Low Ash Primary School

Calculation & Representation Policy

2023-2024



This policy has been largely adapted from the White Rose Maths Calculation Policy with some exceptions.

It is a working document and will be revised as necessary.

This calculation policy should be used alongside quality teaching which also involves pupils exploring and refining their own methods thus deepening their mathematical understanding. It is designed to be complimented by the CPA approach to mathematical learning.

More information about how best to use each representation can be found in the accompanying booklet.

Addition





# YEAR 1/2





#### YEAR 2/3



YEAR 2/3







# YEAR 5/6



YEAR 5/6



Subtraction







# YEAR 1/2









# YEAR 5/6



# YEAR 5/6



# Multiplication



# YEAR 1/2









5 + 5 + 5 + 5 = 20

 $4 \times 5 = 20$ 

 $5 \times 4 = 20$ 

Children represent multiplication as repeated addition in many different ways.

Year: 1/2

In Year 1, children use concrete and pictorial representations to solve problems. They are not expected to record multiplication formally.

In Year 2, children are introduced to the multiplication symbol.

#### YEAR 3/4





Drawing Factor Bugs the Low Ash way:

-The 'antennae are 1 and the number itself. Therefore, prime numbers have no legs!

-Composite numbers have their factor pairs written across the bug in 'pairs of legs. This draws attention to there being an even number of factors and that they feature in pairs.

-Square numbers have a 'sting' where the root is the sting. This is because they have an odd number of factors.



Skill: Multiply 4-d	ligit	nur	nbe	rs by	y 1-c	ligit numbers	Year: 5
Thousands 1000 100 100 100 100 100 100 1	Hundreds 00 100 00 100 00 100 00 100 00 100 00 100 00 100 00 100 00 100		© () () () () () () () () () () () () ()	Tens	5,47	I       I	When multiplying 4- digit numbers, place value counters are the best manipulative to use to support children in their understanding of the formal written method. If children are multiplying larger
		Th	н	т	0		struggling with their
		1	8	2	6		times tables,
	×				3		encourage the use of multiplication grids so
		5	4	7	8		children can focus on
		2		1			method.





# YEAR 5/6

Skill: Multiply	Year: 5/6											
	TTh	Th	Н	т	0		When multiplying 4- digits by 2-digits, children should be confident in using the formal written method.					
		2	7	3	9							
	×			2	8		If they are still					
	22	1 5	9 3	1 7	2		struggling with times tables, provide multiplication grids to support when they are focusing on the					
	5 1	4	7 1	8	0							
	7	6	6	9	2		use of the method.					
2,739 × 28 =	$2,739 \times 28 = 76,692$											





# YEAR 1/2



# YEAR 1/2





YEAR 3/4









Skill: Divide 4-digits by 1-dig	Year: 5	
1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +	4         2         6         6           2         8         5         13         12	Place value counters or plain counters can be used on a place value grid to support children to divide 4- digits by 1-digit. Children can also draw their own counters and group them through a more pictorial method. Children should be encouraged to move away from the concrete and pictorial when dividing numbers with multiple exchanges.

Skill: Divide multi digits by	Skill: Divide multi digits by 2-digits (short division)											
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		432	÷ 12	2 = 3	6	When children begin to divide up to 4- digits by 2-digits, written methods become the most accurate as concrete and pictorial representations become less effective. Children can write out multiples to support						
		0	4	8	9	larger remainders.						
7,335 ÷ 15 = 489	<b>7,335</b> ÷ <b>15</b> = <b>489</b> $_{15}$ $_7$ $_7$ $_3$ $_{13}$ $_3$ $_{13}$ $_5$											
15 30 45 60 75	30 45 60 75 90 105 120 135 150											

	S	Year: 6											
1 2 - -	0 4 3	3 3 6 7 7	6 2 2 2 0	(×30) (×6)	$12 \times 1 = 12$ $12 \times 2 = 24$ $12 \times 3 = 36$ $12 \times 4 = 48$ $12 \times 5 = 60$ $12 \times 6 = 72$ $12 \times 7 = 84$ $12 \times 8 = 96$ $12 \times 7 = 108$ $12 \times 10 = 120$			13	2	÷	12 =	= <b>36</b>	Children can also divide by 2-digit numbers using long division. Children can write out multiples to support their calculations with larger remainders.
							0	4	8	9		$1 \times 15 = 15$	
						15	7	3	3	5		$2 \times 15 = 30$	Children will also
						-	- 6 0 0 0 (×400 3 × 15	$3 \times 15 = 45$	solve problems with				
7,	33	5 ÷	- 1	5 =	489		1	3	3	5		$3 \times 15 = 40$	ouotient can be
						-	1	2	0	0	(×80)	$4 \times 15 = 00$	rounded as
								1	3	5		$5 \times 15 = 75$	
						-		1	3	5	(×9)	$10 \times 15 = 150$	
										0			

Skill: Divide multi dig	Year: 6									
$372 \div 15 = 24 r12$		5 3	3 3 72	2 7 0 7 6 1	4 2 0 2	r 5	1	2	$1 \times 15 = 15$ $2 \times 15 = 30$ $3 \times 15 = 45$ $4 \times 15 = 60$ $5 \times 15 = 75$ $10 \times 15 = 150$ $4 \frac{4}{5}$	When a remainder is left at the end of a calculation, children can either leave it as a remainder or convert it to a fraction. This will depend on the context of the question. Children can also answer questions where the quotient needs to be rounded according to the context.