

**The Devonshire Hill PRIMARY SCHOOL – CALCULATION POLICY -YEAR 4**

Where needed and when introducing new concepts children will have access to a wide range of practical resources, focussing on numicon, number squares and horizontal number lines to help them work out calculations and word problems.

**ADDITION**

**Partition into tens and units and recombine**  
 Either partition both numbers and recombine or partition the second number only:  
 e.g.  $367 + 185 = 431$   
 $300 + 60 + 7$   
 $100 + 80 + 5$   
 $400 + 140 + 12 =$

Eg:  $55 + 37 = 55 + 30 + 7$   
 $= 85 + 7$   
 $= 92$

**Adjusting**  
 eg:  $63 + 29$  is the same as  $63 + 30 - 1$

**extended column method**

$$\begin{array}{r} 367 \\ +185 \\ \hline 12 \\ 140 \\ \hline 400 \\ 552 \end{array}$$

Extend to decimals in the context of money. (vertically)  
 e.g.  $£2.50 + £1.75 = £4.25$

$$\begin{array}{r} £2.50 \\ + £1.75 \\ \hline £4.25 \end{array}$$

**Number line**  
 Children go to next multiple of 10 or 100, or add 10's. Partition skills can also be used.

$$\begin{array}{ccccccc} 326 & & & & & & \\ \hline & +40 & & +4 & & & +4 \\ \hline 326 & 366 & & 370 & & & 374 \end{array}$$

**SUBTRACTION**

**Number line**

$$\begin{array}{r} 754 - 86 = 668 \\ 600 \\ + 54 \\ \hline 14 \\ 668 \end{array}$$

**Column method**  
 The children are introduced to vertical and horizontal expansion to help them record and work out a subtraction of two-digit and three digit numbers.

e.g.  $468 - 246 =$

**1. Vertical**                      **2. Horizontal**

$$\begin{array}{r} 468 \\ - 246 \\ \hline 2 \\ 20 \\ 200 \end{array}$$

$$\begin{array}{r} 400 \ 60 \ 8 \\ -200 \ 40 \ 6 \\ \hline 200 \ 20 \ 2 \end{array}$$

**Adjusting**  
 Find a small difference by counting up.  
 Children are given strategies to subtract a 'near multiple of 10' to or from a two or three digit number.

e.g.  $500 - 179 =$   
 is the same as  $500 - 180 + 1 = 321$

**MULTIPLICATION**

**Partition use arrays.**  
 e.g.  $23 \times 7 = 161$

$23 \times 7 = (20 \times 7) + (3 \times 7)$   
 $= 140 + 21$   
 $= 161$

**Grid method**  
Grid method: start by multiplying tu x tu, then htu x u & htu x tu  
Estimate:  $223 \times 7$  is approximately  $200 \times 10 = 200$

e.g.  $223 \times 7 = 1561$

$$\begin{array}{r} 1400 \\ 140 \\ + 21 \\ \hline 1561 \end{array}$$

Children work out calculations with missing numbers.  
 eg  $8 \times 7 =$       or  $63 = 7 \times$   
 Children must know and learn times tables and the inverse up to 9.

e these

An effective way to teach times table by using timetable songs on the Shared drive.  
 5 minutes times tables & inverse practice everyday.

**DIVISION**

**Introduce chunking**  
 Children are introduced to an informal recording method where they partition the dividend (what they are dividing) into multiples of the divisor (what they are dividing by).

e.g.  $72 \div 5 =$   
 $72 = 50 + 22$   
 $50 \div 5 = 10$   
 $22 \div 5 = 4r2 \rightarrow 10 + 4r2 =$

$14 \text{ r } 2$

OR

$$\begin{array}{r} 72 \\ - 50 \quad (10 \times 5) \\ \hline 22 \\ - 20 \quad (4 \times 5) \\ \hline 2 \end{array}$$

$10 + 4r2$       Answer : 14 remainder 2

Children also work out calculations with missing numbers.  
 eg  $72 \div 9 =$       or  $7 = 49 \div$

**Long Division**

$$\begin{array}{r} 52 \div 4 \\ 13 \\ 4 \overline{) 52} \\ 4 \\ \hline 12 \\ 12 \\ \hline 00 \end{array}$$

Numicon can also be used to illustrate remainders by grouping.

Ensuring that the number sentences are easily divisible by a multiple, leaving a remainder  
 e.g:  $21 \div 4 = 5 \text{ r } 1$

