Parklands
Educate Together

White Rose Maths

Mathematics in Year Two

A guide for parents

Learn Togetherto 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 Parklands 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.

5 + 7
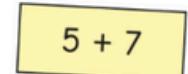
This Booklet

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
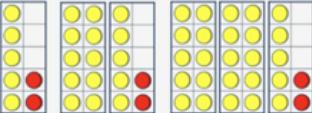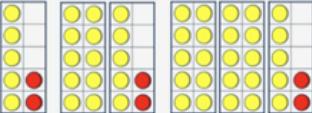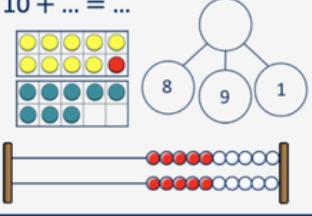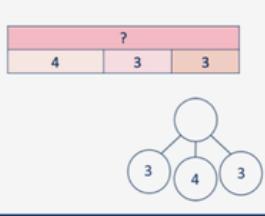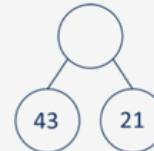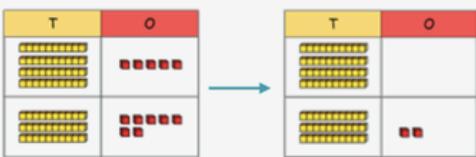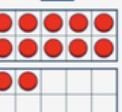
White Rose is a very carefully planned scheme of work. Overleaf, you can see an overview of how key skills are taught for addition, subtraction, multiplication and division.

It also includes some sentence stems and key questions that we use to help children.
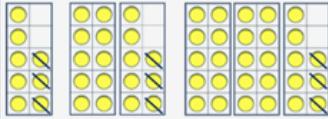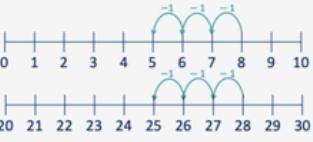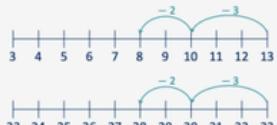
You may also find the 'Maths with Michael – Parent Guide' videos and downloadable parent guides on the White Rose website useful. These give a broad overview for parents of place value, subtraction, multiplication, division, fractions and algebra.
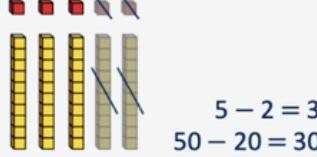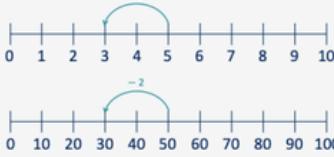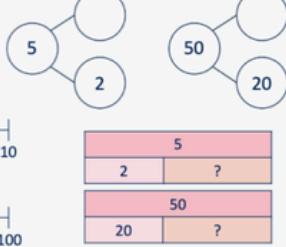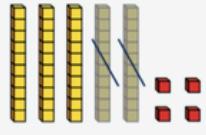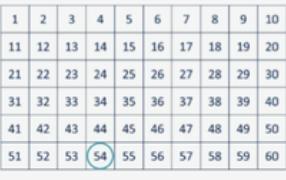
Addition

| 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 … $10 + 8 = 12 + \square$
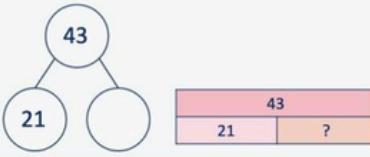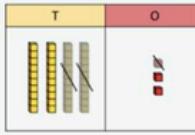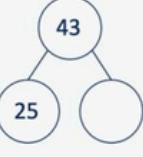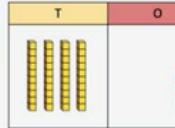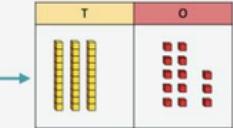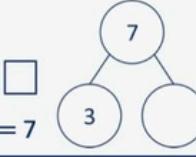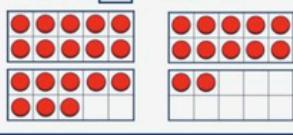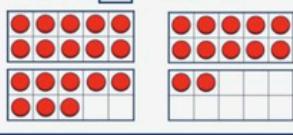
Subtraction

- 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 and 2) Make links with related facts. $33 - 5$ (3 and 2)
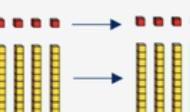
Subtraction

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? 5 (2), 50 (20)
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 … = … $50 - 20 = 30$ $54 - 20 = 34$
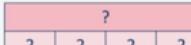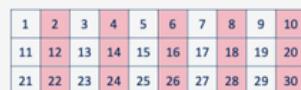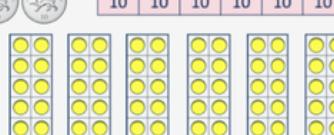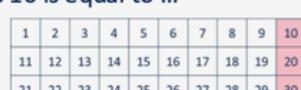
Subtraction

Progression of skills	Key representations
Subtract two 2-digit numbers (not across a ten)	… ones − … ones = … ones … tens − … tens = … tens 43 → 21, ◯ [bar model: 43; 21, ?] [T/O place value chart] 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 … ones. [bar model: 43; 25, ?] 43 → 25, ◯ [T/O place value charts with exchange arrows] 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 …? [ten frame] $10 - \square = 6$ $6 + \square = 10$	If … is a whole and … is a part, then … is the other part. $7 - 3 = \square$ $\square + 3 = 7$ [part-whole model: 7; 3, ◯]	… can be partitioned into … and … $18 - \square = 12 + 2$ [arrays of red counters]
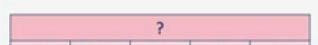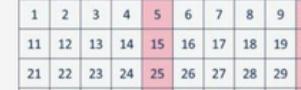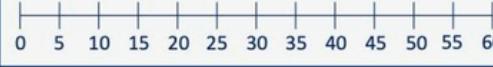
Multiplication

| 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 (×) 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 … equal groups with … in each group. There are … altogether. [cupcakes] [bar model: 6; 3, 3] $3 + 3 = 6$ $2 \times 3 = 6$ [cubes] [bar model: 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 … rows with … in each row. There are … columns with … in each column. [array of pears] 3 lots of 5 = 15 $5 + 5 + 5 = 15$ 5 lots of 3 = 15 $3 + 3 + 3 + 3 + 3 = 15$	I can see … × … and … × … $3 \times 5 = 15$ $5 \times 3 = 15$ $3 \times 5 = 5 \times 3$
Double Encourage children to make links with related facts.	Double … is … [dice] Double 4 = 4 + 4 Double 4 is 8	Double … is … so double … is … [dots and base ten] Double 4 is 8 Double 40 is 80
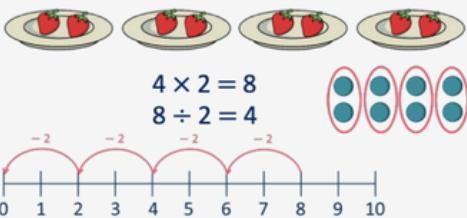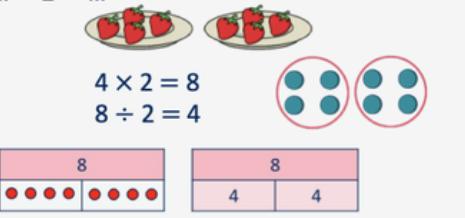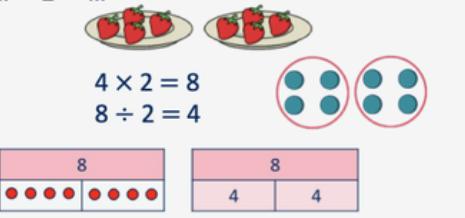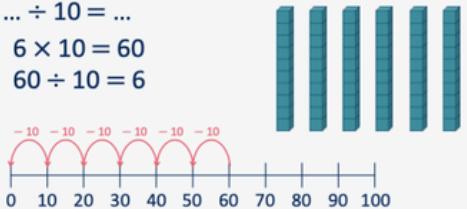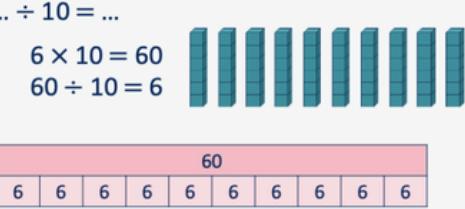
Multiplication

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
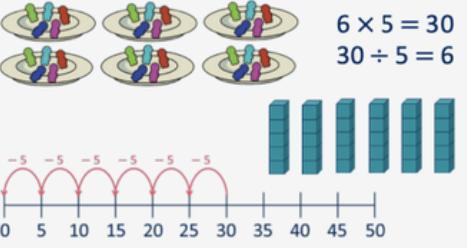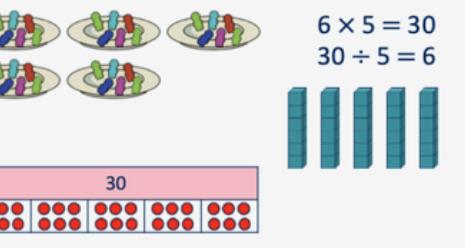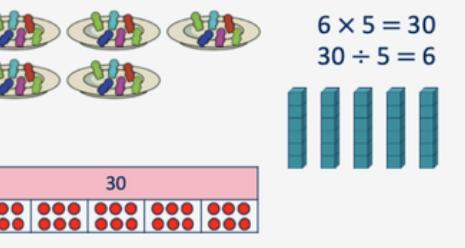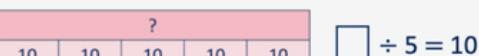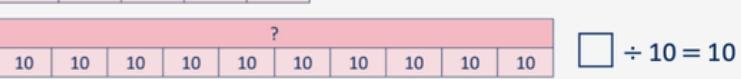
Multiplication
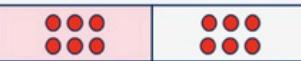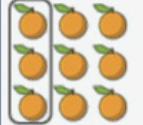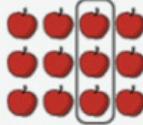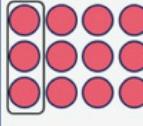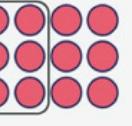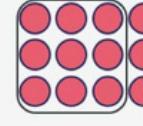
Progression of skills	Key representations	
The 5 times-table Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.	... lots of 5 = ... × 5 = ? | 5 | 5 | 5 | 5 | 5	... times 5 is equal to ... $1 \times 5 = 5 \quad 5 = 1 \times 5$ $2 \times 5 = 10 \quad 10 = 2 \times 5$ $3 \times 5 = 15 \quad 15 = 3 \times 5$ 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**

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 $… ÷ 2 = …$ $4 × 2 = 8$ $8 ÷ 2 = 4$	… shared equally between 2 is … Half of … is … $… ÷ 2 = …$ $4 × 2 = 8$ $8 ÷ 2 = 4$
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 $… ÷ 10 = …$ $6 × 10 = 60$ $60 ÷ 10 = 6$	… shared equally between 10 is … $… ÷ 10 = …$ $6 × 10 = 60$ $60 ÷ 10 = 6$

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 $… ÷ 5 = …$ $6 × 5 = 30$ $30 ÷ 5 = 6$	… shared equally between 5 is … $… ÷ 5 = …$ $6 × 5 = 30$ $30 ÷ 5 = 6$
Missing numbers Bar models are useful to show the link between multiplication and division.	… divided by 2/5/10 is equal to … $\square ÷ 2 = 10$ $\square ÷ 5 = 10$ $\square ÷ 10 = 10$	

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.

Fluency Friday

Every Friday across the school, each year group takes part in Fluency Friday wherein children are encouraged to practice the foundational skills that make up mathematic fluency. We want all our children to love maths and succeed. It is achievable for the vast majority of children to learn these facts.

In Year 2, this takes the form of recalling number bonds and number facts in the early terms then progresses to recalling the 2s, 5s and 10s. See below for the structure of the number bond learning across the year.

+	0	1	2	3	4	5	6	7	8	9	10
0	0 + 0	0 + 1	0 + 2	0 + 3	0 + 4	0 + 5	0 + 6	0 + 7	0 + 8	0 + 9	0 + 10
1	1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9	1 + 10
2	2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	2 + 9	2 + 10
3	3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7	3 + 8	3 + 9	3 + 10
4	4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6	4 + 7	4 + 8	4 + 9	4 + 10
5	5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5	5 + 6	5 + 7	5 + 8	5 + 9	5 + 10
6	6 + 0	6 + 1	6 + 2	6 + 3	6 + 4	6 + 5	6 + 6	6 + 7	6 + 8	6 + 9	6 + 10
7	7 + 0	7 + 1	7 + 2	7 + 3	7 + 4	7 + 5	7 + 6	7 + 7	7 + 8	7 + 9	7 + 10
8	8 + 0	8 + 1	8 + 2	8 + 3	8 + 4	8 + 5	8 + 6	8 + 7	8 + 8	8 + 9	8 + 10
9	9 + 0	9 + 1	9 + 2	9 + 3	9 + 4	9 + 5	9 + 6	9 + 7	9 + 8	9 + 9	9 + 10
10	10 + 0	10 + 1	10 + 2	10 + 3	10 + 4	10 + 5	10 + 6	10 + 7	10 + 8	10 + 9	10 + 10

Y1 facts
Y2 facts
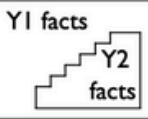
- Adding 1
- Adding 2
- Bonds to 10
- Adding 0
- Doubles
- Near doubles

- This grid shows the addition facts within 10 and strategies to recall or derive them that children learn in Year 1.

- Children should also practise the corresponding subtractions.

Children who can recall facts enjoy and are able to secure the maths curriculum easier than the children who can't recall these facts.

We work at the pace of your child by assessing them weekly and focusing on different number bonds and times tables depending on their need. We use a variety of learning methods including games, quick fire assessments and group activities.

We continuously check their progress in these facts, using their scores to do in the moment interventions and ensure we know where they are in their learning journey at all times.

<u>Times tables</u>
In the later terms, skip counting and multiplication are introduced, focusing on the 2s, 5s and 10s. The pattern recognition here is crucial as we also introduce doubling and halfing. These are the building blocks for the times tables facts they will learn in KS2.

$0 \times 5 = 0$	$0 \times 10 = 0$
$1 \times 5 = 5$	$1 \times 10 = 10$
$2 \times 5 = 10$	$2 \times 10 = 20$
$3 \times 5 = 15$	$3 \times 10 = 30$
$4 \times 5 = 20$	$4 \times 10 = 40$
$5 \times 5 = 25$	$5 \times 10 = 50$
$6 \times 5 = 30$	$6 \times 10 = 60$
$7 \times 5 = 35$	$7 \times 10 = 70$
$8 \times 5 = 40$	$8 \times 10 = 80$
$9 \times 5 = 45$	$9 \times 10 = 90$
$10 \times 5 = 50$	$10 \times 10 = 100$
$11 \times 5 = 55$	$11 \times 10 = 110$
$12 \times 5 = 60$	$12 \times 10 = 120$

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.
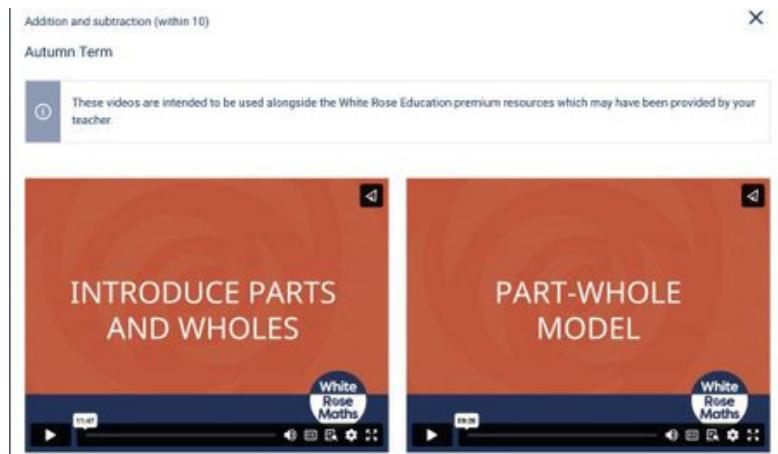
White Rose Home Workbooks

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.

Real-life play and games

Sometimes, the best way to reinforce learning is by playing, especially with younger children. You can focus on key facts to 10, 20 and then 100 through play based activities, counting things in nature or your surroundings, playing board games and being curious with patterns. For example, realising that when you know your number bonds to 10, you can use them to count far beyond!