



**Garfield Primary**  
Today's children. tomorrow's future.

## Garfield School Calculation Policy

- Garfield School follows the Abacus Maths Scheme.
- For Reception and KS1 there is no expectation that children use any formal written methods.
- Informal mental maths methods, the use of apparatus and jottings suitable for these year groups are set out in the Abacus documents that are attached to this policy (***ABACUS KS1 calculation strategies, ABACUS Reception calculation strategies***).
- Formal written methods are introduced at year 3.
- The methods outlined for the earlier years in KS2 (years 3 and 4) are more concrete, i.e. they break down the calculations so that the children understand how they are manipulating the numbers to calculate the answer.
- The children move on to more formal calculations in years 5 and 6.
- The policy uses a combination of ABACUS methods and strategies taken from the Enfield Calculation policy.

# Garfield Calculation Policy - Year 3

## **Expanded column addition**

$$\begin{array}{r}
 600 \quad 70 \quad 4 \\
 + \quad \quad 80 \quad 7 \\
 \hline
 600 \quad 150 \quad 11 = 761
 \end{array}$$

## **Compact column addition**

$  \begin{array}{r}  \text{TO} \\  23 \\  + 42 \\  \hline  65  \end{array}  $	$  \begin{array}{r}  \text{HTO} \\  315 \\  + 624 \\  \hline  939  \end{array}  $
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$  \begin{array}{r}  \text{TO} \\  47 \\  + 25 \\  \hline  72 \\  1  \end{array}  $	$  \begin{array}{r}  \text{HTO} \\  237 \\  + 516 \\  \hline  753 \\  1  \end{array}  $
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## **Counting up to subtract**

$144 - 68 = 76$   
 $2 + 30 + 44 = 76$

## **Multiplication X**

### **Grid Multiplication**

$162 \times 5$				
x	100	60	2	
5	500	300	10	= 810

## **Division ÷**

### **Dividing by sharing**

$15 \div 3 = 5$        $5 \times 3 = 15$

### **Division by counting on**

$28 \div 7 = 4$        $4 \times 7 = 28$

0	7	14	21	28
1	1	1	1	1

### $20 \div 6 = 3 \text{ r.} 2$      $3 \times 6 + 2 = 20$

0	6	12	18	20
1	1	1	1	R2

### $84 \div 7 = 12$      $12 \times 7 = 84$

0	70	77	84
10	1	1	

$10 + 1 + 1 = 12$

# Garfield Calculation Policy - Year 4

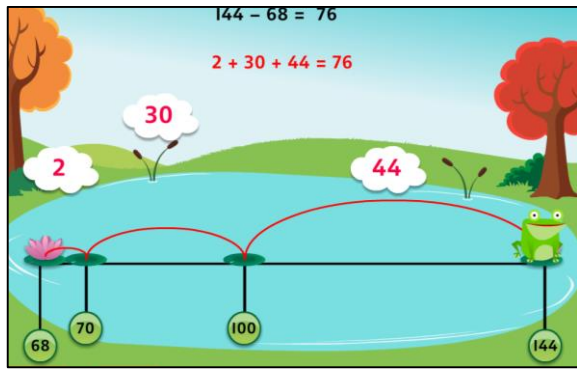
## Compact column addition

$$\begin{array}{r} \text{HTO} \\ 371 \\ + 485 \\ \hline 856 \\ 1 \end{array}$$

$\begin{array}{r} \text{HTO} \\ 376 \\ + 485 \\ \hline 861 \\ 11 \end{array}$	$\begin{array}{r} \text{Th HTO} \\ 2388 \\ + 1124 \\ \hline 3512 \\ 11 \end{array}$
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+

## Counting up to subtract



## Expanded column subtraction

$$753 - 26 = 727$$

$$\begin{array}{r} 40 \text{ } 13 \\ 700 \text{ } 50 \text{ } 3 \\ - 20 \text{ } 6 \\ \hline 700 \text{ } 20 \text{ } 7 = 727 \end{array}$$

## Compact column subtraction

	100s	10s	1s
	6	12	
	<del>7</del>	<del>2</del>	6
-	2	4	3
	4	8	3

## Multiplication

### Ladder Method

$$\begin{array}{r} 423 \times 6 \\ \times \quad 6 \\ \hline 2400 \\ 120 \\ 18 \\ \hline 2538 \end{array}$$

X

### Grid Multiplication

26 x 14			Options
x	20	6	
10	200	60	= 260
4	80	24	= 104
Total =			364

## Division

$$20 \div 6 = 3 \text{ r.} 2 \quad 3 \times 6 + 2 = 20$$

$$\begin{array}{r} 0 \text{ --- } 6 \text{ --- } 12 \text{ --- } 18 \text{ --- } 20 \\ \underline{1} \quad \underline{1} \quad \underline{1} \quad \text{R}2 \end{array}$$

$$84 \div 7 = 12 \quad 12 \times 7 = 84$$

$$\begin{array}{r} 0 \text{ --- } 70 \text{ --- } 77 \text{ --- } 84 \\ \underline{10} \quad \underline{1} \quad \underline{1} \end{array}$$

$$10 + 1 + 1 = 12$$

### Division by counting on

$$28 \div 7 = 4 \quad 4 \times 7 = 28$$

$$\begin{array}{r} 0 \text{ --- } 7 \text{ --- } 14 \text{ --- } 21 \text{ --- } 28 \\ \underline{1} \quad \underline{1} \quad \underline{1} \quad \underline{1} \end{array}$$

### Short division (bus stop method)

$$252 \div 4 = 63$$

$$\begin{array}{r} 4 \overline{) 252} \\ \underline{063} \end{array}$$

How many 4s in 2? = 0 r.2  
 How many 4s in 25? = 6 r.1  
 Place the answer at the top and the remainder in front of the next number.  
 How many 4s in 12? = 3  
 Place the answer at the top.

# Garfield Calculation Policy - Year 5

## Compact column addition

+

$$\begin{array}{r} 3 \ 2 \ 8 \ 7 \ 9 \\ + 3 \ 5 \ 9 \ 8 \ 7 \\ \hline 6 \ 8 \ 8 \ 6 \ 6 \end{array}$$

Addition of money and decimals.

$$\begin{array}{r} \text{£} 23.59 \\ + \text{£} 7.55 \\ \hline \text{£} 31.14 \end{array}$$

$$\begin{array}{r} 19.01 \\ 3.65 \\ + 0.70 \\ \hline 23.36 \end{array}$$

## Expanded column subtraction

-

$$753 - 26 = 727$$

$$\begin{array}{r} 700 \ 50 \ 3 \\ - 20 \ 6 \\ \hline 700 \ 20 \ 7 = 727 \end{array}$$

## Compact column subtraction

$$726 - 243 = 483$$

	100s	10s	1s
	6	12	
	<del>7</del>	<del>2</del>	6
-	2	4	3
	4	8	3

## Multiplication

X

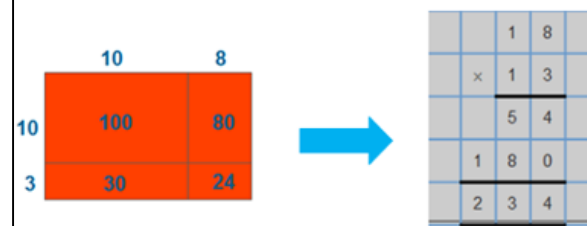
### Short Multiplication

No carrying	Extra digit	Carrying	Zeros
TO 32 x 3 <hr/> 96	HTO 51 x 2 <hr/> 102	HTO 38 x 7 <hr/> 266	HTO 202 x 4 <hr/> 808

### Long Multiplication

$$13 \times 18 = 234$$

Use Grid Method to introduce long multiplication.



## Division

÷

### Short division (bus stop method)

$$252 \div 4 =$$

$$\begin{array}{r} 63 \\ 4 \overline{) 252} \\ \underline{24} \phantom{0} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

How many 4s in 2? = 0 r.2

How many 4s in 25? = 6 r.1

Place the answer at the top and the remainder in front of the next number.

How many 4s in 12? = 3

Place the answer at the top.

$$\begin{array}{r} 178 \\ 4 \overline{) 712} \\ \underline{4} \phantom{00} \\ 31 \phantom{0} \\ \underline{28} \phantom{0} \\ 32 \\ \underline{32} \\ 0 \end{array}$$

How many 4s in 7? = 1 r.3

How many 4s in 31? = 7 r.3

How many 4s in 32? = 8

Place the answers at the top.

# Garfield Calculation Policy - Year 6

## Compact column addition +

23	361
9	080
59	770
+	1300
<hr/>	
93	511
2	1
	2

81	059
	3668
	15301
+	20551
<hr/>	
120	579
1	1
	1

## Compact column subtraction -

1000s	100s	10s	1s
	12	13	
7	<del>2</del>	<del>3</del>	12
<del>8</del>	<del>3</del>	<del>4</del>	<del>2</del>
<hr/>			
4	7	8	6
<hr/>			
3	5	5	6

## Multiplication X

### Short and long Multiplication

Continue to practise short multiplication.

3652			
x			
8			
<hr/>			
29216			
54			

Continue to practise long multiplication.

1234			
x			
16			
<hr/>			
7404			
12340			
<hr/>			
19744			

## Division ÷

### Short division (bus stop method)

178	
4	
<hr/>	
7	132

How many 4s in 7? = 1 r.3  
 How many 4s in 31? = 7 r.3  
 How many 4s in 32? = 8  
 Place the answers at the top.

### Long division

26	
13	
<hr/>	
338	
26	
<hr/>	
078	