

# Division

Informal Methods including sharing and grouping, repeated addition or subtraction using a number line.

$$18 \div 3 = 6$$



Stage 1: Short division, i.e. TU + U, HTU + U.  
Known as the 'chunking' method.

$$\begin{array}{r}
 6 \overline{) 72} \\
 \underline{- 60} \\
 12 \\
 \underline{- 12} \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 9 \overline{) 97} \\
 \underline{- 90} \\
 7
 \end{array}
 \qquad
 \begin{array}{r}
 6 \overline{) 60} \\
 \underline{- 60} \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 6 \overline{) 60} \\
 \underline{- 60} \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 6 \overline{) 60} \\
 \underline{- 60} \\
 0
 \end{array}$$

Answer = 12

Stage 2: Apply to larger numbers and begin to take larger 'chunks'.

$$\begin{array}{r}
 6 \overline{) 196} \\
 \underline{- 60} \\
 136 \\
 \underline{- 60} \\
 76 \\
 \underline{- 60} \\
 16 \\
 \underline{- 12} \\
 4
 \end{array}
 \qquad
 \begin{array}{r}
 6 \overline{) 196} \\
 \underline{- 180} \\
 16 \\
 \underline{- 12} \\
 4
 \end{array}$$

Answer = 32 r 4

Extend to larger and decimal numbers (still dividing by a single digit number).

# Leck St. Peter's CE Primary School

## Methods of Written Calculations

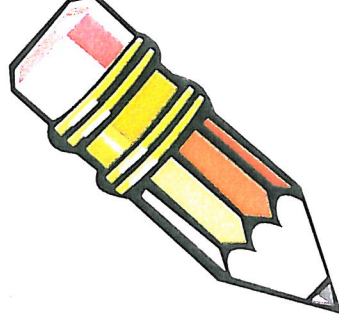
Stage 3 Long division (HTU ÷ TU)

$$\begin{array}{r}
 15 \overline{) 432} \\
 \underline{- 150} \\
 282 \\
 \underline{- 150} \\
 132 \\
 \underline{- 60} \\
 72 \\
 \underline{- 60} \\
 12
 \end{array}
 \qquad
 \begin{array}{r}
 15 \overline{) 432} \\
 \underline{- 300} \\
 132 \\
 \underline{- 120} \\
 12
 \end{array}$$

Answer = 28 r 12

Answer = 28 r 12

Stage 4: Use the methods taught for both short and long division with larger numbers and decimals, including money.



For children to develop a good sense of number, it is important to lay firm foundations in maths and to build on these in a systematic manner.

At **Leck St. Peter's CE Primary School**, we have taken into account the way children develop in their learning and understanding, beginning with a firm grounding in mental calculations, and using these skills to develop effective written methods for calculations.

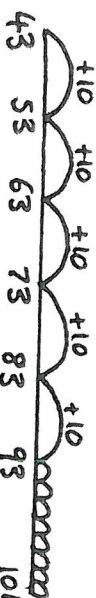
We encourage children to consider the most appropriate way to tackle a calculation—whether it can be solved mentally, with informal jottings or a more formal approach.

The process of 'Estimate, calculate, check' is also encouraged.

# Addition

Informal methods include:

Counting on using a number line,  $43+58$



Stage 1: Mental method using partitioning:

$$47 + 76 = (40 + 70) + (7 + 6) = 110 + 13 = 123$$

Stage 2: Expanded layout (for explanation) -, explaining how we add the least significant digit first *because addition is commutative, so the order doesn't matter:*

$$\begin{array}{r} 47 \\ + 76 \\ \hline 110 \\ \hline 123 \end{array}$$

Stage 3: Extend to 3 digit numbers

Stage 4: Written method - 'One Carry' to 'Two Carries'

$$\begin{array}{r} 47 \\ + 26 \\ \hline 73 \\ \hline \end{array} \qquad \begin{array}{r} 47 \\ + 76 \\ \hline 123 \\ \hline \end{array}$$

Stage 5: Use the methods taught with larger numbers, more than two numbers, numbers with different numbers of digits and decimals, including money.

# Subtraction

Informal methods include:

Counting on from the smallest to largest number, on a number line, e.g.  $74-27$



Stage 1: Mental method using partitioning. (First without crossing T or H, then crossing T and H boundary.)

$$76 - 32 = (76 - 30) - 2 = 44$$

$$72 - 38 = (72 - 30) - 8 = 34$$

Stage 2: Expanded vertical layout (for explanation)

i)  $89 - 57$  becomes

$$\begin{array}{r} 89 \\ - 57 \\ \hline 30 + 2 \\ \hline = 32 \end{array}$$

ii)  $81 - 57$  becomes

$$\begin{array}{r} 81 \\ - 57 \\ \hline 80 + 1 \\ - 50 + 7 \\ \hline 70 + 11 \\ - 50 + 7 \\ \hline 20 + 4 \\ \hline = 24 \end{array}$$

Stage 3: Written method

$$\begin{array}{r} 78 \\ - 57 \\ \hline 21 \\ \hline \end{array}$$

Stage 4: Use methods taught with larger numbers, more than two numbers, numbers with different numbers of digits and decimals, including money.

# Multiplication

Stage 1: Mental method using partitioning. Short multiplication (TU x U)

$$23 \times 8 = (20 \times 8) + (3 \times 8) = 160 + 24 = 184$$

Stage 2: Written method: - short multiplication - TU x U or HTU x U

$$\begin{array}{r} 23 \\ \times 6 \\ \hline 138 \\ \hline \end{array}$$

$$326$$

$$\begin{array}{r} \times 4 \\ \hline 1304 \\ \hline \end{array}$$

Stage 3: Written method: -long multiplication - TU X TU

$$\begin{array}{r} 32 \\ \times 26 \\ \hline 192 \\ \hline \end{array}$$

$$\begin{array}{r} + 640 \\ \hline 832 \\ \hline \end{array}$$

Stage 4: Use methods taught with larger numbers, more than two numbers, numbers with different numbers of digits and decimals, including money.