

# Mount Pleasant Primary School



## Calculations Policy

|   |                   |
|---|-------------------|
| <b>1. Title of policy</b>                             | Basic Skills      |
| <b>2. Date adopted by Governors</b>                   | Spring 2017       |
| <b>3. Name of Chair of Governors</b>                  | Stewart Jarvis    |
| <b>4. Name of Head teacher</b>                        | Lorrain Capener   |
| <b>5. Person or team responsible for the document</b> | Sharon Derbyshire |
| <b>6. Planned date for review.</b>                    | Spring 2021       |

The foundations of mental calculation and recall of number facts are established thoroughly before written calculations are introduced. The aim of this policy is to develop children's mathematical thinking, mental computation and verbal reasoning. As calculations become more complex written methods are introduced.

At Mount Pleasant mental and written methods are in a variety of forms depending on the type of calculation being taught. Children are actively encouraged to make informal jottings and notes to aid their thinking. They are also encouraged to choose appropriate methods that are effective and efficient.

At Mount Pleasant mental and written methods in whatever form are used to:

- Represent practical work
- Support mental calculations
- Record and explain mental calculations
- Communicate ideas and information
- Help keep track of steps in longer tasks
- Develop mental imagery
- Solve calculations that are too difficult to solve mentally
- Develop efficiency in calculations
- Provide a means of practising a new skill
- Provide teachers with a means of identifying misconceptions

Throughout each stage children must be given opportunities to solve problems by applying a calculation. Opportunities should allow children to use concrete objects, use visual representation and written calculations as appropriate.

## **CONCRETE – PICTORAL/VISUAL – ABSTRACT**

In Nursery children demonstrate number representation using concrete resources. At a more advanced level, some children begin to record in pictorial form. As they progress through the Foundation Stage and Key Stage 1 the use of standard symbols and conventions are introduced. By the end of Year 1 children are expected to use mathematical symbols in their calculations through informal jottings. These are developed along with the use of expanded and efficient written methods. This is seen as a step towards the standard compact forms of recording. The expectations for progression in calculations for each year group are set out in the long term planning. All children are expected to progress at broadly the same pace through the objectives for their year group. If they have mastered this skill, they will apply their skills through challenging and complex problems.

Initially all calculations are expressed horizontally. Vertical recording is introduced in Year 2 as the progress of the child dictates. It is important to stress that standard compact and expanded forms of written calculation are used if the calculation is too difficult to do mentally. Children are encouraged to jot down any numbers and calculation strategies that can support them in their calculations. Mental and written calculations are intrinsically connected and therefore should never be taught in isolation to each other. It is vital to teach children to set out calculations in columns correctly, ones line up under ones, tens under tens etc.

Children are introduced early to inverse operations. They are taught to see the link between addition and subtraction and multiplication and division as inverses; and between multiplication as repeated addition and division as repeated subtraction. Inverse operations are used to check calculations; using calculators to check is seen as a valuable way of reinforcing understanding. The use of peer and self-assessment is vital in order to improve children's awareness of their own abilities.

## **Addition**

To add successfully, children need to be able to:

- Recall addition pairs to  $9 + 9$  and compliments to 10
- Add mentally a series of one-digit numbers such as  $4 + 6 + 3$
- Add multiples of 10 or 100 using the related addition fact and their knowledge of place value
- Partition two-digit and three-digit numbers into multiples of 100, 10 and 1 in different ways

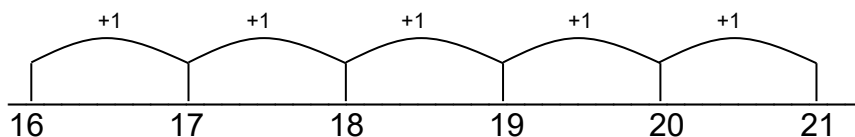
## **Informal Written Methods/Jottings**

### **Blank number line**

The first stage involves introducing the 'blank number line'. This would be introduced once children are familiarised with labelled number lines and can read and order numbers successfully up to the total value of the calculation. Initially add single digits, counting forward on a number line. Once children do this successfully, progress to adding a multiple of 10. Partition the number into those that are easier to calculate with.

### **Example**

$$16 + 5 = 21$$



Children are encouraged to write the largest value digit first. So  $5 + 16$  would be reordered to  $16 + 5$ .

### **Progressing to:**

$$16 + 5 = 21$$



Children are taught to partition numbers to make numbers up to a multiple of 10. So  $16 + 5$  would be rewritten as  $16 + 4 + 1$ .

Children are also encouraged to look for patterns in calculations and not always to rely on a taught method. For example,  $16 + 15$  can be rewritten as 'double 16 subtract 1' or 'double 15 add 1'.

### **Partitioning**

At this stage, children apply mental methods and their knowledge of number bonds using partitioning. They use objects and visual images to support their understanding. Record the steps in addition by partitioning the numbers into tens and units, adding each row and finding the total. Initially there would be no bridging through tens or units, progressing to bridging through one digit then both, progress to using Th, H, T and O. Children must be given opportunities to add more than two values and also experience calculations that have mixed numbers of digits.

| <b>Example</b><br>No bridging | Progressing to bridging through<br>T or O | Progressing to bridging through<br>T and O |
|-------------------------------|---|--|
| $41 + 36 = 77$                | $68 + 24 = 92$                            | $39 + 83 = 122$                            |
| $40 + 30 = 70$                | $60 + 20 = 80$                            | $30 + 80 = 110$                            |
| $1 + 6 = 7$                   | $8 + 4 = 12$                              | $9 + 3 = 12$                               |

### Vertical layout, expanded working.

Begin by adding the most significant digit first to mirror partitioning. As children progress and gain confidence, move to adding the least significant digit first. The calculation should always be read as 'forty-seven add seventy-six' and each stage should use appropriate vocabulary; 'forty add seventy' linked to 'four add seven'. At this stage place value is vital; children must be taught to record digits correctly when calculating. This means digits being written in columns with squared paper in Maths books reinforcing the correct layout. Again no bridging between units, tens or hundreds is used initially; this is introduced as children become more confident. Discuss how adding the tens first or the units first gives the same total, reinforcing the fact that addition can be done in any order. Children must also be given experience of adding more than two numbers.

| <b>Example</b><br>No bridging  | Progressing to least significant digit first   | Progressing to bridging through H, T or O   | Progressing to bridging through H, T and O   |
|--|--|---|--|
| $\begin{array}{r} 347 \\ + 121 \\ \hline 400 \\ 60 \\ + 8 \\ \hline 468 \end{array}$ | $\begin{array}{r} 347 \\ + 121 \\ \hline 8 \\ 60 \\ + 400 \\ \hline 468 \end{array}$ | $\begin{array}{r} 274 \\ + 518 \\ \hline 12 \\ 80 \\ + 700 \\ \hline 792 \end{array}$ | $\begin{array}{r} 849 \\ + 584 \\ \hline 13 \\ 120 \\ + 1300 \\ \hline 1433 \end{array}$ |

### Standard Written Methods

This method reduces the recording to its neatest form and is introduced to children in Year 3. Carried digits are recorded below the line and appropriate vocabulary must be used; 'carry ten or one hundred' not 'carry one'. This method is efficient and quick and can be applied to larger numbers, decimals and adding groups of numbers. Again place value must be reinforced. Initially introduce this method without carrying and digit so children are familiar with recording the digits.

| <b>Example</b><br>No carrying  | Progressing to carrying through one digit                                   | Progressing to carrying through more than one digit   |
|--|---|---|
| $\begin{array}{r} 3,243 \\ 1,120 \\ + 335 \\ \hline 4,698 \end{array}$ | $\begin{array}{r} 7,376 \\ 1,102 \\ + 250 \\ \hline 8,728 \\ 1 \end{array}$ | $\begin{array}{r} 431,489 \\ 203,620 \\ + 72,029 \\ \hline 707,138 \\ 1 \quad 1 \quad 11 \end{array}$ |

This method must also be introduced using decimals

## Subtraction

To subtract successfully, children need to be able to:

- Recall addition and subtraction facts to 20
- Subtract multiples of 10 such as  $70 - 30$ , using the related subtraction fact  $7 - 3$ , and their knowledge of place value
- Partition two-digit and three-digit numbers into multiples of one hundred, ten and one in different ways

### Informal Written Methods/Jottings

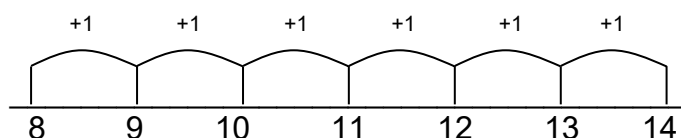
#### Blank number lines

Once children are secure with the concept of subtraction as 'taking away', move towards subtracting single digits by counting on, using a labelled number line, progressing to using blank number lines. As children become more confident introduce subtraction as 'finding the difference between'. Use complimentary addition to find the difference counting forward on a number line, leading to blank number lines.

#### **Example**

Use complimentary addition, finding the difference between.

$$14 - 8 = 6$$



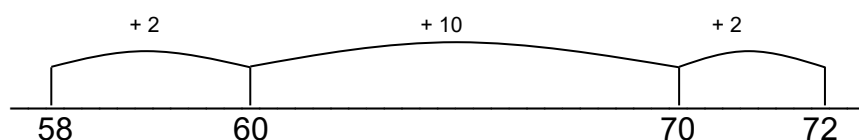
Progressing to using jumps of increasing size applying knowledge of number bonds. Children are encouraged to count on to the next multiple of 10 using knowledge of number bonds.

$$14 - 8 = 6$$



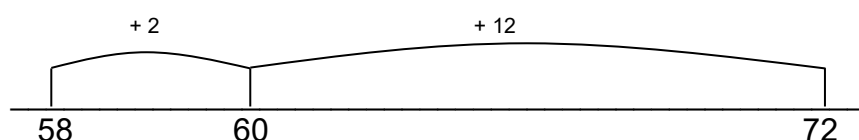
Children are taught to count on to the next multiple of 10, 100 or 1000, count on to the target and find the total by using appropriate addition strategies.

$$72 - 58 = 14$$



Progressing to using fewer jumps.

$$72 - 58 = 14$$



## Standard Written Methods

### Decomposition whole numbers

This stage is introduced to children in Year 3 only when they have an excellent understanding of place value. Children may continue to use a blank number line as their preferred method. This stage is used as the most efficient written method. Teachers must use their discretion when introducing this method. Begin introducing the vertical written method with no 'exchange' using up to four digits. Introduce 'exchanging' from tens only, progressing to hundreds or thousands then a combination of values. It is important that children have a sound understanding of place value and questions posed must include place holders so children become proficient calculating with these.

| Example<br>No exchange                                    | Progressing to<br>exchanging from one<br>digit  | Progressing to<br>exchanging from any<br>digit   | Progressing to<br>exchanging from<br>multiple digits  |
|---|---|--|---|
| $\begin{array}{r} 478 \\ - 123 \\ \hline 355 \end{array}$ | $\begin{array}{r} \phantom{0}41 \\ 7,5\cancel{5}3 \\ - 3,228 \\ \hline 4,325 \end{array}$ | $\begin{array}{r} \phantom{00}21 \\ 17,\cancel{3}45 \\ - 4,181 \\ \hline 13,164 \end{array}$ | $\begin{array}{r} \phantom{000}5181 \\ \cancel{609},651 \\ - 263,801 \\ \hline 345,850 \end{array}$ |

## **Multiplication**

To multiply successfully, children need to be able to:

- Recall multiplication facts to 10x10
- Partition numbers into multiples of one hundred, ten and one
- Work out products such as 70 x 3, 70 x 30, 700 x 3, 700 x 30 using the related fact 7 x 3 and their knowledge of place value
- Add two single-digit numbers mentally
- Add multiples of 10 (such as 80 + 40) or of 100 (such as 800 + 400) using the related addition fact 8 + 4, and their knowledge of place value
- Add combinations of whole numbers using the column method

## Informal Written Methods/Jottings

### Mental method, using partitioning (TU x O, HTU x O)

Mental methods for multiplying TU x U and HTU x U can be based on partitioning the TU into T and O and the HTU into H, T and O. This allows each number to be multiplied separately and then added to find the total product. Initially use numbers that children are familiar with when multiplying.

| Example<br>TO x O   | Progressing to HTO x O   |
|---|--|
| $\begin{array}{l} 38 \times 3 = 114 \\ 30 \times 3 = 90 \\ 8 \times 3 = 24 \end{array}$ | $\begin{array}{l} 273 \times 4 = 1092 \\ 200 \times 4 = 800 \\ 70 \times 4 = 280 \\ 3 \times 4 = 12 \end{array}$ |

**The grid method (TO x O, HTO x O)**

The grid method can be introduced using TO x O to demonstrate the method. The grid layout shows expanded working and uses the column method to find the total. It is better to place the most significant digit on the left of the grid because it is then easier to find the total.

|  |                               |   |    |            |   |           |  |            |  |   |   |     |            |    |            |   |           |  |              |
|--|-------------------------------|---|----|------------|---|-----------|--|------------|--|---|---|-----|------------|----|------------|---|-----------|--|--------------|
| <p><b>Example</b><br/>TO x O</p>   | <p>Progressing to HTO x O</p> |   |    |            |   |           |  |            |  |   |   |     |            |    |            |   |           |  |              |
| <p><b>38 x 7 = 266</b></p> <table border="1" data-bbox="293 741 616 943"> <tr><td>x</td><td>7</td></tr> <tr><td>30</td><td><b>210</b></td></tr> <tr><td>8</td><td><b>56</b></td></tr> <tr><td></td><td><b>266</b></td></tr> </table> | x                             | 7 | 30 | <b>210</b> | 8 | <b>56</b> |  | <b>266</b> | <p><b>273 x 4 = 1092</b></p> <table border="1" data-bbox="916 741 1259 994"> <tr><td>x</td><td>4</td></tr> <tr><td>200</td><td><b>800</b></td></tr> <tr><td>70</td><td><b>280</b></td></tr> <tr><td>3</td><td><b>12</b></td></tr> <tr><td></td><td><b>1,092</b></td></tr> </table> | x | 4 | 200 | <b>800</b> | 70 | <b>280</b> | 3 | <b>12</b> |  | <b>1,092</b> |
| x  | 7                             |   |    |            |   |           |  |            |  |   |   |     |            |    |            |   |           |  |              |
| 30   | <b>210</b>                    |   |    |            |   |           |  |            |  |   |   |     |            |    |            |   |           |  |              |
| 8  | <b>56</b>                     |   |    |            |   |           |  |            |  |   |   |     |            |    |            |   |           |  |              |
|  | <b>266</b>                    |   |    |            |   |           |  |            |  |   |   |     |            |    |            |   |           |  |              |
| x  | 4                             |   |    |            |   |           |  |            |  |   |   |     |            |    |            |   |           |  |              |
| 200  | <b>800</b>                    |   |    |            |   |           |  |            |  |   |   |     |            |    |            |   |           |  |              |
| 70   | <b>280</b>                    |   |    |            |   |           |  |            |  |   |   |     |            |    |            |   |           |  |              |
| 3  | <b>12</b>                     |   |    |            |   |           |  |            |  |   |   |     |            |    |            |   |           |  |              |
|  | <b>1,092</b>                  |   |    |            |   |           |  |            |  |   |   |     |            |    |            |   |           |  |              |

**Standard Written Methods**

**Short multiplication**

In order to aid understanding each stage can be introduced as an expanded layout.

| <p><b>Stage 1 (expanded)</b><br/>TO x O</p>                                       | <p><b>Stage 1 (contracted)</b><br/>TO x O</p>                                  | <p><b>Stage 2 (expanded)</b><br/>HTO x O</p>  | <p><b>Stage 2 (contracted)</b><br/>HTO x O</p>                     |
|---|--|---|--|
| $\begin{array}{r} 38 \\ \times 4 \\ \hline 32 \\ + 120 \\ \hline 152 \end{array}$ | $\begin{array}{r} 38 \\ \times 4 \\ \hline 152 \\ 3 \end{array}$               | $\begin{array}{r} 238 \\ \times 4 \\ \hline 32 \\ 120 \\ + 800 \\ \hline 952 \end{array}$ | $\begin{array}{r} 238 \\ \times 4 \\ \hline 952 \\ 13 \end{array}$ |
| <p><b>Stage 3 (expanded)</b><br/>ThHTO x O</p>                                    | <p><b>Stage 3 (contracted)</b><br/>ThHTO x O</p>                               | <p><b>Stage 4</b><br/>ThHTO x TO</p>  |  |
| $\begin{array}{r} 3,562 \\ \times 7 \\ \hline 14 \\ 420 \end{array}$              | $\begin{array}{r} 3,562 \\ \times 7 \\ \hline 24,934 \\ 3 \ 4 \ 1 \end{array}$ | $\begin{array}{r} 5,281 \\ \times 32 \\ \hline 10,562 \\ + 158,430 \\ \hline \end{array}$ |  |

|   |  |         |
|---|--|---------|
| $\begin{array}{r} 3,500 \\ + 21,000 \\ \hline 24,934 \end{array}$ |  | 168,992 |
|---|--|---------|

## Division

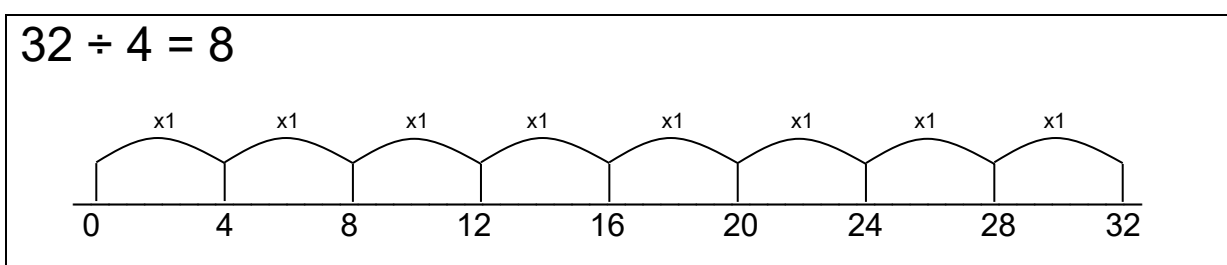
To divide successfully, children need to be able to need to be able to:

- Understand division as repeated subtraction
- Estimate how many times one number divides into another – for example, how many sixes are there in 47, or how many 23's there are in 92
- Multiply a two-digit number by a single digit mentally
- Apply place value to multiplication using known facts e.g.  $5 \times 3 = 15$ ,  $50 \times 3 = 150$ ,  $500 \times 3 = 1500$ ,  $50 \times 30 = 1500$
- Find the difference between two numbers mentally

### Informal Written Methods/Jottings

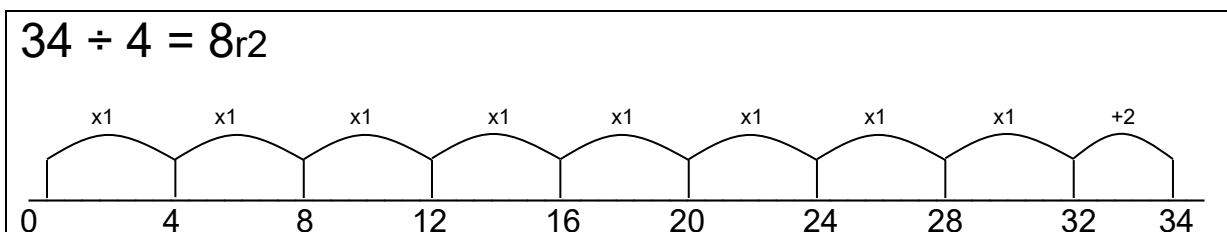
#### The blank number line (TO ÷ O)

This method is introduced with multiplication facts up to  $10 \times 10$  so children familiarise themselves with the method. Initially children will count in single steps of the divisor, with numbers that are multiples of the divisor (no remainders). Introduce three digit numbers and as they become more confident bigger jumps such as,  $\times 10$ ,  $\times 5$ ,  $\times 3$  or  $\times 2$ . This will lead to fewer steps and less chance of mistakes.



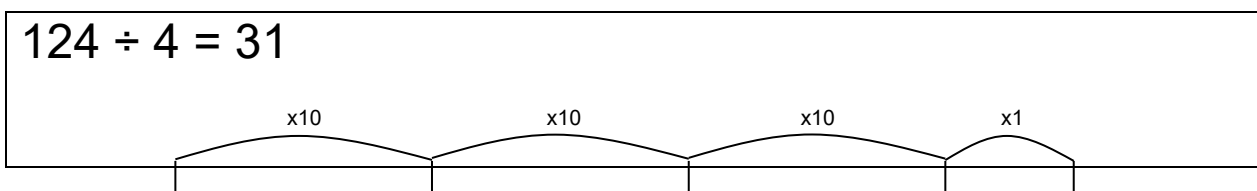
#### The blank number line (TO ÷ O) with remainders

Begin with numbers that are close to a multiple of the divisor. Encourage children to find the closest multiple to the target number and look at the difference between these.

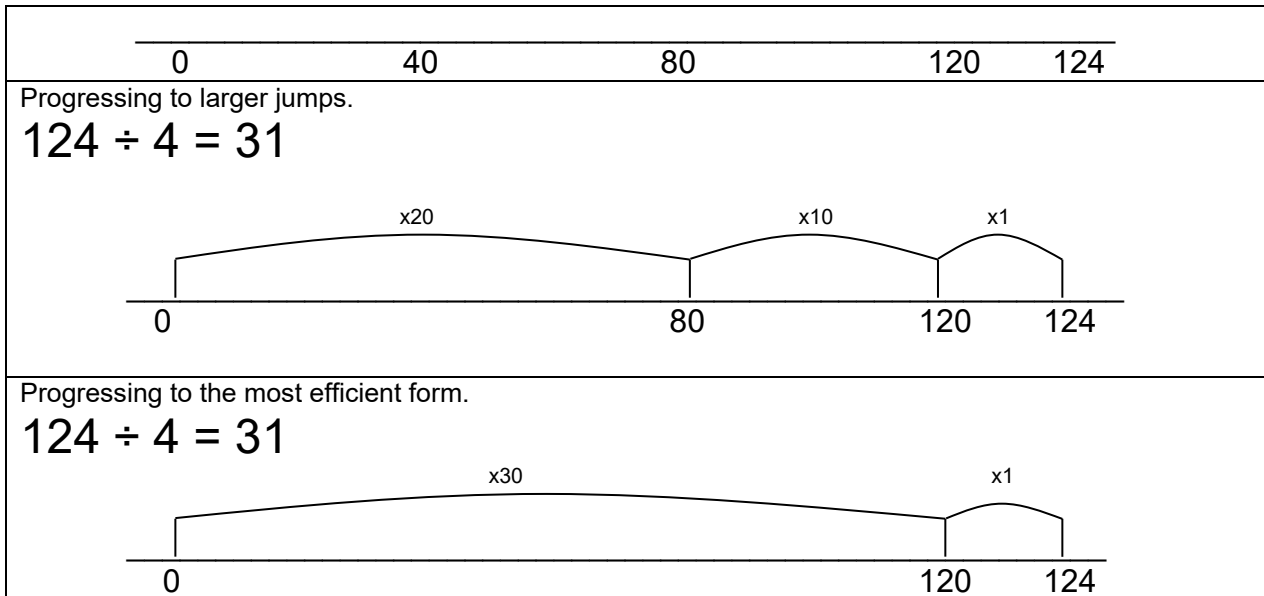


#### The blank number line (HTO ÷ O)

Use the same method but encourage children to use known multiplication facts to make bigger jumps, use jumping  $\times 1$  to illustrate an inefficient method.

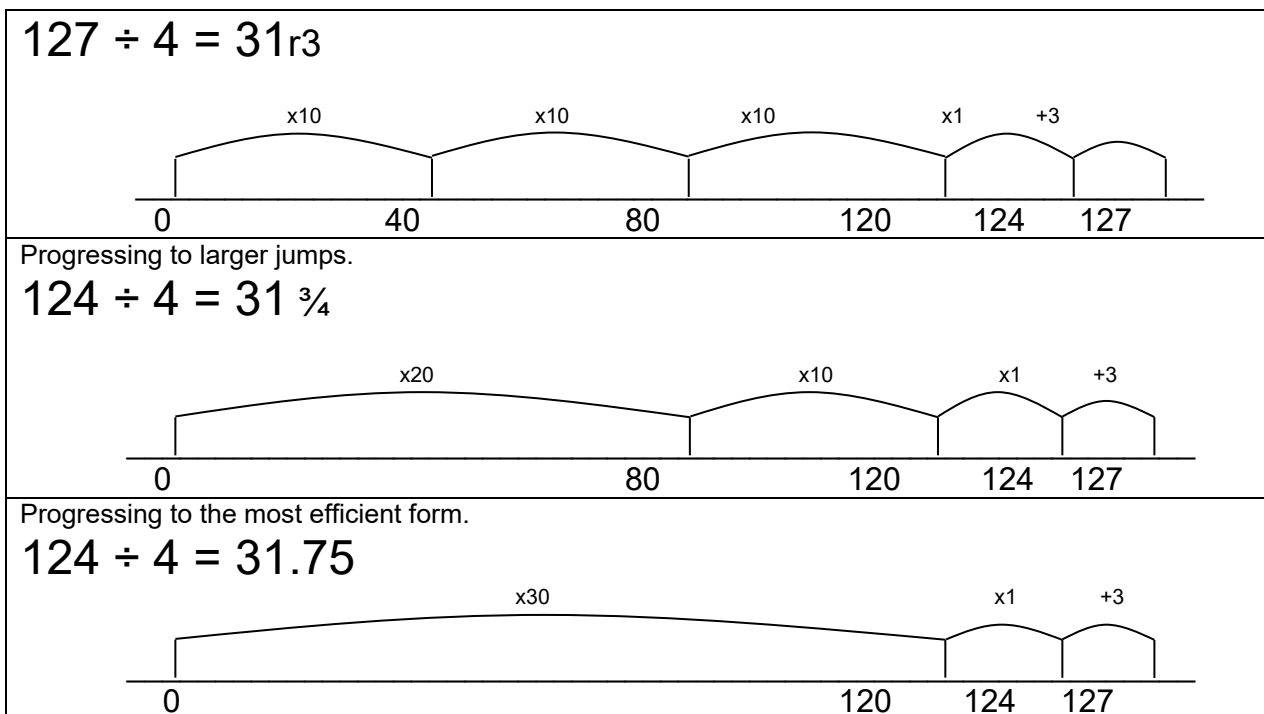






**The blank number line (HTO ÷ U) with remainders**

Ask 'How many 4's are there in 40, 80 120?' to further reinforce this method. As children become more confident in their understanding of fractions, they should be encouraged to record the remainder as a fraction e.g. 31r3, 31  $\frac{3}{4}$ , 31.75.



**Expanded method**

This method can be introduced if children have an excellent recall of multiplication and division facts; can use place value in multiplication and division and have a good understanding of place value. The method is introduced as a progression from a blank number line, with the stages modelled horizontally then vertically. This helps children to visualise a method they are confident with being written in a different format. This method is based on subtracting multiples of the divisor, but children can be taught to see the relationship between each method and further clarify the link between subtraction and division. However, children need to recognise that this method becomes inefficient if there are too many steps, quickly move them on to finding the largest possible multiple.

**Standard Written Methods**

**Short division**

Division is made more efficient using the standard written method or 'Bus Stop' method. Although it must be clarified that children using this method will have very good mental calculations strategies.

| Stage 1 (no remainders)<br>TO ÷ O                     | Stage 2 (no remainders)<br>HTO ÷ O                      | Stage 3 (no remainders)<br>ThHTO ÷ O                      |
|---|---|---|
| $\begin{array}{r} 23 \\ 4 \overline{)92} \end{array}$ | $\begin{array}{r} 031 \\ 4 \overline{)124} \end{array}$ | $\begin{array}{r} 0324 \\ 4 \overline{)1296} \end{array}$ |

| Stage 4 (with remainders)<br>TO ÷ O                              | Stage 5 (with remainders)<br>HTO ÷ O                               | Stage 6 (with remainders)<br>ThHTO ÷ O                               |
|--|--|--|
| $\begin{array}{r} 23 \text{ r}1 \\ 4 \overline{)93} \end{array}$ | $\begin{array}{r} 031 \text{ r}1 \\ 4 \overline{)125} \end{array}$ | $\begin{array}{r} 0324 \text{ r}1 \\ 4 \overline{)1297} \end{array}$ |

**Long division**

When introducing long division, teachers must decide whether children know all multiplication facts and related division facts and also can multiply effectively by 10. They must be able to apply place value to known number facts and also subtract and add mentally with multiples of 10, 100 and 1000. Children should be encouraged to record their answer as a fraction or a decimal, simplified if appropriate.

| Stage 1 (no remainders)   | Stage 1 (with remainders)                  |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
|---|--|----|---|----|---|----|---|----|---|----|---|----|---|---|----|---|----|---|----|---|----|---|----|---|----|
| $\begin{array}{r} 051 \\ 15 \overline{)765} \\ - 75 \\ \hline 15 \\ - 15 \\ \hline 0 \end{array}$ <table border="1" style="margin-left: 20px;"> <tr><td>x</td><td>15</td></tr> <tr><td>1</td><td>15</td></tr> <tr><td>2</td><td>30</td></tr> <tr><td>3</td><td>45</td></tr> <tr><td>4</td><td>60</td></tr> <tr><td>5</td><td>75</td></tr> </table>              | x  | 15 | 1 | 15 | 2 | 30 | 3 | 45 | 4 | 60 | 5 | 75 | $\begin{array}{r} 043 \text{ r}2 \\ 15 \overline{)647} \\ - 60 \\ \hline 47 \\ - 45 \\ \hline 2 \end{array}$ <table border="1" style="margin-left: 20px;"> <tr><td>x</td><td>15</td></tr> <tr><td>1</td><td>15</td></tr> <tr><td>2</td><td>30</td></tr> <tr><td>3</td><td>45</td></tr> <tr><td>4</td><td>60</td></tr> <tr><td>5</td><td>75</td></tr> </table> | x | 15 | 1 | 15 | 2 | 30 | 3 | 45 | 4 | 60 | 5 | 75 |
| x   | 15   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 1   | 15   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 2   | 30   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 3   | 45   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 4   | 60   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 5   | 75   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| x   | 15   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 1   | 15   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 2   | 30   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 3   | 45   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 4   | 60   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 5   | 75   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| Stage 1 (remainders recorded as a fraction)   | Stage 1 (remainders recorded as a decimal) |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| $\begin{array}{r} 043 \frac{2}{15} \\ 15 \overline{)647} \\ - 60 \\ \hline 47 \\ - 45 \\ \hline 2 \end{array}$ <table border="1" style="margin-left: 20px;"> <tr><td>x</td><td>15</td></tr> <tr><td>1</td><td>15</td></tr> <tr><td>2</td><td>30</td></tr> <tr><td>3</td><td>45</td></tr> <tr><td>4</td><td>60</td></tr> <tr><td>5</td><td>75</td></tr> </table> | x  | 15 | 1 | 15 | 2 | 30 | 3 | 45 | 4 | 60 | 5 | 75 | $\begin{array}{r} 043.13 \\ 15 \overline{)647.0} \\ - 60 \\ \hline 47 \\ - 45 \\ \hline 2.0 \\ - 1.5 \\ \hline 0.50 \end{array}$  |   |    |   |    |   |    |   |    |   |    |   |    |
| x   | 15   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 1   | 15   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 2   | 30   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 3   | 45   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 4   | 60   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |
| 5   | 75   |    |   |    |   |    |   |    |   |    |   |    |   |   |    |   |    |   |    |   |    |   |    |   |    |

|  |   |   |    |   |    |   |    |   |    |   |    |   |    |   |  |
|--|---|---|----|---|----|---|----|---|----|---|----|---|----|---|--|
|  |   |   |    |   |    |   |    |   |    |   |    |   |    |   |  |
| <b>Stage 2 (no remainders)</b>                           |   | <b>Stage 2 (remainders recorded as a decimal)</b> |    |   |    |   |    |   |    |   |    |   |    |   |  |
| $\begin{array}{r} 051 \\ 15 \overline{)765} \end{array}$ | <table border="1"> <tr><td>x</td><td>15</td></tr> <tr><td>1</td><td>15</td></tr> <tr><td>2</td><td>30</td></tr> <tr><td>3</td><td>45</td></tr> <tr><td>4</td><td>60</td></tr> <tr><td>5</td><td>75</td></tr> </table> | x   | 15 | 1 | 15 | 2 | 30 | 3 | 45 | 4 | 60 | 5 | 75 | $\begin{array}{r} 043.13 \\ 15 \overline{)647.0} \end{array}$ |  |
| x  | 15  |   |    |   |    |   |    |   |    |   |    |   |    |   |  |
| 1  | 15  |   |    |   |    |   |    |   |    |   |    |   |    |   |  |
| 2  | 30  |   |    |   |    |   |    |   |    |   |    |   |    |   |  |
| 3  | 45  |   |    |   |    |   |    |   |    |   |    |   |    |   |  |
| 4  | 60  |   |    |   |    |   |    |   |    |   |    |   |    |   |  |
| 5  | 75  |   |    |   |    |   |    |   |    |   |    |   |    |   |  |