



YEAR 3 MATHS WORKSHOP

Miss Hunter & Miss Robinson

AIMS OF THE SESSION:

- To explain the concrete, pictorial and abstract approaches in maths
- To share the Wood Fold Maths sequence
- To discuss the written calculation policy
- To offer suggestions and ideas to support your child at home.



CPA APPROACH:

Concrete, Pictorial and Abstract

Concrete:

Doing the maths



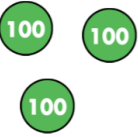
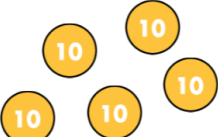
CPA APPROACH:

Concrete, Pictorial and Abstract

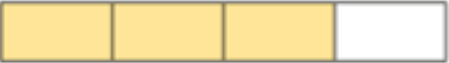
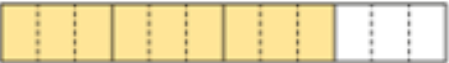
Pictorial:

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.

H	T	O
		

Use the bar models to find the equivalent fractions.

a)   $\frac{3}{4} = \boxed{}$

b)   $\frac{2}{5} = \boxed{}$

CPA APPROACH: Concrete, Pictorial and Abstract

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.

[illegible]

WOOD FOLD MATHS SEQUENCE:

- Flashback 4
 - Arithmetic
 - Times Tables
 - Get Ready
 - New Learning
 - Problem Solving & Reasoning
-

FLASHBACK 4:

Flashback 4 is a daily 4-question activity from White Rose Maths that serves as a starter to a lesson, reinforcing knowledge and skills from the previous lesson, week, and term to aid retention and promote a mastery-based approach to learning.

Flashback 4

Year 3 | Week 4 | Day 1

1) How much money is there altogether?



2) Calculate $96 \div 3$

3) Use $<$, $>$ or $=$ to compare.
 8×3 4×6

4) What is 10 more than 472?





ARITHMETIC:

Arithmetic covers the four foundational operations: addition, subtraction, multiplication and division.

Arithmetic is essential because it forms the foundational building blocks for all other forms of mathematics.

The teacher will share an example with the children and discuss different strategies to answer the question. The children will then complete a set of 4 questions each day and then on the 5th day they will complete a quiz.

Example	$34 + 12 =$
Q1	$45 + 13 =$
Q2	$22 + 16 =$
Q3	$67 + 21 =$
Q4	$80 + 15 =$
Recall Calculation	$9 \times 3 =$

TIMES TABLES:

Particular attention is placed on the children having security and fluency with times tables. Each child will be exposed to daily teaching of times tables in relation to the school's Times Tables Curriculum Overview, as well as a weekly test consisting of 25 multiplication and division questions.

By the end of Year 3 the children are expected to know the following times tables:

x2, x3, x4, x5, x6, x8, x10, x12

3

STAGE 5

BLOCK 1

STEP 5

Fluency Bee

The 3 times-table

Complete the calculations.

1

$5 \times 3 = \square$

2

$1 \times 3 = \square$

3

$\square = 6 \times 3$

4

$\square = 9 \times 3$

GET READY:

"Get Ready" in White Rose Maths refers to the initial part of a lesson where children are prompted to review and activate prior knowledge relevant to the new topic, ensuring they have the necessary foundation before moving on to the main part of the lesson.

1) 28, 29, 30, 31, ____ , ____ , ____

2) 46, 45, 44, 43, ____ , ____ , ____

3) 1 ten is equal to _ ones.
2 tens is equal to _____ ones.

4) Make 526 with place value counters.

NEW LEARNING:

The main body of the lesson will be taught by teachers, focusing on the individual learning elements of the curriculum.

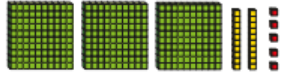
Learning in each lesson will be recorded in either Maths or White Rose books, with opportunities given for children to self and peer assess where possible.

Add and subtract 1s


1 How many candles are there in total?



2 Amir has made the number 325



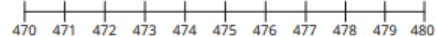
Amir subtracts 3 ones from his number.

a) Write a subtraction to show what Amir has done.

-

b) What is the answer to the subtraction?

3 Complete the number sentences.
Use the number line to help if you need to.



a) $475 + 1 =$ **b)** $475 - 1 =$
 $475 + 2 =$ $475 - 2 =$
 $475 + 3 =$ $475 - 3 =$
 $475 + 4 =$ $475 - 4 =$
 $475 + 5 =$ $475 - 5 =$

4 Here is a number.

H		T		O	
100	100	10	10	1	1
100	100	10	10	1	1
100	100	10	10	1	1

a) Add 4 ones to the number.
What is the answer?

b) Tom says if you subtract 2 ones from the number, you get 633.
What mistake has Tom made?

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PROBLEM SOLVING & REASONING:

To conclude the lesson, children will complete reasoning problems that consolidates their understanding from the lesson.

Tiny knows that $3 + 5 = 8$

I also know that
 $30 + 5 = 80$, because 30
is 10 times 3 and 80 is 10
times 8



Is Tiny correct?

Explain your answer.

Apply number bonds within 10



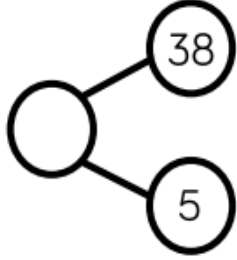
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ADDITION:

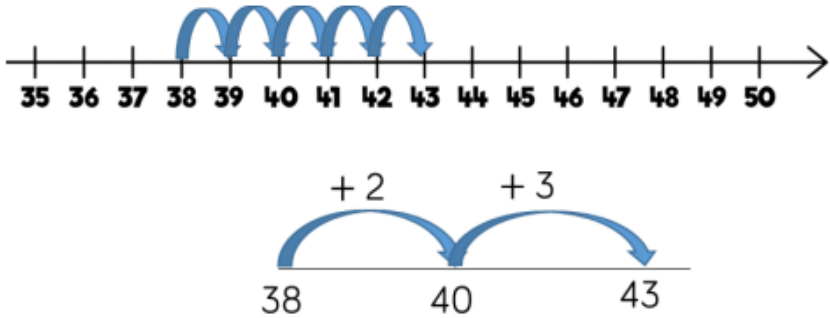
Vocabulary:

- Add
- Column addition
- Exchange
- Estimate
- More
- Plus
- Sum
- Total
- Altogether
- Increase
- Inverse

Skill: Add 1-digit and 2-digit numbers to 100
Year: 2/3

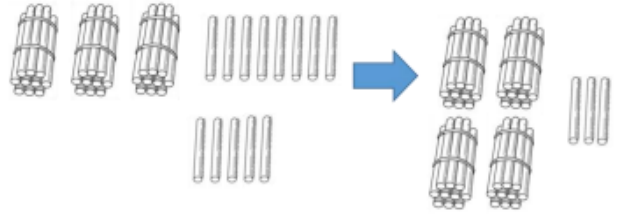


?



38

$38 + 5 = 43$



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

When adding single digits to a two-digit number, children should be encouraged to count on from the larger number.

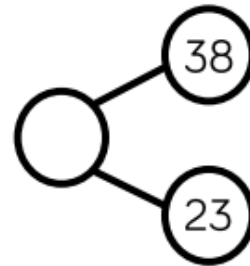
They should also apply their knowledge of number bonds to add more efficiently e.g. $8 + 5 = 13$ so $38 + 5 = 43$.

Hundred squares and straws can support children to find the number bond to 10.

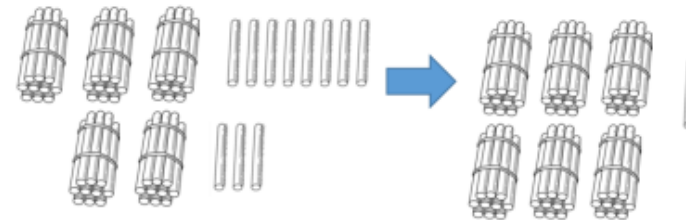
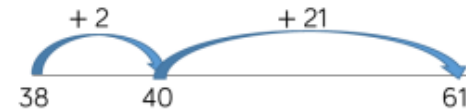
ADDITION:

Skill: Add two 2-digit numbers to 100

Year: 2/3



?	
38	23



$$38 + 23 = 61$$

Tens	Ones

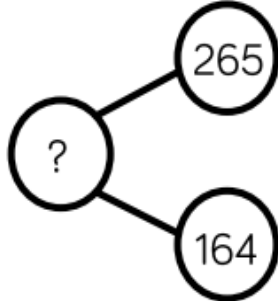
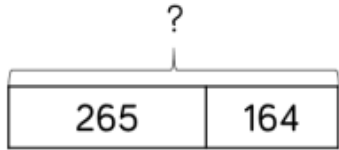
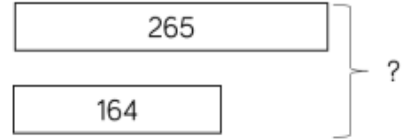
$$\begin{array}{r} 38 \\ + 23 \\ \hline 61 \\ 1 \end{array}$$

Tens	Ones

At this stage, encourage children to use the formal column method when calculating alongside straws, base 10 or place value counters. As numbers become larger, straws become less efficient.

Children can also use a blank number line to count on to find the total. Encourage them to jump to multiples of 10 to become more efficient.

ADDITION:

Skill: Add numbers with up to 3 digits	Year: 3																								
   $265 + 164 = 429$ <table border="1"><thead><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></tbody></table> $\begin{array}{r} 265 \\ + 164 \\ \hline 429 \\ 1 \end{array}$ <table border="1"><thead><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></tbody></table>	Hundreds	Tens	Ones										Hundreds	Tens	Ones										Base 10 and place value counters are the most effective manipulatives when adding numbers with up to 3 digits. Ensure children write out their calculation alongside any concrete resources so they can see the links to the written column method. Plain counters on a place value grid can also be used to support learning.
Hundreds	Tens	Ones																							
																									
																									
																									
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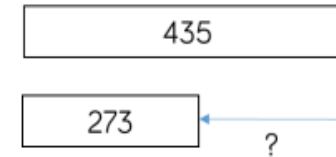
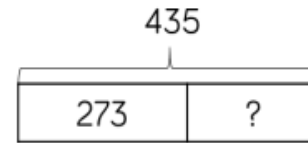
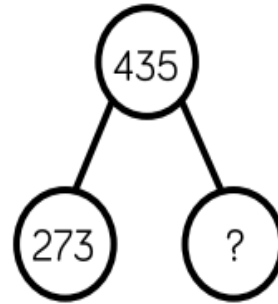
SUBTRACTION:

Vocabulary:

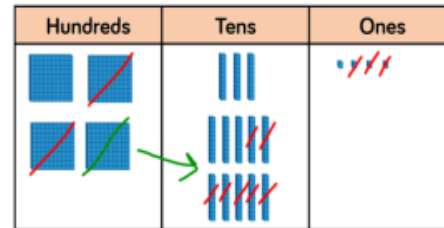
- Subtract
- Takeaway
- Minus
- Decrease
- Column subtraction
- Difference
- Fewer
- Less
- Left
- Leftover
- Exchange
- inverse

Skill: Subtract numbers with up to 3 digits

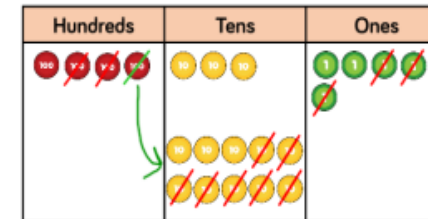
Year: 3



$$435 - 273 = 262$$



$$\begin{array}{r} 3 1 \\ 435 \\ - 273 \\ \hline 262 \end{array}$$



Base 10 and place value counters are the most effective manipulative when subtracting numbers with up to 3 digits.

Ensure children write out their calculation alongside any concrete resources so they can see the links to the written column method.

Plain counters on a place value grid can also be used to support learning.

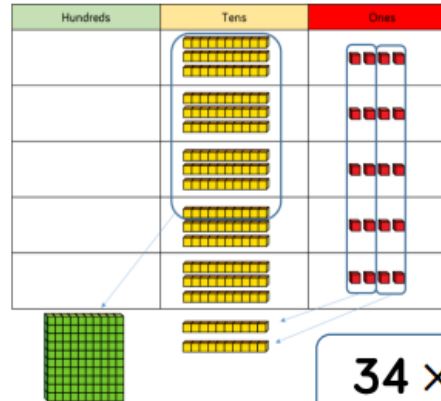
MULTIPLICATION:

Vocabulary:

- Multiply
- Groups of
- Multiplication
- Multiplied by
- Commutative
- Factors
- Grid method
- Inverse

Skill: Multiply 2-digit numbers by 1-digit numbers

Year: 3/4



	H	T	O	
		3	4	
x			5	
		2	0	(5 x 4)
+	1	5	0	(5 x 30)
	1	7	0	

$$34 \times 5 = 170$$

	H	T	O	
		3	4	
x			5	
	1	7	0	
	1	2		



Teachers may decide to first look at the expanded column method before moving on to the short multiplication method.

The place value counters should be used to support the understanding of the method rather than supporting the multiplication, as children should use times table knowledge.

MULTIPLICATION:

Eg. $23 \times 8 = 184$

X	20	3
8	160	24

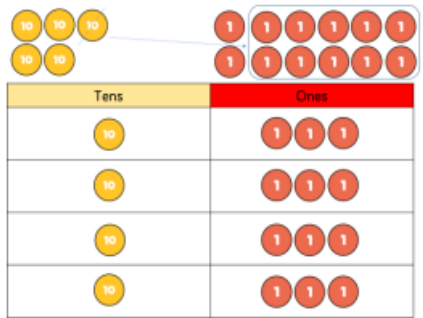
		1	6	0
	+		2	4
		1	8	4

Skill: Multiply 3-digit numbers by 1-digit numbers				Year: 3/4																			
	<table border="1"> <tr> <td></td> <td>H</td> <td>T</td> <td>O</td> </tr> <tr> <td></td> <td>2</td> <td>4</td> <td>5</td> </tr> <tr> <td>x</td> <td></td> <td></td> <td>4</td> </tr> <tr> <td></td> <td>9</td> <td>8</td> <td>0</td> </tr> <tr> <td></td> <td>1</td> <td>2</td> <td></td> </tr> </table>		H	T	O		2	4	5	x			4		9	8	0		1	2		When moving to 3-digit by 1-digit multiplication, encourage children to move towards the short, formal written method. Base 10 and place value counters continue to support the understanding of the written method. Limit the number of exchanges needed in the questions and move children away from resources when multiplying larger numbers.	
	H	T	O																				
	2	4	5																				
x			4																				
	9	8	0																				
	1	2																					
$245 \times 4 = 980$																							

DIVISION:

Vocabulary:

- Divide
- Division
- Divided by
- Share
- Groups of
- Exchange
- Partition
- Flexible partitioning
- Inverse

Skill: Divide 2-digits by 1-digit (sharing with exchange)	Year: 3/4														
 <table border="1" data-bbox="1001 399 1495 682"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr><td>10 rods</td><td>0 ones</td></tr> <tr><td>10 rods</td><td>0 ones</td></tr> <tr><td>10 rods</td><td>0 ones</td></tr> <tr><td>10 rods</td><td>0 ones</td></tr> </tbody> </table> 52 <table border="1"> <tr><td>?</td><td>?</td><td>?</td><td>?</td></tr> </table> 52 40 12 ÷ 4 ÷ 4 10 3 10 + 3 = 13 52 ÷ 4 = 13 	Tens	Ones	10 rods	0 ones	10 rods	0 ones	10 rods	0 ones	10 rods	0 ones	?	?	?	?	When dividing numbers involving an exchange, children can use Base 10 and place value counters to exchange one ten for ten ones. Children should start with the equipment outside the place value grid before sharing the tens and ones equally between the rows. Flexible partitioning in a part-whole model supports this method.
Tens	Ones														
10 rods	0 ones														
10 rods	0 ones														
10 rods	0 ones														
10 rods	0 ones														
?	?	?	?												

DIVISION:

Skill: Divide 2-digits by 1-digit (sharing with remainders)

Year: 3/4



Tens	Ones
	
	
	
	

53

13	13	13	13	1
----	----	----	----	---

53 ÷ 4 = 13 r1





Tens	Ones
	
	
	
	

When dividing numbers with remainders, children can use Base 10 and place value counters to exchange one ten for ten ones.

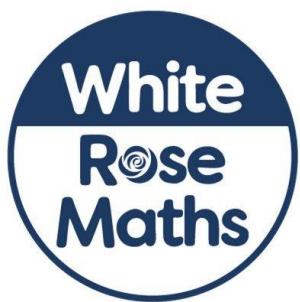
Starting with the equipment outside the place value grid will highlight remainders, as they will be left outside the grid once the equal groups have been made.

Flexible partitioning in a part-whole model supports this method.



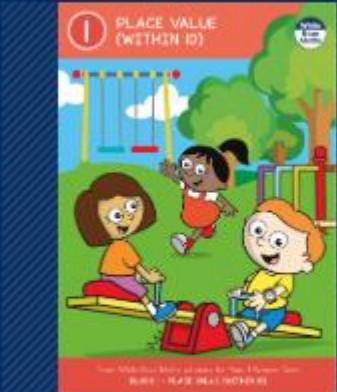
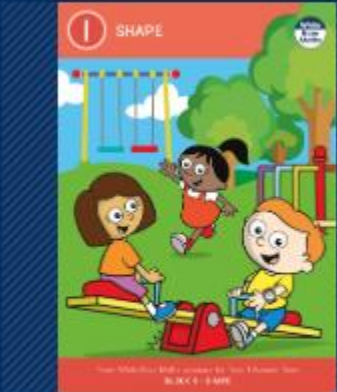
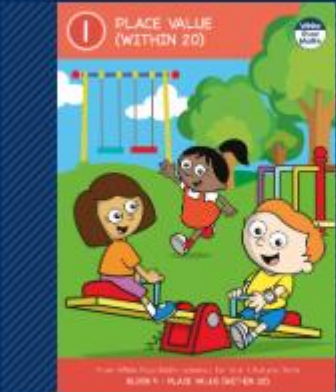
SUPPORTING AT HOME:





White Rose parent workbooks for Years 1 - 6 give children and parents an extra tool for enjoying maths together.

If you would like these to support any topics/units, please speak directly to your child's class teacher.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					
Autumn Block 1 Place value (within 10)	Autumn Block 2 Addition and subtraction (within 10)	Autumn Block 3 Shape	Autumn Block 4 Place value (within 20)	Spring Block 1 Addition and subtraction (within 20)	



QUESTIONS
