

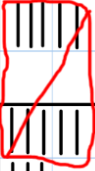






**Lanivet School**  
**Calculation**  
**Written Method**  
**Policy**  
**September 2019**

# Addition - Key Stage 2

## Year 3

$$156 + 285 = 441$$

H	T	O
<input type="checkbox"/>		
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4	4	1

Show exchanging using manipulatives such as base 10 or place value counters. Show pictorially in a place value chart to support addition column method

Exchange ten 1s' for one 10

	H	T	O
	1	5	6
+	2	8	5
	4	4	1
	1	1	

Progress to formal column method for adding three digit numbers

## Year 4

$$2456 + 3728 = 6184$$

	Th	H	T	O
	2	4	5	6
+	3	7	2	8
	6	1	8	4
	1		1	

Following on from year 3 methods to adding 4 digit numbers with exchanging.

# Addition - Key Stage 2

Year 5 and 6

Formal column method to add more than 4 digits.

$$29456 + 34728 = 64184$$

	Tth	Th	H	T	O
	2	9	4	5	6
+	3	4	7	2	8
	6	4	1	8	4
	↑	↑		↑	

Year 5 and 6 (adding decimals)

Add decimals upto 3 decimal places varying in decimal places

$$42.956 + 13.785 = 56.741$$

	T	O	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
	4	2	9	5	6
+	1	3	7	8	5
	5	6	7	4	1
		↑	↑	↑	

$$42.95 + 3.785 = 46.735$$

	T	O	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
	4	2	9	5	0
+		3	7	8	5
	4	6	7	3	5
		↑	↑		

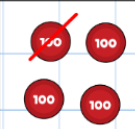


Ensure they place the digits in the correct place value columns

Place 0 in decimal columns so they understand it has a value of 0 not nothing.

# Subtraction - Key Stage 2

Year 3

$$463 - 127 = 336$$

H	T	O
		
3	3	6

Use manipulatives such as place value counters and base 10. Show pictorially using a place value chart to support understanding of exchanging in the formal column method.

Exchange one 10 for ten 1s'.

$$463 - 127 = 336$$

	H	T	O
	4	<del>6</del> <sup>5</sup>	<del>3</del> <sup>1</sup>
-	1	2	7
	3	3	6

Formal column method to subtract three digit numbers with exchanging.

Year 4

$$7483 - 2736 = 4747$$

	Th	H	T	O
	<del>7</del> <sup>6</sup>	<del>4</del> <sup>1</sup>	<del>8</del> <sup>7</sup>	<del>3</del> <sup>1</sup>
+	2	7	3	6
	4	7	4	7

Following on from year 3 methods to subtract 4 digit numbers with exchanging.

# Subtraction - Key Stage 2

## Year 5 and 6

Use manipulatives and model using place value charts with base 10 and place value counters to support where needed.

Formal column method to subtract more than 4 digits with exchanging.

$$78426 - 34752 = 43684$$

	Tth	Th	H	T	O
	7	<del>8</del> <sup>7</sup>	<del>4</del> <sup>3</sup>	2	6
-	3	4	7	5	2
	4	3	6	8	4

## Year 5 and 6 (Subtracting decimals)

Subtract decimals with different amount of decimal places

$$42.956 - 13.785 = 29.171$$

	T	O	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
	<del>4</del> <sup>3</sup>	2	<del>9</del> <sup>8</sup>	5	6
-	1	3	7	8	5
	2	9	1	7	1

$$42.95 - 3.715 = 39.235$$

	T	O	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
	<del>4</del> <sup>3</sup>	2	9	<del>5</del> <sup>4</sup>	<del>0</del> <sup>1</sup>
-		3	7	1	5
	3	9	2	3	5

Ensure they place the digits in the correct place value columns

Place 0 in decimal columns so they understand it has a value of 0 not nothing.

# Division - Key Stage 2

## Year 3

To divide two digits by a single digit number

$$69 \div 3 = 23$$

Use place value counters and share them equally into a place value chart, which is split into equal groups.

Tens	Ones
10 10	1 1 1
10 10	1 1 1
10 10	1 1 1

$$42 \div 3 =$$



Recognise that you need to exchange one 10 for ten 1s'

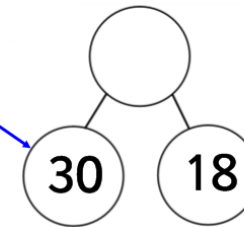
Tens	Ones
10	1 1 1 1 1
10	1 1 1 1 1
10	1 1 1 1 1

## Year 3

Progress to partitioning using a part-whole model and divide each part by the divisor.

$$48 \div 3 = 16$$

Use multiple of 10 facts of divisor.  
e.g:  $10 \times 3 = 30$



$$30 \div 3 = 10$$

$$18 \div 3 = 6$$

$$10 + 6 = 16$$

$$48 \div 3 = 16$$

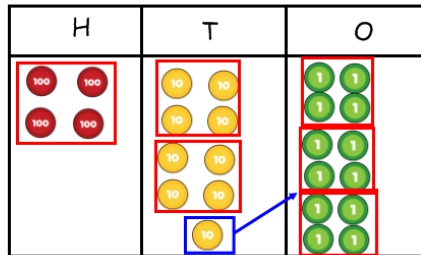
# Division - Key Stage 2

## Year 4

Continue with year 3 division method for dividing two digits by a single digit, with remainders, until confident.

Progress to the short division method, using place value counters to support where needed.

$$492 \div 4 =$$



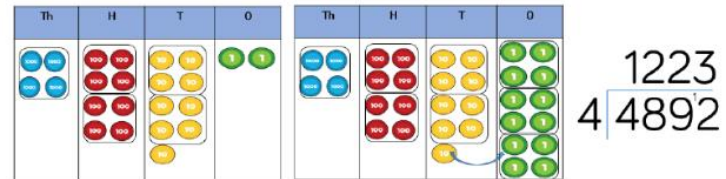
$$4 \overline{) 492}$$

Exchange one 10 for ten 1s'

## Year 5

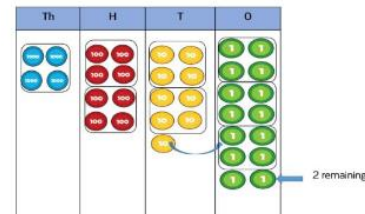
Use place value counters and a place value chart to support understanding of the short division method where needed.

$$4892 \div 4 = 1223$$



$$4894 \div 4 = 1223$$

Dividing with remainders



# Division - Key Stage 2

## Year 6

Use the same short method for division as in year 5. Also use the short division method if dividing by 11 and 12.

Long division method

$3744 \div 16 = 234$				<b>Multiples to Help</b> $2 \times 16 = 32$ $3 \times 16 = 48$ $4 \times 16 = 64$ $5 \times 16 = 80$
	2	3	4	
16	3	7	4 4	
-	3	2	↓	
		5	4	
-		4	8	
			6 4	
		-	6 4	
			0	

## Year 5 and 6 (dividing with remainders and decimals)

Remainders can be shown as a decimal or a quotient

$637 \div 4 = 159 \frac{1}{4}$

1	5	9	$\frac{1}{4}$
4	6	23	37

Write the remainder over the divisor to form a fraction remainder

$637 \div 4 = 159.25$

1	5	9	.	2	5
4	6	23	37	10	20

Place the remainder into the tenths column. Continue this into the next decimal place value (maximum of 3 decimal places)

Put the decimal point into the calculation and answer.

$826.4 \div 5 = 165.28$


1	6	5	.	2	8
5	8	2	6	4	0

Continue remainders into the next decimal place column (maximum of 3 decimal places).



# Multiplication - Key Stage 2

## Year 3

Tens	Ones
	
	
	
	

$$21 \times 4 = 84$$

$$4 \times 1 = 4$$

$$4 \times 20 = 80$$

$$80 + 4 = 84$$

Use a place value chart and manipulatives to model multiplying

Partition into tens and ones then multiply, adding up the products.

Progress to partitioning, using a grid method

$$42 \times 3 = 126$$

X	40	2
3	120	6













$$120 + 6 = 126$$

## Year 4

Support understanding using manipulatives in a place value chart.

Use a grid method to multiply three digit by two digit numbers.

$$245 \times 4 = 980$$

H	T	O
		
		
		
		

x	200	40	5
4	800	160	20
	800 + 160 + 20 = 980		

$$245 \times 4 = 980$$

	H	T	O
	2	4	5
x			4
	9	8	0
	1	2	

Progress to using formal column method for multiplication

# Multiplication - Key Stage 2

## Year 5 and Year 6

Short multiplication using the same grid and formal method as year 4 using four digits multiplied by one digit.

Long multiplication

132 x 4 = 3168						
Th	H	T	O			
	1	3	2			
x		2	4			
	5	2	8	(132 x 4)		
		1				
+	2	6	4	0	(132 x 20)	
	3	1	6	8		
	1					

Place a 0 in the ones column to show multiplying by 10 (10 times bigger)

Progress to removing brackets from the expanded method.

## Year 5 and Year 6

For year 6 carry out the same short and long multiplication method as year 5 (Progress to removing brackets from expanded method)

Multiplying one digit numbers by decimals up to two decimal places.

23.48 x 6 = 141.88					
Th	H	T	O	$\frac{1}{10}$	$\frac{1}{100}$
		2	3	4	8
x					6
	1	4	1	8	8
		2	2	4	

Ensure children recognise the multiplier as 6 ones

Ensure the decimal point is in the answer box