

Maths Workshop

Year 5 and 6

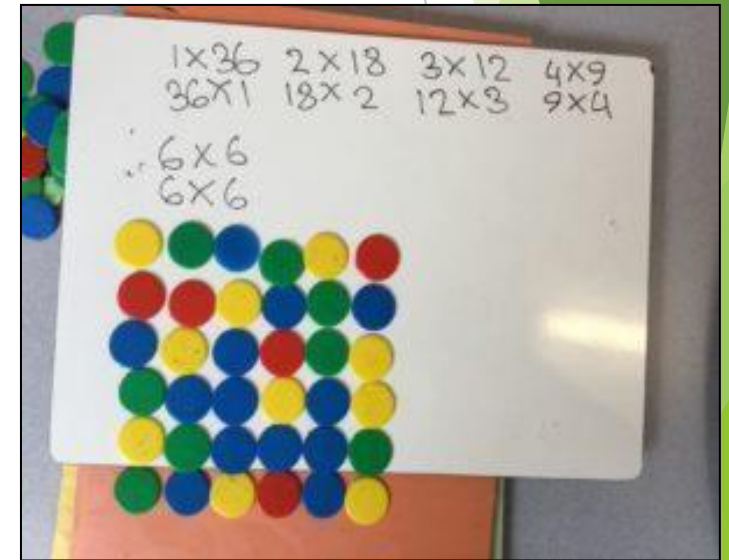
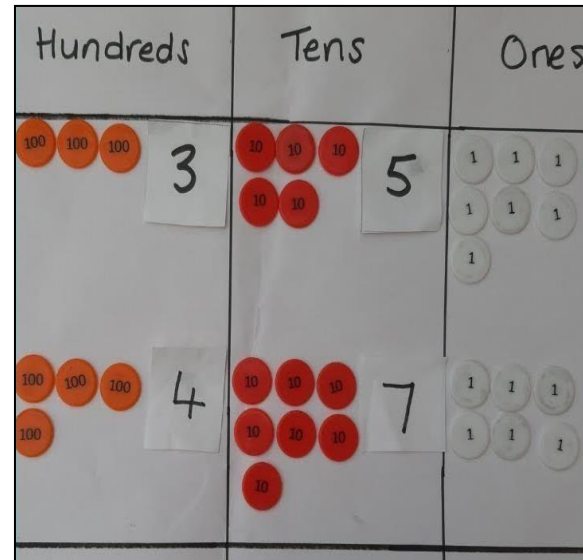
Aims of the session

- ▶ To explain the concrete, pictorial and abstract approaches in maths
- ▶ What is a mastery approach
- ▶ To discuss the written calculation policy and how maths is taught at Wood Fold
- ▶ To try out some of the methods yourself and explore the resources that you can use to support your child at home.

CPA Approach: Concrete, Pictorial and Abstract

- Concrete - Doing the maths

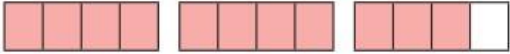
E.g. money, counters.




- **Pictorial: Seeing the maths**
- Making connections between the concrete and the pictorial representations and the pictorial and the abstract. E.g. part whole models, bar models, ten frames.

1 What mixed number is shown by each bar model?

a)



b)



1 Complete the calculations.
Use the place value charts to help you.

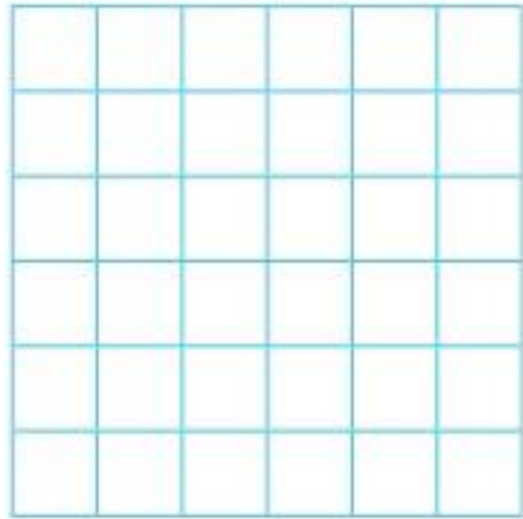
a) $3,117 + 2,542 =$

Th	H	T	O
<div style="display: flex; justify-content: space-around;"> <div>1,000</div> <div>1,000</div> </div> <div>1,000</div>	100	10	<div style="display: flex; justify-content: space-around;"> <div>1</div> <div>1</div> </div> <div>1</div> <div>1</div> <div>1</div> <div>1</div>
<div style="display: flex; justify-content: space-around;"> <div>1,000</div> <div>1,000</div> </div>	<div style="display: flex; justify-content: space-around;"> <div>100</div> <div>100</div> </div> <div>100</div> <div>100</div> <div>100</div>	<div style="display: flex; justify-content: space-around;"> <div>10</div> <div>10</div> </div> <div>10</div> <div>10</div>	<div style="display: flex; justify-content: space-around;"> <div>1</div> <div>1</div> </div>

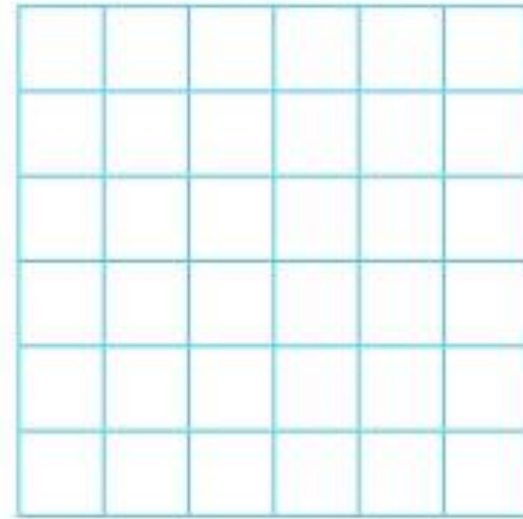
+

- **Abstract:** The final stage is for children to **understand abstract mathematical concepts, signs and notation**. When a child demonstrates with concrete models and pictorial representations that they have grasped a concept, we can be confident that they are ready to explore the abstract. At this stage, pupils are expected to have a depth of knowledge, which can now be applied without the need for physical or visual support strategies.

e) 3×240



f) 7×131




The Mastery Approach

- ▶ Mathematic teaching for mastery assumes **everyone can learn and enjoy mathematics.**
- ▶ Mathematical learning behaviours are developed such that pupils focus and engage as learners who reason and seek to **make connections.**
- ▶ Lesson design links to **prior learning** to ensure all can access the new learning and identifies **carefully sequenced steps** in progression to build secure understanding.
- ▶ **Practice and revisiting previous learning** is a vital part of our maths lessons.

- ▶ Pupils are taught through whole-class interactive teaching enabling all to master the concepts.
- ▶ In a typical lesson, the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion, enabling pupils to think, reason and apply their knowledge to solve problems.
- ▶ Use of precise mathematical language enables all pupils to communicate their reasoning and thinking effectively.
- ▶ Key number facts are learnt to automaticity, and other key mathematical facts are learned deeply and practised regularly, to avoid cognitive overload in working memory and enable pupils to focus on new learning.

We use White Rose resources across the school as the main resources to deliver lessons


1 Complete the sentences.

a) 

There are equal groups of

+ + + + + =

× =

b) 

There are equal groups of


= + + +

= ×

9 Dora and Amir are trying to convert 1.05 metres into millimetres.

Dora: You can multiply 105 by 100 to convert it into centimetres, then multiply the product by 10 to convert it into millimetres.

Amir: You can just multiply 105 by 1,000!

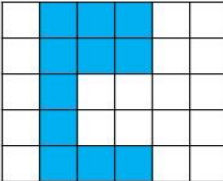
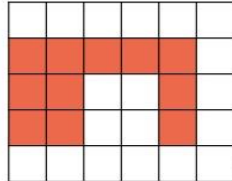


Flashback 4 Year 4 | Week 1 | Day 3

1) $7 \times 12 = 7 \times \square \times 2 = \square \times 2$

2) 12×8 $8 \times 10 + 8 \times 2$

3) Which shape has the smallest area?

↑ 1 cm









4) LXIII → +10 →

White Rose Maths

Place Value

Place Value is taught at the beginning of Year 5 and 6 as this knowledge underpins the rest of the curriculum.

Having a secure understanding of place value provides the essential number knowledge needed to complete calculations, including addition, subtraction, multiplication and division. It also lets us work with decimals, and understand how to round numbers.

Th	H	T	O
			
			

Times Tables

By the end of year 4 all children should be able to recall their times tables up to 12 x12 including the inverse.

Times Tables are the building blocks of many of the Year 5 and 6 mathematical concepts such as:

Factors and multiples

Fractions, Decimals, Percentages

Converting between F.D.P

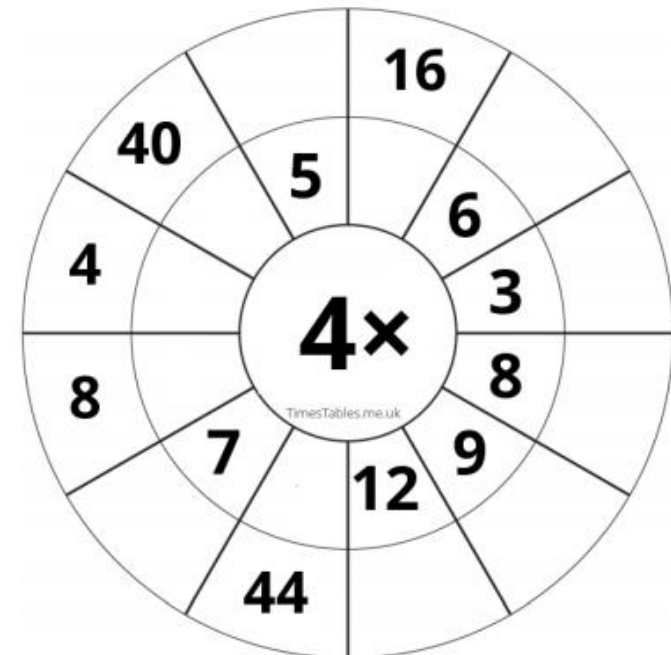
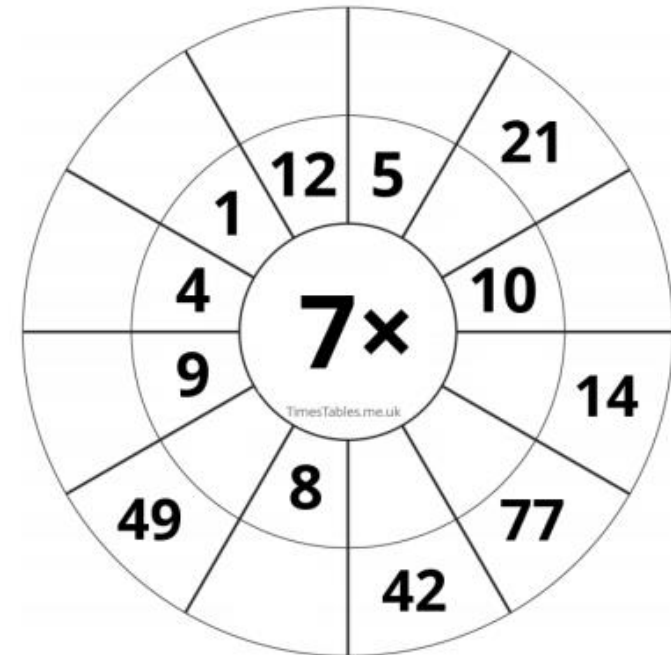
Ratio and Proportion

Scale Factor

Long Multiplication and Long Division

Order of Operations

Area, Perimeter and Volume



Addition

► Vocabulary

Add, addition, more, plus, increase
sum, total, altogether, how many
more to make...?

addend

The diagram illustrates the components of an addition equation. It features the equation $5 + 3 = 8$ in orange. Above the number 5 is the word "Addend" in blue, with a black arrow pointing from 5 to it. Above the number 3 is the word "Addend" in blue, with a black arrow pointing from 3 to it. Above the number 8 is the word "Sum" in blue, with a black arrow pointing from 8 to it. The plus sign and equals sign are in black.

$$\text{Addend} \quad \text{Addend} \quad \text{Sum}$$
$$5 + 3 = 8$$

Y6 Objectives

Numbers with more than 4 digits

Decimal numbers

Multi-step problems

Addition in Year 5 & 6

Vary the number of digits in the number.

$$247 + 14699 =$$

Add more than two numbers together.

$$1242 + 354 + 26489 =$$

Write = in different positions.

$$? = 6.9 + 14.32$$

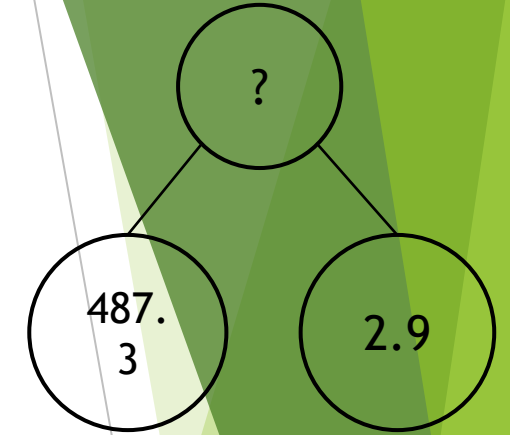
Balanced equations

$$648 + ? = 1036 + 58$$

Adding fractions

Children to use part whole and bar model to develop estimation and number sense.

?	
487.3	2.9



A is an odd number which rounds to 100,000 to the nearest thousand.

It has a digit total of 30.

B is an even number which rounds to 500,000 to the nearest hundred thousand.

It has a digit total of 10.

A and B are both multiples of 5 but end in different digits.

A	B
631,255	

Subtraction

- Vocabulary
- Subtract, subtraction, take (away), minus, decrease, how many are left/leftover? Difference, how many more/fewer is... than...? Subtrahend, minuend,

The diagram shows the subtraction equation $6 - 2 = 4$ enclosed in a light blue scalloped border. Below each symbol is a label with an arrow pointing to it: a teal arrow points from 'Minuend' to the number 6; an orange arrow points from 'Minus Sign' to the minus sign (-); a teal arrow points from 'Subtrahend' to the number 2; an orange arrow points from 'Equal Sign' to the equals sign (=); and a teal arrow points from 'Difference' to the number 4.

$$6 - 2 = 4$$

Minuend Minus Sign Subtrahend Equal Sign Difference

Y6 Objectives

- ❖ Numbers with more than 4 digits.
- ❖ Decimal numbers.
- ❖ Multi-step problems.

- Vary the number of digit in the number.

$$15.743 - 214.9 =$$

- Subtract more than two numbers.

$$143,524 - 12,345 - 1698 =$$

- Missing boxes.

$$\underline{\hspace{2cm}} - 200 = 23,837$$

- Balanced equations.

$$231.64 - ? = 254.2 - 0.58$$

- Subtracting fractions.

$$\frac{5}{6} - \frac{1}{4} =$$

Subtraction in Year 5 & 6

Children to use part whole and bar model to develop estimation and number sense.

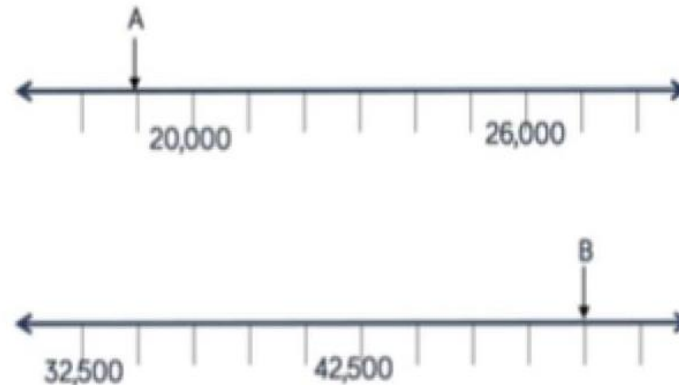
487.3	
?	2.9

Problem Solving

A four bedroom house cost £450,000.
A three bedroom house costs £199,000 less.
How much does the three bedroom house cost?
What method did you use to find the answer?

Multi-step problems

Find the difference between A and B



In Year 5 & 6 the children will tackle subtraction calculations relating to fractions, subtracting more than two numbers and by completing increasingly complex multi-step word problems.

Multiplication

- Vocabulary
- Lots of, groups of, multiply, multiplication, multiplied by, multiple of, product, factors

Factors

The diagram illustrates the components of a multiplication equation: $8 \times 11 = 88$. The number 8 is labeled as the **multiplicand** with a red arrow. The number 11 is labeled as the **multiplier** with a blue arrow. The result, 88, is labeled as the **product** with a green arrow.

$$\begin{array}{c} 8 \times 11 = 88 \\ \text{multiplicand} \quad \text{multiplier} \quad \text{product} \end{array}$$

Multiplication

Y6 Objectives

- ❖ Multiply multi-digit number up to 4 digit number x 2 digit number.
- ❖ Common factors, common multiples and prime number.
- ❖ Multiplication of decimal umbers by 1 digit number.
- ❖ Order of operations.
- ❖ Solve problems.

$$\begin{array}{r} 24 \\ \times 36 \\ \hline 144 \\ + 720 \\ \hline 864 \end{array}$$

Place holder

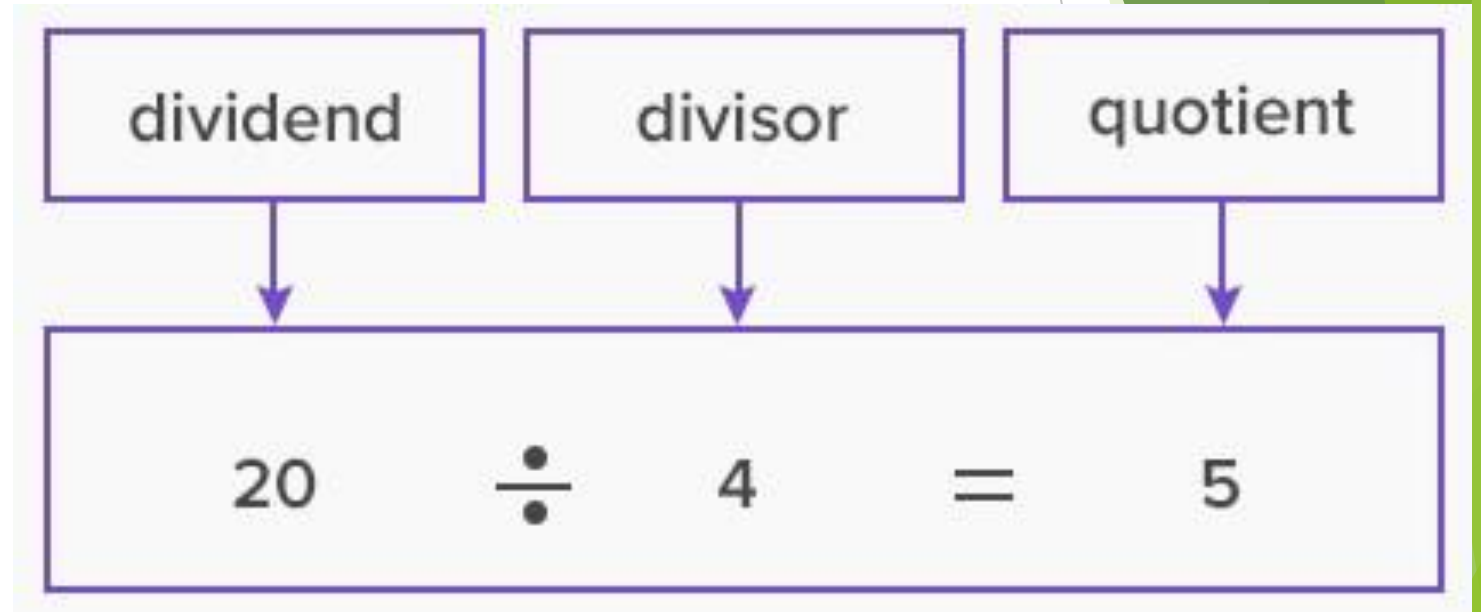
$$2 \times 4 = 8$$

Factors Product

$$\begin{array}{r} 0.23 \\ \times 9 \\ \hline 2.07 \end{array}$$

Division

- Vocabulary
- Halve, share, share equally, group in..., groups of, divide, division, dividend, divided by, divisible by, inverse, quotient



Division

Handwritten long division of 152 by 15 on grid paper. The quotient is 10 with a remainder of 2.

$15 \overline{) 152}$
 $\underline{150}$
 2

The steps shown are:

- $15 \times 10 = 150$ (written as 15×10 with an arrow pointing to 150)
- $152 - 150 = 2$ (written as 152 minus 150 equals 2)

The final result is 10 with a remainder of 2, indicated by a purple arrow pointing to the remainder 2.

KFC

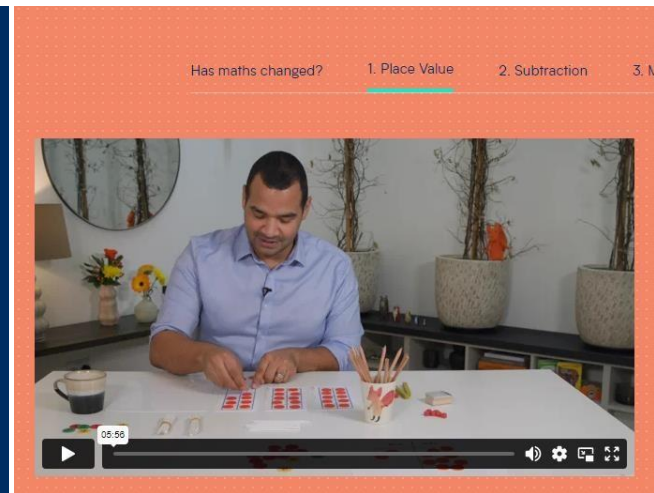
15 x 1 = 15

15 x 2 = 30

15 x 5 = 75

$$15 \times 10 = 150$$

Get the free workbooks



Supporting at Home

<https://whiteroseeducation.com/parent-pupil-resources/maths/free-downloads>



Schools & teachers ✓ Parents & pupils ✓ About us ✓ Shop

Enjoy maths together all year round

Here's another great way for your primary-aged child to enjoy maths at home. Our FREE workbooks for Years 1 – 6 give children and parents an extra tool for enjoying maths together.

DOWNLOAD NOW

DOWNLOAD FROM AMAZON

