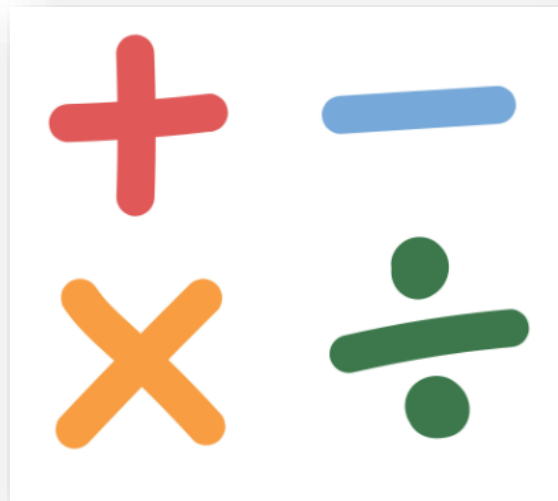




Weston Favell CE Primary School

# Calculation Guide

## Year 6



NORTHAMPTON  
PRIMARY ACADEMY TRUST

This calculation guide will demonstrate the written calculation strategies that are covered for addition, subtraction, multiplication and division.

Practising these will help in preparation for secondary school and beyond.

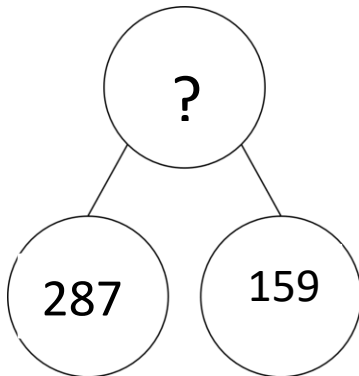
If you have any questions or need any further support, please ask your class teacher and they will be happy to help you.

# Addition

$$8 + 9 = 17$$

addend + addend = sum

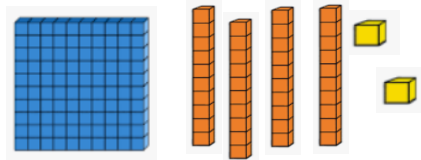
Example question:  $287 + 159$



A part/part whole  
model

?	
287	159

A bar model



Exploring using Base 10 Equipment

Column  
Method

$$\begin{array}{r} 287 \\ + 159 \\ \hline 446 \\ \hline 11 \end{array}$$

# Subtraction

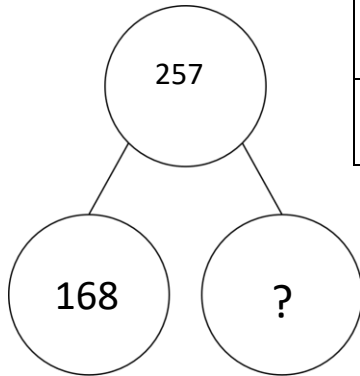
## (Finding the Difference)

$$17 - 9 = 8$$

minuend - subtrahend = difference

Example questions:

257 – 168 (exchange required)



A part/part whole model

257	
168	?

257	
168	?

Bar models

Column Method  
with Exchange

$$\begin{array}{r}
 \overset{1}{\cancel{2}} \overset{14}{5} \overset{17}{7} \\
 - 168 \\
 \hline
 089
 \end{array}$$

In this example, we have had to make two exchanges to partition the numbers so we can subtract with ease.

For further information on how we exchange, have a look at the Year 4 booklet.



# Multiplication

$$12 \times 7 = 84$$

factor  $\times$  factor = product

Example question:  $57 \times 17 = 969$

## The Grid Method

x	50	7
10	(50 x 10) 500	(7 x 10) 70
7	(50 x 7) 350	(7 x 7) 49

= 570

= 399

$$\begin{array}{r} 570 \\ + 399 \\ \hline 969 \\ \hline 1 \end{array}$$

## Long Multiplication

$$\begin{array}{r} 57 \\ \times 17 \\ \hline 399 \quad (57 \times 7) \\ 570 \quad (57 \times 10) \\ \hline 969 \\ \hline 1 \end{array}$$



# Division

$$12 \div 4 = 3$$

$$\text{dividend} \div \text{divisor} = \text{quotient}$$

Example questions:

$$324 \div 6 = 54 \text{ (1-digit divisor)}$$

$$334 \div 13 \text{ (2-digit divisor)}$$

$$235 \div 13 = 18.076 \text{ (Quotient up to 3 decimal places)}$$

## Short Division

$$\begin{array}{r} 054 \\ 6 \overline{) 324} \\ \underline{324} \\ 0 \end{array}$$

$$\begin{array}{r} 018 \\ 13 \overline{) 234} \\ \underline{234} \\ 0 \end{array}$$

Annotations to support:

13  
26  
 $10 \times 13 = 130$   
 $9 \times 13 = 117$   
 $8 \times 13 = 104$

$$\begin{array}{r} 018.076 \\ 13 \overline{) 235.000} \\ \underline{235} \\ 000 \end{array}$$

Annotations to support:

$7 \times 13 = 91$   
 $6 \times 13 = 78$



# Times Tables

In Year Six, children need to retain and apply all of their time tables facts up to  $12 \times 12$  alongside their corresponding division facts e.g.  $3 \times 2 = 6$  so  $6 \div 2 = 3$ .

Children need to learn the times tables highlighted in the table below in order:

- $0 \times 2 = 0$
- $1 \times 2 = 2$
- $2 \times 2 = 4$  etc.

Then they need to be able to answer in any order e.g.  $4 \times 2 = 8$ ,  $12 \times 2 = 24$ ,  $2 \times 2 = 4$

Focus on the commutativity of the times table when practising at home. If I know  $3 \times 5 = 15$ , I also know  $5 \times 3$  is 15!

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1x1											
2	2x1	2x2						No new facts in Year 5				
3	3x1	3x2	3x3									
4	4x1	4x2	4x3	4x4								
5	5x1	5x2	5x3	5x4	5x5							
6	6x1	6x2	6x3	6x4	6x5	6x6						
7	7x1	7x2	7x3	7x4	7x5	7x6	7x7					
8	8x1	8x2	8x3	8x4	8x5	8x6	8x7	8x8				
9	9x1	9x2	9x3	9x4	9x5	9x6	9x7	9x8	9x9			
10	10x1	10x2	10x3	10x4	10x5	10x6	10x7	10x8	10x9	10x10		
11	11x1	11x2	11x3	11x4	11x5	11x6	11x7	11x8	11x9	11x10	11x11	
12	12x1	12x2	12x3	12x4	12x5	12x6	12x7	12x8	12x9	12x10	12x11	12x12