numbersense

Research tells us that gaps in knowledge around addition and subtraction facts can hamper children's progress and is at an expense of later ability to access the curriculum.

At Somerdale, we utilise a programme called 'Number Sense'. This systematic and structured programme ensures children develop visual models of number, a deep understanding of number and number relationships and fluency in addition and subtraction facts. It is taught daily. Children are taught core facts alongside 12 calculation strategies which aid the road to fluency:

Strategy	Description	Strategy	Description
One More, One Less	When we add one, we get the next counting number. When we subtract one, we get the previous counting number (e.g. 5 − 1 = 4).	**Number Neighbours: Spot the Difference**	Adjacent numbers have a difference of 1. Adjacent odds and evens have a difference of 2. Spot number neighbours (adjacent, odds or evens) to solve subtractions of adjacent numbers (e.g. 5 − 4 = 1), of adjacent odds (e.g. 9 − 7 = 2) or adjacent evens (e.g. 6 − 4 = 2)
Two More, Two Less: Think Odds and Evens	If we add two to a number, we go from odd to next odd or even to next even. If we subtract two from a number, we go from odd to previous odd or even to previous even.	**7 Tree and 9 Square**	Use these visual images to remember addition and subtractions fact families that children can find tricky. For example, visualising the 7 tree helps remember that 7 − 3 = 4. Visualising the 9 square helps remember that 3 + 6 = 9.
Number 10 Fact Families	Go beyond just recalling the pairs of numbers that add to 10. Make sure that we can also spot additions and subtractions which we can use number bonds to 10 to solve.	**Ten and A Bit**	The numbers 11 − 20 are made up of 'Ten and a Bit'. Recognising and understanding the 'Ten and a Bit' structure of these numbers enables addition and subtraction facts involving their constituent parts (e.g. 3 + 10 = 13, 17 − 7 = 10, 12 − 10 = 2).
Five and A Bit	The numbers 6, 7, 8 and 9 are made up of 'five and a bit'. This can be shown on hands, and supports decomposition of these numbers into their five and a bit parts (e.g. 5 + 3 = 8, 9 − 5 = 4).	**Make Ten and Then...**	Additions which cross the 10 boundary can be calculated by 'Making Ten' first, and then adding on the remaining amount (e.g. 8 + 6 can be calculated by thinking '8 + 2 = 10 and 4 more makes 14'). The same strategy can be applied to subtractions through 10.
Know about 0	When we add 0 to or subtract 0 from another number, the total remains the same. If we subtract a number from itself, the difference is 0.	**Adjust It**	Any addition and subtraction can be calculated by adjusting from a fact you know already, (e.g. 6 + 9 is one less than 6 + 10).
Doubles and Near Doubles	Memorise doubles of numbers to 10, using a visual approach. Then use these known double facts to calculate near doubles and hidden doubles. Once we know 6 + 6 = 12 then 6 +7 and 5 + 7 is easy.	**Swap It**	When the order of two numbers being added (addends) is exchanged the total remains the same. E.g. 1 + 8 = 8 + 1. Sometimes reversing the order of the two addends makes addition easier to think about conceptually.

In Year 2, children review stages 1 – 4 of the programme through Autumn 1. This is so that the children consolidate addition and subtraction within 10.

Stages 5 and 6 are then taught. The focus for the final part of the year moves to gap teaching and consolidation before transition to Year 3.

|	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Stage 1 & 2 (review)	Stage 3 Books 1 – 3 (review)	Stage 3 Books 4 – 6 (review)	Stage 3 Books 7 & 8 (review)	Stage 3 Book 9 (review)	Stage 4	Stage 3 / Stage 4
	Subitising and partitioning	–One More, One Less –Two More, Two Less –Number 10 Fact families	–Five and A Bit –Know About Zero –Doubles and Near Doubles	–Number Neighbours –7 Tree 9 Square	Strategy Selection	Ten and A Bit	Gap teaching and consolidation
Autumn 2	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	
	Make Ten and Then: Addition	Make Ten and Then: Addition	Make Ten and Then: Addition	Make Ten and Then: Subtraction	Make Ten and Then: Subtraction	Make Ten and Then: Subtraction	
Spring 1	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	
	More Doubles and Near Doubles	More Doubles and Near Doubles	More Doubles and Near Doubles	Adjusting	Adjusting	Adjusting	
Spring 2	Stage 5	Stage 5	Stage 5	Stage 6	Stage 6	Stage 6	
	Strategy Selection	Strategy Selection	Strategy Selection	Calculating with Multiples of 10	Two-Digit Numbers: Calculating with Ones	Two-Digit Numbers: Calculating with Tens	
Summer 1	Stage 6	Stage 6					
	Make the Next Ten and Then	Make the Previous Ten and Then	Teacher decision on use of sessions over period of KS1 SATs				
Summer 2	Stage 5 / Stage 6	Stage 5 / Stage 6	Stage 5 / Stage 6	Stage 5 / Stage 6	Stage 5 / Stage 6	Stage 5 / Stage 6	Stage 5 / Stage 6
	Small group gap teaching and consolidation	Whole class gap teaching and consolidation	Small group gap teaching and consolidation	Whole class gap teaching and consolidation	Small group gap teaching and consolidation	Whole class gap teaching and consolidation	Small group gap teaching and consolidation

How to Support your child

There are a wide range of materials and resources available to support your child with their maths at home. In Year 2, the expectation is that children practice their addition/subtraction facts.

The medium term planner on the class page will support you with the current focus. Below are some ideas to support, as well as other resources that can be used if your child is finding an aspect of maths tricky. Pictures below are hyperlinked for ease.

White Rose Home Learning Videos

These are provided for each small step and are 8 – 10 minutes long. These can be useful to reconsolidate learning that your child may find tricky. Clicking on the individual block will then show you the different videos.
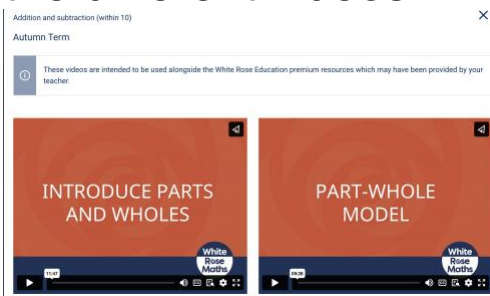
White Rose Home Workbooks

White Rose provide some printable workbooks for each block that can be used at home. They also have a Kindle edition.

White Rose One-Minute App

This app is great for short one-minute daily practice on adding, subtraction and subitising skills. It complements the Number Sense teaching really well. It is free to download on iOS, amazon and android devices.

Number Sense Home Learning Overviews

We have added the home learning overviews onto our Google Drive. Look at the year group medium term planner to see which book and stage they are currently working on. This provides lots of quick, fun activities you can do at home to support your child with the number facts they are currently learning.

<u>Busy Things</u>

As a school, we subscribe to Busy Things, an online resource which supports multiple areas of the curriculum. It has many games to support mathematics. If you need a reminder of the log-in details, please speak to your child's class teacher.
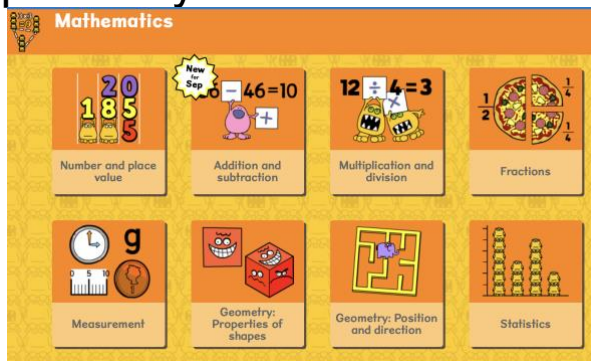
This booklet is available on our Maths page, under the curriculum tab.

Images are hyperlinked to help you get direct to the resources mentioned in this guide.