



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

Garfield School Calculation Policy

Ratified by Governors: Autumn Term 2015

- 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

TO	HTO
23	315
+ 42	+ 624
<u>65</u>	<u>939</u>

TO	HTO
47	237
+ 25	+ 516
<u>72</u>	<u>753</u>
1	1

Counting up to subtract

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

Multiplication X

Grid Multiplication

162 x 5				
x	100	60	2	
5	500	300	10	= 810

Division ÷

Dividing by sharing

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



Division by counting on

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

0	7	14	21	28
<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	

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

0	6	12	18	20
<u>1</u>	<u>1</u>	<u>1</u>	<u>R2</u>	

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

0	70	77	84
<u>10</u>	<u>1</u>	<u>1</u>	

$10 + 1 + 1 = 12$

Garfield Calculation Policy - Year 4

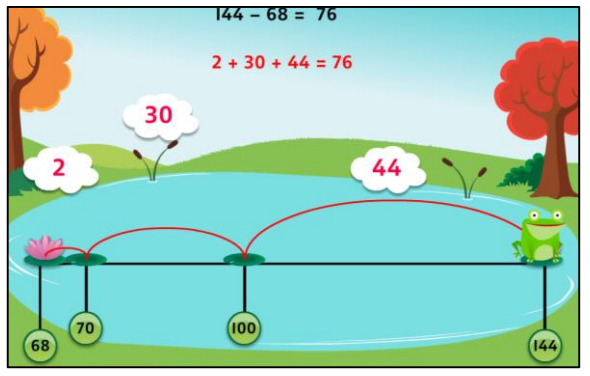
Compact column addition

+

			HTO
		3	71
+		4	85
		8	56
		1	

	HTO		Th HTO
	3	7	6
+	4	8	5
	8	6	1
	1	1	

Counting up to subtract



Expanded column subtraction

$753 - 26 = 727$

		40	13
	700	50	3
-		20	6
	700	20	7
			= 727

Compact column subtraction

	100s	10s	1s
	6	12	
	7	2	6
-	2	4	3
	4	8	3

Multiplication

Ladder Method

X

				423	×	6
				4	2	3
						6
				2	4	0
				1	2	0
					1	8
				2	5	3
						8

Grid Multiplication

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

Division

÷

Short division (bus stop method)

$252 \div 4 =$

		0	6	3
		<hr/>		
4		2	5	2

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 +

$$\begin{array}{r} 3 \text{ } 2879 \\ + 3 \text{ } 5987 \\ \hline 6 \text{ } 8866 \end{array}$$

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 -

$$753 - 26 = 727$$

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

Compact column subtraction

$$726 - 243 = 483$$

	100s	10s	1s
	6	12	
	7	2	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.

	10	8	
10	100	80	→
3	30	24	

		1	8
x		1	3
		5	4
		1	8
		2	3
			4

Division ÷

Short division (bus stop method)

$$252 \div 4 =$$

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

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.

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

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 +

$$\begin{array}{r} 23.361 \\ 9.080 \\ 59.770 \\ + 1.300 \\ \hline 93.511 \\ \begin{array}{l} 2 \quad 1 \quad 2 \end{array} \end{array}$$

$$\begin{array}{r} 81,059 \\ 3,668 \\ 15,301 \\ + 20,551 \\ \hline 120,579 \\ \begin{array}{l} 1 \quad 1 \quad 1 \quad 1 \end{array} \end{array}$$

Compact column subtraction -

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

Multiplication X

Short and long Multiplication

Continue to practise short multiplication.

$$\begin{array}{r} 3652 \\ \times \quad 8 \\ \hline 29216 \\ \begin{array}{l} 5 \quad 4 \quad 1 \end{array} \end{array}$$

Continue to practise long multiplication.

$$\begin{array}{r} 1234 \\ \times \quad 16 \\ \hline 7404 \\ 12340 \\ \hline 19744 \end{array}$$

Division ÷

Short division (bus stop method)

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

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.

Long division

$$\begin{array}{r} 26 \\ 13 \overline{) 338} \\ \underline{26} \\ 078 \end{array}$$