Parklands Educate Together

Mathematics in Year Three

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 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

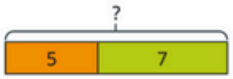
Research shows that all children, when introduced to a new concept, should have the opportunity to build competency using the concrete, pictorial, abstract approach. This features throughout the schemes of learning.

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.

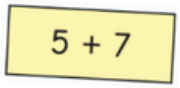
Pictorial

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.



<u>This Booklet</u>

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.

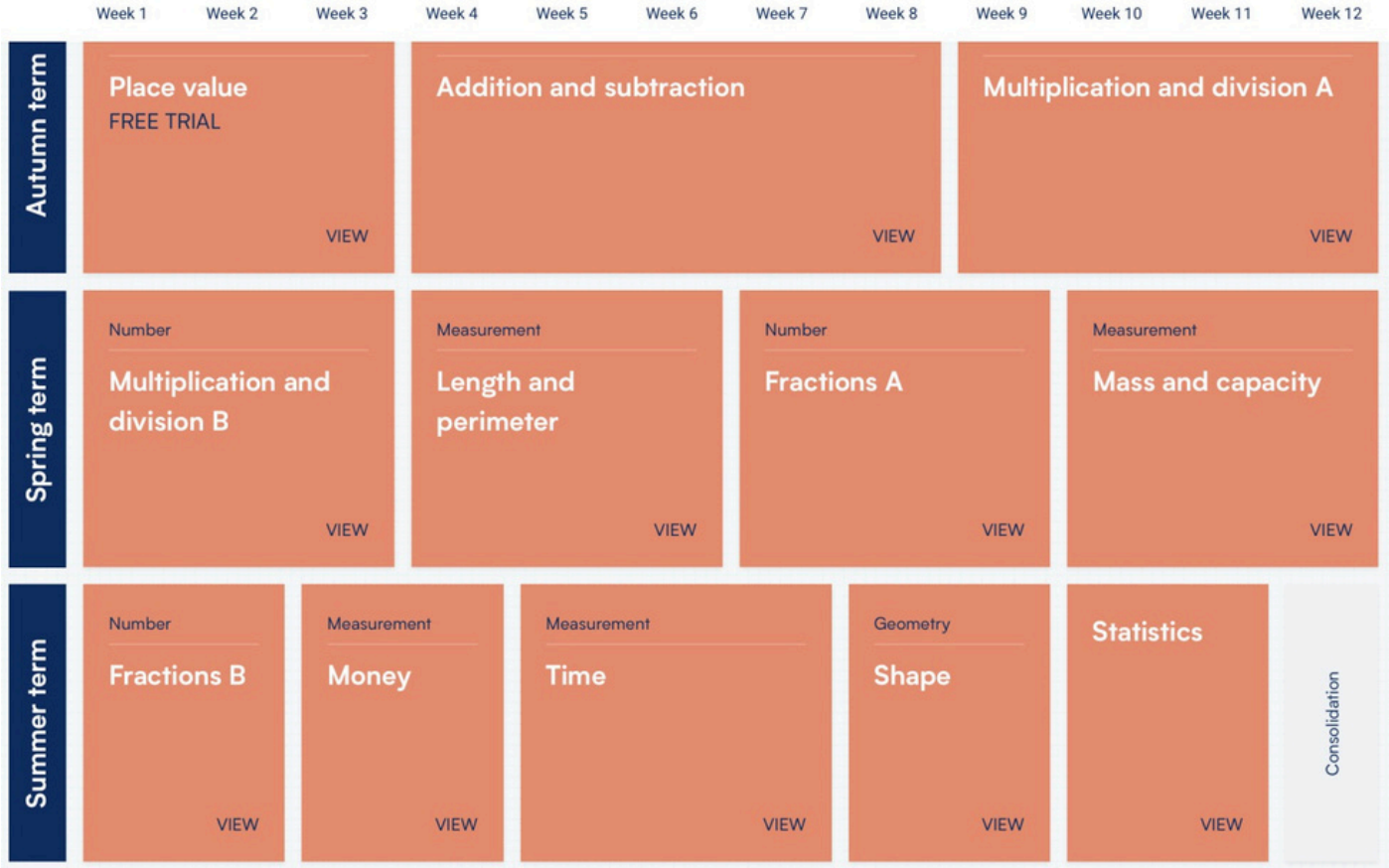
<u>What will my child learn in mathematics this year?</u>

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 Three 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.



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. concrete, pictorial, abstract approach.

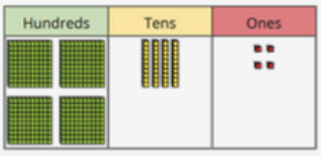
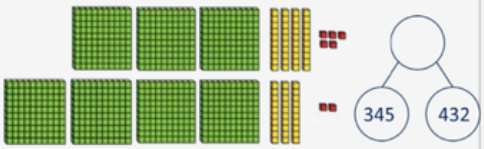
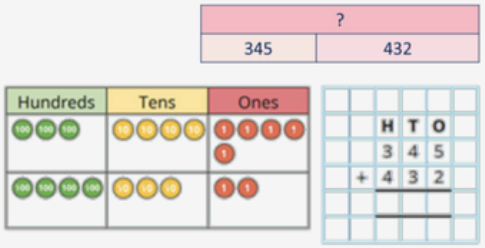
It also includes some sentence stems and key questions that we use to help children.

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

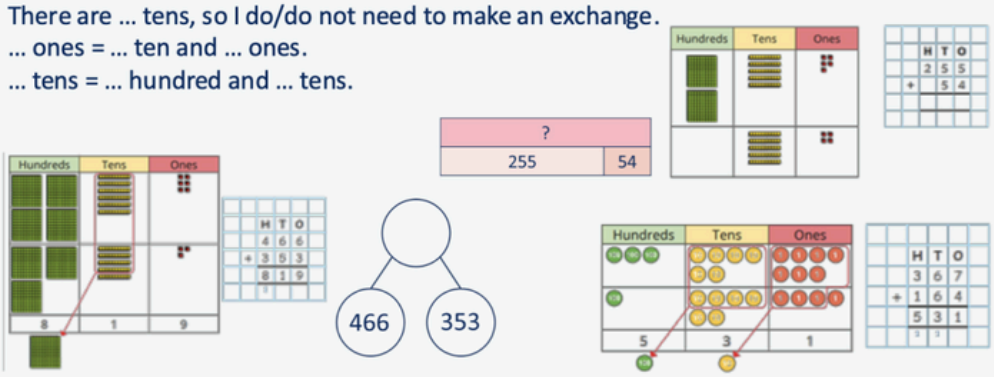
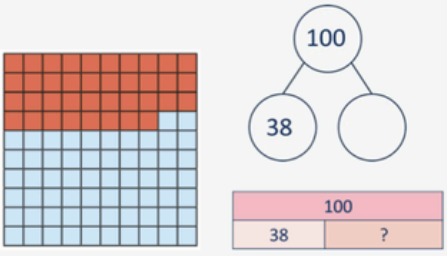
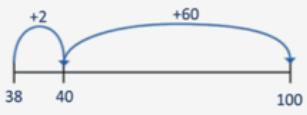
White Rose MATHS

Year 3	• Add numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds. • Add numbers with up to three digits, using formal written methods of columnar addition. • Add fractions with the same denominator within 1 whole. • Calculate the time taken by particular events or tasks.

Progression of skills	Key representations	
Add 1s, 10s or 100s to a 3-digit number Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.	The ones/tens/hundreds column will increase by …   444 + 5 = 444 + 50 = 444 + 500 = 777 + 2 = 777 + 20 = 777 + 200 =	What patterns do you notice? 235 + 3 = 235 + 30 = 235 + 300 = 604 + 20 = 604 + 50 = 604 + 90 = 111 + ☐ = 118 111 + ☐ = 181 111 + ☐ = 811
Add two numbers (no exchange) Mental strategies and introduction of formal written method.	… ones + … ones = … ones … tens + … tens = … tens … hundreds + … hundreds = … hundreds   	

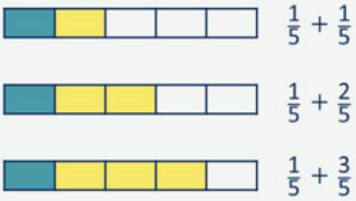
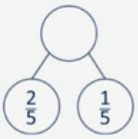
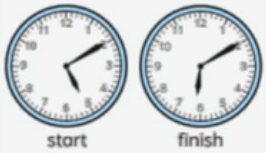
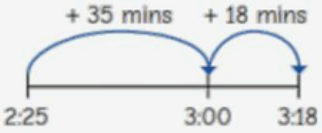
Addition

White Rose MATHS

Progression of skills	Key representations	
Add two numbers across a 10 or 100 Formal written method involving up to 2 exchanges including 3-digit plus 2-digit numbers.	There are … ones, so I do/do not need to make an exchange. There are … tens, so I do/do not need to make an exchange. … ones = … ten and … ones. … tens = … hundred and … tens.  	
Complements to 100 Pairs of numbers which total 100	… plus … is equal to 100  	I add … to get to the next 10, then … to get to 100  38 + 62 = 100 62 + 38 = 100 100 = 38 + 62 100 = 62 + 38

Addition

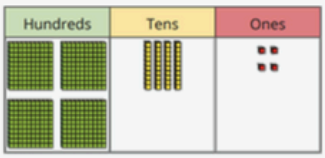
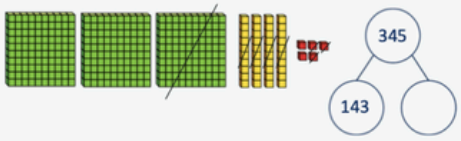
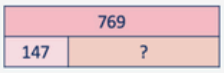
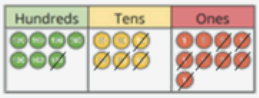
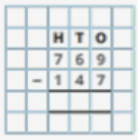
White Rose MATHS

Progression of skills	Key representations
Add fractions with the same denominator within 1 whole Make links with known facts.	When adding fractions with the same denominator, I only add the numerator. ... fifths + ... fifths = ... fifths   
Calculate the duration of events Find durations of time between a given start and end point. Children will need to calculate complements to 60	From ... to ... o'clock is ... minutes. From ... o'clock to ... is ... minutes. The total time taken is ... minutes.   

Subtraction

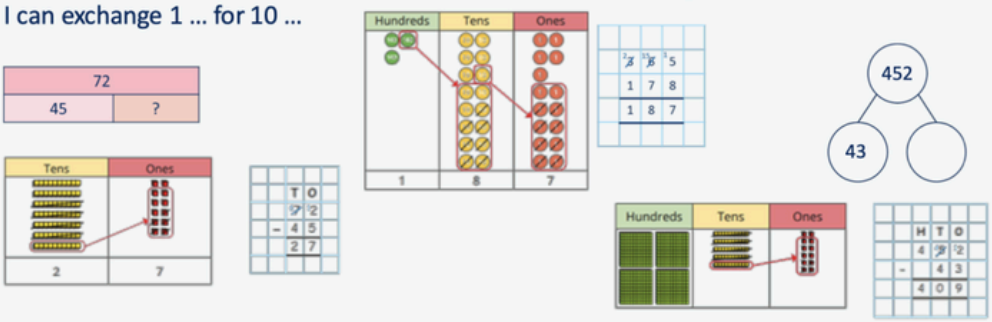
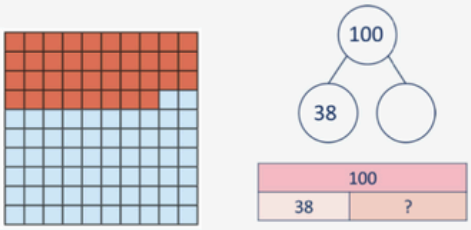
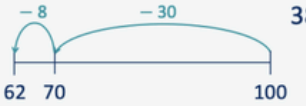
White Rose MATHS

Year 3	• Subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds. • Subtract numbers with up to three digits, using formal written methods. • Subtract fractions with the same denominator within 1 whole.

Progression of skills	Key representations	
Subtract 1s, 10s and 100s from a 3-digit number Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.	The ones/tens/hundreds column will decrease by ...   444 − 2 = 444 − 20 = 444 − 200 = 777 − 4 = 777 − 40 = 777 − 400 =	What patterns do you notice? 235 − 3 = 235 − 30 = 235 − 300 = 624 − 20 = 654 − 50 = 694 − 90 = 118 − ☐ = 111 181 − ☐ = 111 811 − ☐ = 111
Subtract two numbers (no exchange) Mental strategies and introduction of formal written method.	... ones − ... ones = ... ones ... tens − ... tens = ... tens ... hundreds − ... hundreds = ... hundreds  	  

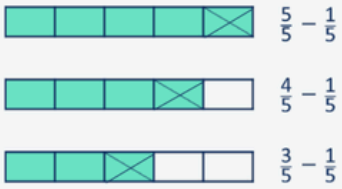
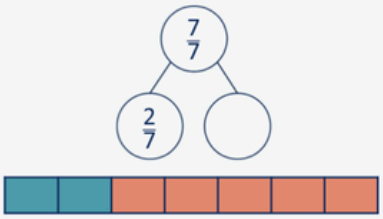
Subtraction

White Rose MATHS

Progression of skills	Key representations
Subtract two numbers across a 10 or 100 Formal written method involving up to 2 exchanges including 3-digit subtract 2-digit numbers.	I need to subtract ... ones. I do/do not need to make an exchange. I need to subtract ... tens. I do/do not need to make an exchange. I can exchange 1 ... for 10 ... 
Complements to 100 Focus on subtraction facts. Encourage children to notice patterns.	100 minus ... is equal to ... 	I subtract ... tens, then I subtract ... ones.  $100 - 38 = 62$ $100 - 62 = 38$ $62 = 100 - 38$ $38 = 100 - 62$

Subtraction

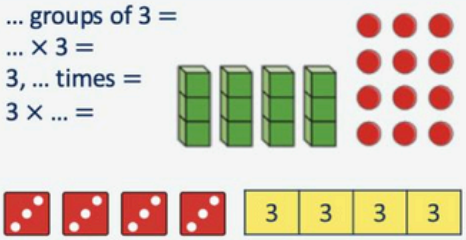
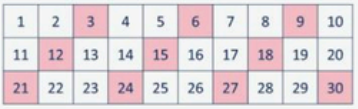
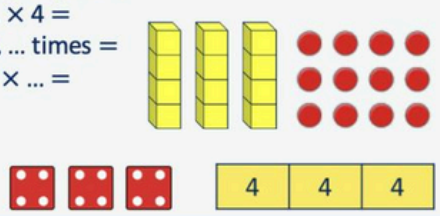
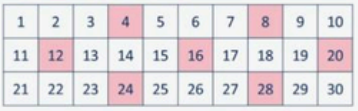
White Rose MATHS

Progression of skills	Key representations
Subtract fractions with the same denominator within 1 whole Make links with known facts.	When subtracting fractions with the same denominator, I only subtract the numerator. ... fifths − ... fifths = ... fifths  

Multiplication

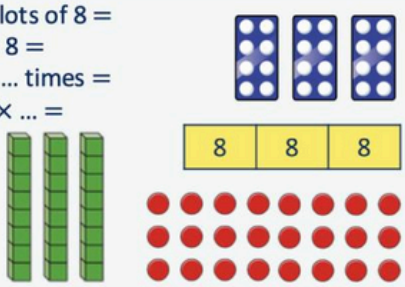
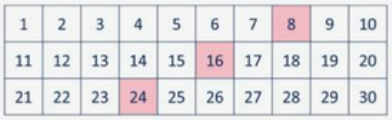
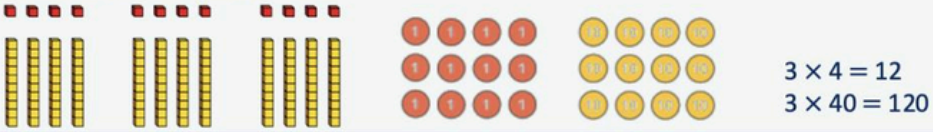
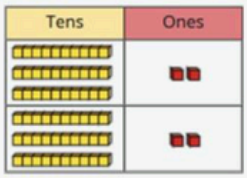
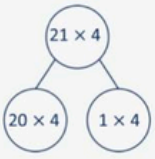
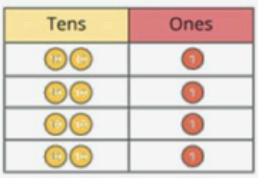
White Rose MATHS

Year 3	• Recall and use multiplication facts for the 3, 4 and 8 multiplication tables. • Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. • Solve problems, including missing number problems, involving multiplication, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

Progression of skills	Key representations	
The 3 times-table Encourage daily counting in multiples both forwards and back.	... groups of 3 = ... × 3 = 3, ... times = 3 × ... =  	... times 3 is equal to ...  4 × 3 = 12 12 = 4 × 3 
The 4 times-table Encourage daily counting in multiples both forwards and back. Encourage children to notice links between the 2 and 4 times-tables.	... groups of 4 = ... × 4 = 4, ... times = 4 × ... =  	... times 4 is equal to ...  3 × 4 = 12 12 = 3 × 4 

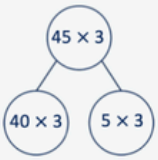
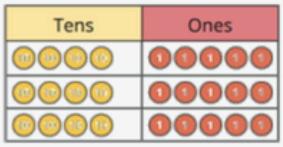
Multiplication

White Rose MATHS

Progression of skills	Key representations	
The 8 times-table Encourage daily counting in multiples both forwards and back. Encourage children to notice links between the 2, 4 and 8 times-tables.	... lots of 8 = × 8 = 8, ... times = 8 × ... =  	... times 8 is equal to ...  3 × 8 = 24 24 = 3 × 8 
Related facts Use knowledge of multiplying by 10 to scale times-table facts.	... × ... ones is equal to ... ones so ... × ... tens is equal to ... tens.  3 × 4 = 12 3 × 40 = 120	
Multiply a 2-digit number by a 1-digit number - no exchange Children apply their understanding of partitioning to represent and solve calculations using the expanded method.	... tens multiplied by ... is equal to ... tens. ...ones multiplied by ... is equal to ... ones.  30 × 2 = 60 2 × 2 = 4 32 × 2 = 64   	

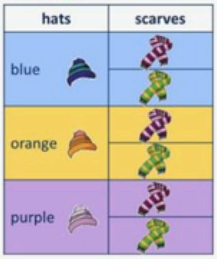
Multiplication

White Rose MATHS

Progression of skills	Key representations
Multiply a 2-digit number by a 1-digit number - with exchange Children apply their understanding of partitioning to represent and solve calculations using the expanded method.	… tens multiplied by … is equal to … tens. … ones multiplied by … is equal to … ones.  $20 \times 4 = 80$ $4 \times 4 = 16$ $24 \times 4 = 96$  
Scaling Children focus on multiplication as scaling (…. times the size) as opposed to repeated addition.	There are …. times as many … as …  There are 3 times as many triangles as circles.	… is … times the size of … … is … times the length/height of …   Miss Smith is twice the height of Jo.

Multiplication

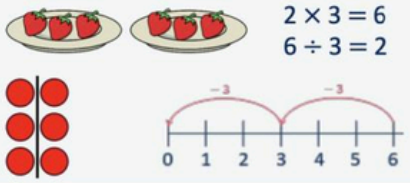
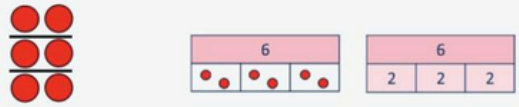
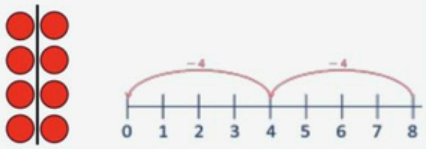
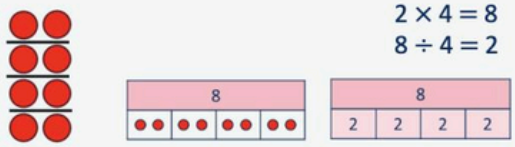
White Rose MATHS

Progression of skills	Key representations
Correspondence problems (How many ways?) Encourage children to work systematically to find all the different possible combinations.	For every … , there are … possible … There are … × … possibilities altogether.   For every hat, there are two possible scarves. $3 \times 2 = 6$ There are 6 possibilities altogether.

Division

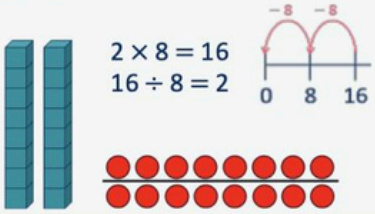
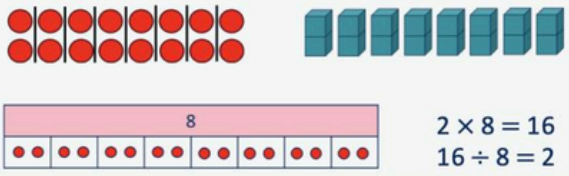
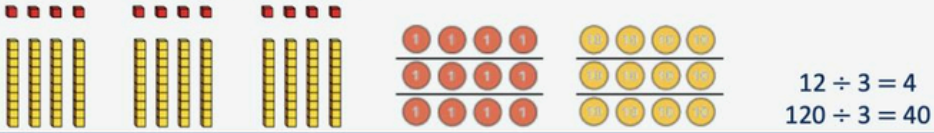
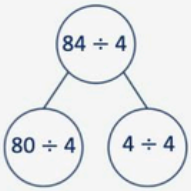
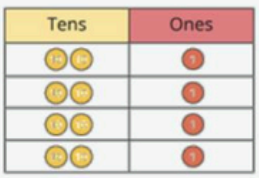
White Rose MATHS

Year 3	• Recall and use division facts for the 3, 4 and 8 multiplication tables. • Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. • Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.

Progression of skills	Key representations	
Divide by 3 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	There are ... groups of 3 in ... ... ÷ 3 =  2 × 3 = 6 6 ÷ 3 = 2 	... has been shared equally into 3 equal groups. ... ÷ 3 =  2 × 3 = 6 6 ÷ 3 = 2 
Divide by 4 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	There are ... groups of 4 in ... ... ÷ 4 =  2 × 4 = 8 8 ÷ 4 = 2  	... has been shared equally into 4 equal groups. ... ÷ 4 =  2 × 4 = 8 8 ÷ 4 = 2 

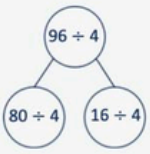
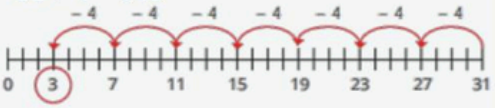
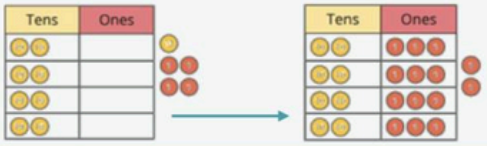
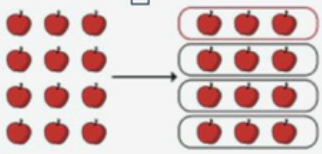
Division

White Rose MATHS

Progression of skills	Key representations	
Divide by 8 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	There are ... groups of 8 in ... ... ÷ 8 =  2 × 8 = 16 16 ÷ 8 = 2 	... has been shared equally into 8 equal groups. ... ÷ 8 =  2 × 8 = 16 16 ÷ 8 = 2
Related facts Link to known times-table facts.	... ÷ ... is equal to ..., so ... tens ÷ ... is equal to ... tens.  12 ÷ 3 = 4 120 ÷ 3 = 40	
Divide a 2-digit number by a 1-digit number - no exchange Partition into tens and ones to divide and then recombine.	... tens divided by ... is equal to ... tens. ... ones divided by ... is equal to ... ones.  60 ÷ 2 = 30 4 ÷ 2 = 2 64 ÷ 2 = 32   	

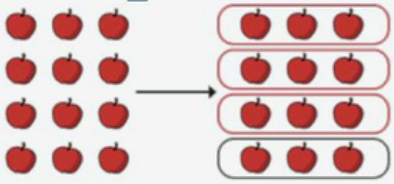
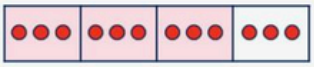
Division

White Rose MATHS

Progression of skills	Key representations	
Divide a 2-digit number by a 1-digit number - with remainders Encourage children to partition numbers flexibly to help them to divide more efficiently.	... tens divided by ... is equal to ... tens. ... ones divided by ... is equal to ... ones.   80 ÷ 4 = 20 16 ÷ 4 = 4 96 ÷ 4 = 24	There are ... groups of ... There are ... remaining. 31 ÷ 4 = 7 r3  94 ÷ 4 = 23 r2 
Unit fractions of a set of objects Bar models are useful to show the link between division and fractions, for example, dividing by 3 and finding a third.	The whole is divided into ... equal parts. Each part is $\frac{1}{\square}$ of the whole.  $\frac{1}{4}$ of 12 apples is 3 apples.	One ... of ... is ... $\frac{1}{4}$ of 12 is 3  $\frac{1}{3}$ of 36 is 12 

Division

White Rose MATHS

Progression of skills	Key representations	
Non-unit fractions of a set of objects Bar models are a useful representation and show the links with division and multiplication.	The whole is divided into ... equal parts. Each part is $\frac{1}{\square}$ of the whole.  $\frac{3}{4}$ of 12 apples is 9 apples.	$\frac{1}{\square}$ of ... is ..., so $\frac{\square}{\square}$ of ... is ... $\frac{3}{4}$ of 12 is 9  $\frac{2}{3}$ of 36 is 24 

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 3, this takes the form of times tables practice to prepare them for the National MTC check in Year 4. We have a systematic, whole class approach to learning times tables which breaks down the learning of times tables into manageable chunks. We ensure that they are deliberately and constantly practicing their facts by working through their 2s, 5s, and 10s as recap from Year 2. Following this, we introduce the 3s, 4s and 8s.

Children who can recall facts enjoy and are able to secure the maths curriculum easier than the children who can't recall these facts. There are not many facts: 36 'building block' facts (up to 9 x 9). There are roughly 39 weeks in a school year, equating to essentially 1 fact a week, every year.

We work at the pace of your child by assessing them weekly and focusing on different times tables depending on their need. We use a variety of learning methods including quick-fire formal testing, TTRS practice on iPads, practice on timestables.co.uk and other games and activities.

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

Year 3	Year 3	Year 3	Year 4	Year 4	Year 4	Year 4	Year 4
2 x	5 x	3 x	4 x	6 x	7 x	8 x	9 x
2 x 2							
3 x 2	3 x 5	3 x 3					
4 x 2	4 x 5	4 x 3	4 x 4				
5 x 2	5 x 5						
6 x 2	6 x 5	6 x 3	6 x 4	6 x 6			
7 x 2	7 x 5	7 x 3	7 x 4	7 x 6	7 x 7		
8 x 2	8 x 5	8 x 3	8 x 4	8 x 6	8 x 7	8 x 8	
9 x 2	9 x 5	9 x 3	9 x 4	9 x 6	9 x 7	9 x 8	9 x 9
8 facts	7 facts	6 facts	5 facts	4 facts	3 facts	2 facts	1 fact

By end of Y3:
21 facts learnt
15 facts still to learn

By end of Y4
15 facts learnt to complete building blocks
21 more facts for times table check (see below)

How we assess your child

Each term, we use Times Tables Rockstars to help assess the gaps. The children take part in a ‘gig’, which then produces a heatmap. This shows us which facts the child knows well, and which they need to work on. We send this home to families so that the children can practice the facts they aren’t able to recall at home.

Children also get the chance to practise their facts on Times Table Rockstars once a week at school. This online resource is tailored to the individual child, and it’s algorithm will workout which facts your child knows, and which they need to practice more.

Click the image below to find out more about the different game types and how they support your child.

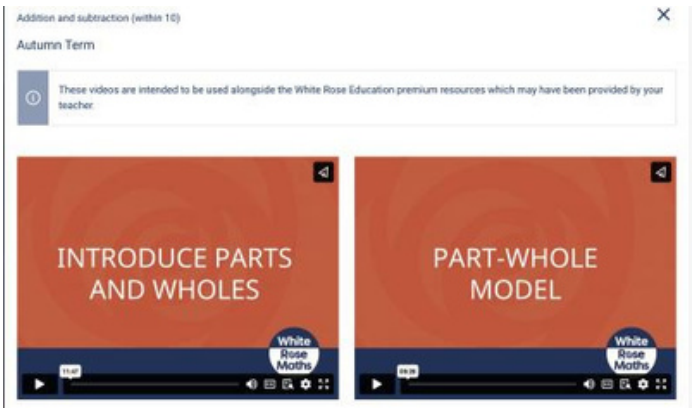
How to support your child

There are a wide range of materials and resources available to support your child with their maths at home. In Year 3, the expectation is that children practice their addition/subtraction facts if they are not confident with them, and then to practice their times tables recall once we start to teach times tables fluency. 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, subitising, multiplication and division skills. It is free to download on iOS, amazon and android devices.

Times Tables Rockstars

Times Tables Rockstars (or TTRS), is highly individualised for each child to support them to practise the facts they need. It has a variety of timed and non-timed games.