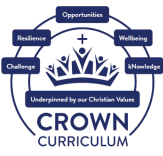




Progression in calculations

EYFS - Year 6

November 2024



Our School Vision

For with God, everything is possible
(Matthew 19:26)

#everythingispossible

*Through our continued service to our community and rooted in our Christian Values, the opportunities we provide, inspire our children and adults at our school to **learn, to grow and to flourish**. We are committed to developing our children into confident individuals who make a positive difference through developing a respect for themselves, each other and the world around them.*

For with God, everything is possible.
(Matthew 19:26)

This policy should be used alongside the Maths curriculum offer and the Fractions policy.

This policy outlines the expectations for the teaching of calculation throughout school which can be supported through the use of resources from White Rose Maths Mastery and Tara Loughran (as well as additional resources used by teaching staff). Progression within each area of calculation is in line with the National Curriculum for Primary Mathematics and the Early Years Framework.

This calculation policy is used to support children to develop a deep understanding of number and calculation, applying declarative knowledge to procedural methods. This policy has been designed to teach children through the use of concrete, pictorial and abstract representations:

- Concrete representation— a pupil is first introduced to an idea or skill by acting it out with real objects. This is a 'hands on' component using real objects and is a foundation for conceptual understanding.*
- Pictorial representation - a pupil has sufficiently understood the 'hands on' experiences performed and can now relate them to representations, such as a diagram or picture of the problem.*
- Abstract representation—a pupil is now capable of representing problems by using mathematical notation, for example $12 \times 2 = 24$.*

It is important that conceptual understanding, supported by the use of representation, is secure for all procedures.



Our Calculation Policy – The Research

- *Teachers should have a clear understanding of how children learn maths. Staff need to know the individual children well and develop a culture that supports children's curiosity/thinking and problem solving. (EEF)*
- *Manipulatives need to be used purposefully and appropriately to have an impact on learning. (EEF)*
- *All adults in class should have a clear, strong understanding of why a particular CPA model is being taught. (EEF)*
- *Representations across year groups should be consistent to connect prior learning to new learning. (DFE Maths Recovery)*




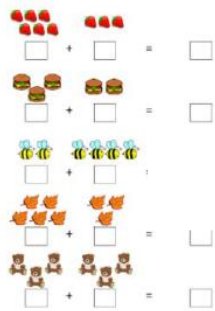

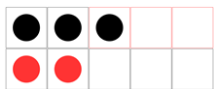
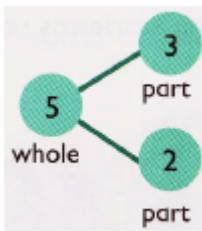


Some of the strategies in the document below may be used in more than one of the CPA representations dependent upon the context in which they are taught.

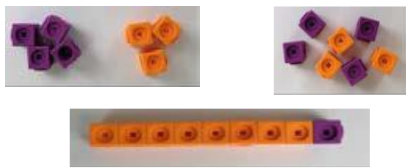
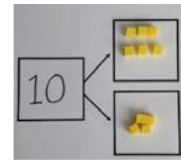
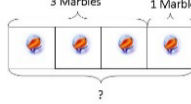


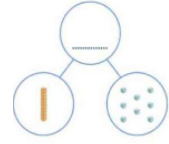
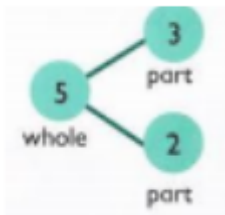

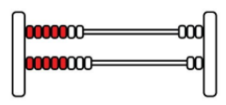
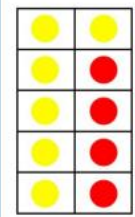

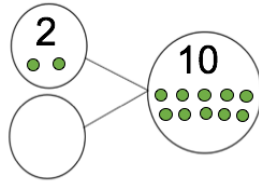
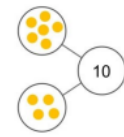
Addition - EYFS

ELG Number: - Have a deep understanding of number to 10, including the composition of each number; Subitise (recognise quantities without counting) up to 5; Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

ELG Numerical Patterns: Verbally count beyond 20, recognising the pattern of the counting system; Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.


| Objectives | Concrete | Pictorial | Abstract |
|--|---|---|---|
| <p>To find the total number of items in two groups by counting all of them. (including doubling.)</p> <p>To find number bonds up to 10.</p> <p>To use part whole model to add two one digit numbers.</p> | <p>Use toys and general classroom resources for children to physically manipulate, group/regroup.</p>  <p>Use specific maths resources such as counters, cubes, rekenrek, numicon etc.</p>  <p>Use visual supports such as ten frames, part-part-whole and addition mats, with the physical objects and resources that can be manipulated.</p>  |   <p>Use visual supports such as ten frames, part-part-whole and addition mats with pictures/icons.</p>  | <p>$5 + 2 = 7$</p>  |

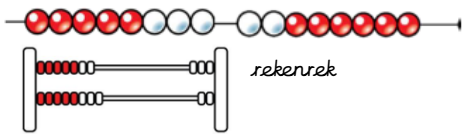
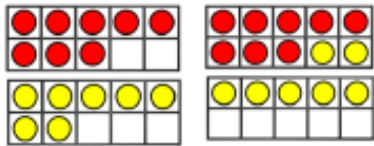
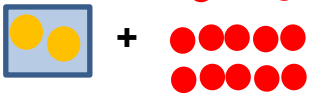
Addition Year 1

| Objectives | Concrete | Pictorial | Abstract |
|--|---|--|---|
| <p>To combine two parts to make a whole: part-whole model</p> | <p>Use cubes to add two numbers together as a group or in a bar. (Some children may still need to use real objects)</p>  <p>Use part-part-whole model.</p>  | <p>3 Marbles 1 Marble</p>   <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Use pictures to add two numbers together as a group or in a bar.</p> </div>   |  <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Use the part-part whole diagram as shown above to move into the abstract.</p> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;"> <p>4 + 3 = 7</p> <p>10 = 6 + 4</p> </div> </div> |
| <p>To represent and use number bonds and related subtraction facts within 20</p> |  <div style="border: 1px solid black; padding: 5px; width: fit-content;">  <p> $6 + 4 = 10$ $4 + 6 = 10$ $10 - 4 = 6$ $10 - 6 = 4$ </p> </div> |   | <div style="border: 1px solid black; padding: 10px;">  <p> $6 + 4 = 10$ $4 + 6 = 10$ $10 - 4 = 6$ $10 - 6 = 4$ </p> <p style="text-align: center;">Part Whole Model</p> </div> |

To add one-digit and two-digit numbers to 20 including 0.

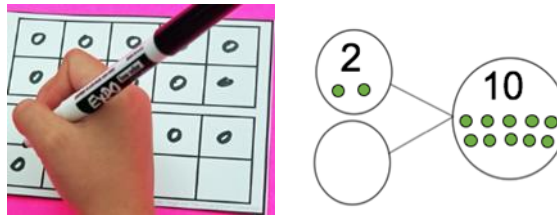
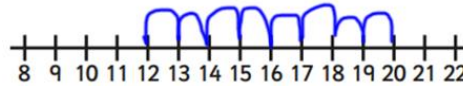
Count out each set then find the total

$2 + 15 =$ 

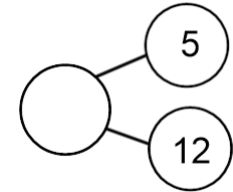


Recognise the biggest number in the calculation and count on from it mentally or using number line.

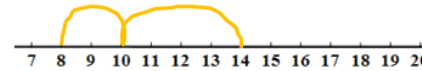
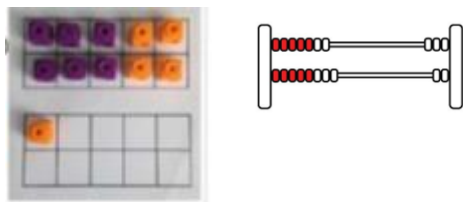
$8 + 12 =$



$5 + 12 = 17$
 $17 = 12 + 5$



To count on and back to add and subtract



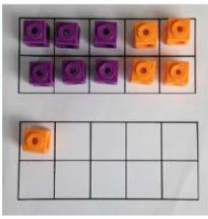
13, 14, 15, 16, 17, 18

$18 - 5 = 13$

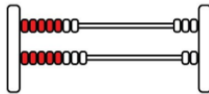
To regroup to make 10



$$6 + 5 = 11$$



Start with the bigger number and use the smaller number to make 10.
Use ten frames.

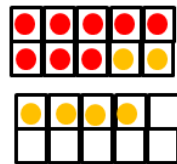
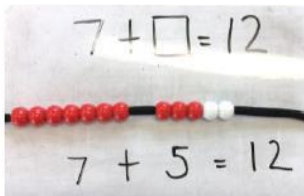


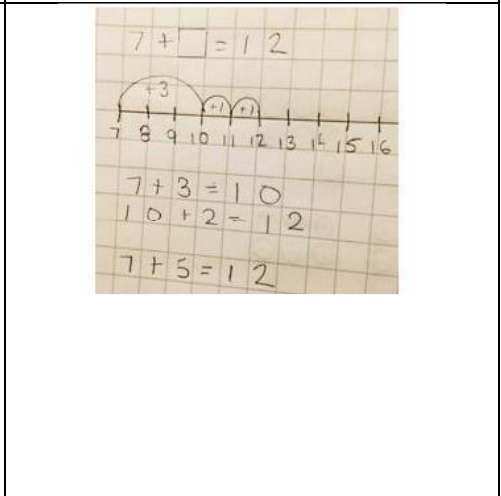
$$3 + 9 =$$

$$9 + 5 = 14$$

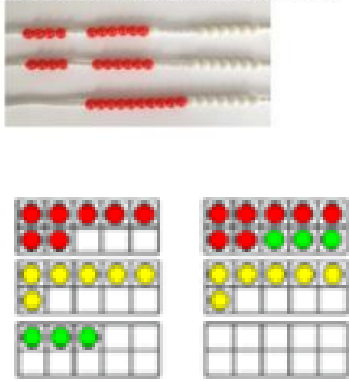
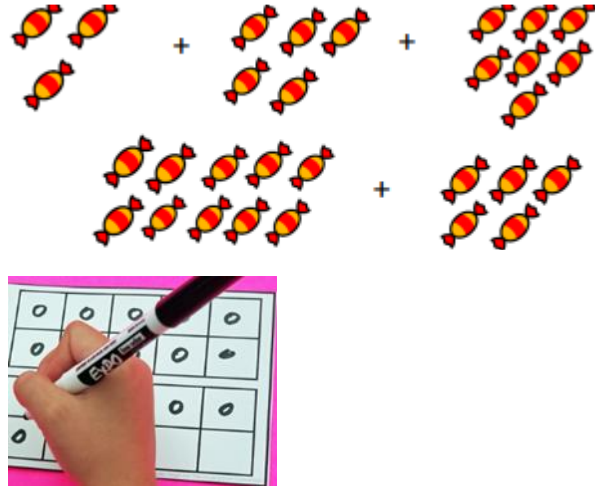
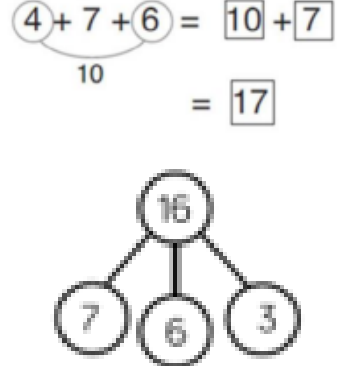
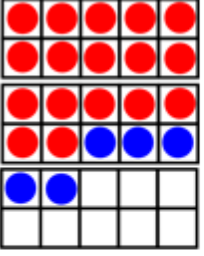

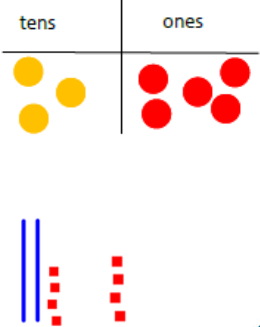
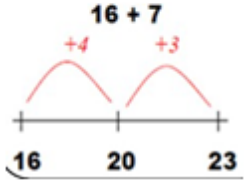
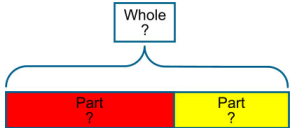
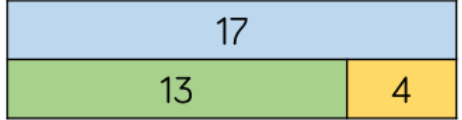
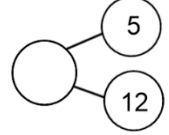
$7 + 4 = 11$
If I am at seven, how many more do I need to make 10?
How many more do I add on now?

To solve missing number problems.

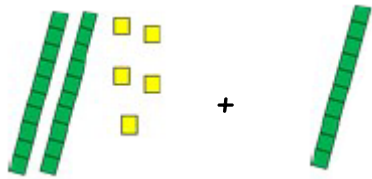


$$8 + \underline{\quad} = 14$$


Addition Year 2

| Objectives | Concrete | Pictorial | Abstract |
|---|--|--|--|
| <p>To add three 1-digit numbers</p> | <p>$4 + 7 + 6 = 17$ Put 4 and 6 together to make 10. Add on 7.</p>  |  | <p>$4 + 7 + 6 = 10 + 7$ $= 17$</p>  |
| <p>To add a 2-digit number and ones</p> |  <p>$16 + 3 =$</p>  <p>(Dienes or place value counters)</p> | <p>tens ones</p>  <p>$24 + 4 = 28$</p>   |   <p>$17 + 5 = 22$</p> |

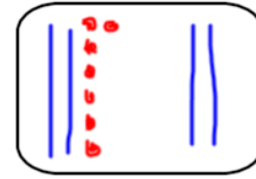
To add a 2-digit number and multiples of 10



+

$$25 + 10 = 35$$

You may use place value counters and/or dienes



$$27 + 20 = 47$$

| Tens | Ones |
|------|------|
| | |
| | |
| | |

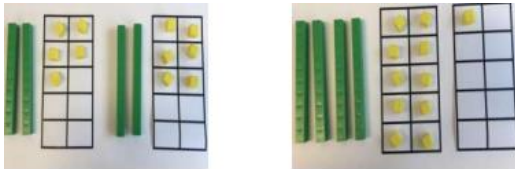
$$27 + 10 = 37$$

$$27 + 20 = 47$$

$$27 + \underline{\quad} = 57$$

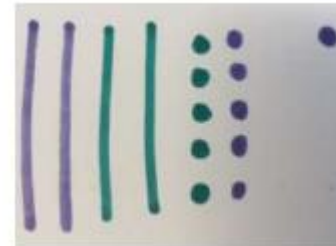
To add two 2-digit numbers within 100

$$25 + 26 = 51$$



You may use place value counters and/or dienes

$$25 + 26 = 51$$



| Tens | Ones |
|------|------|
| | |
| | |
| | |

$$25 + 26 = 51$$

$$20 + 20 = 40$$

$$5 + 6 = 11$$

$$40 + 11 = 51$$

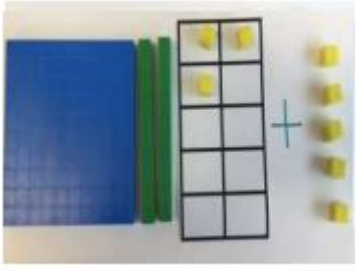
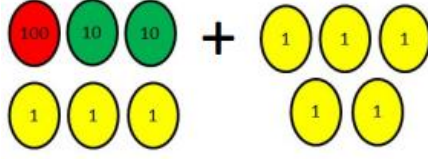

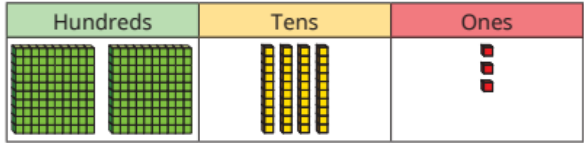
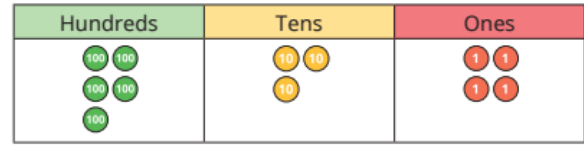
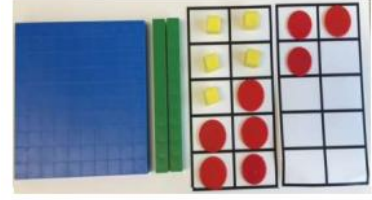
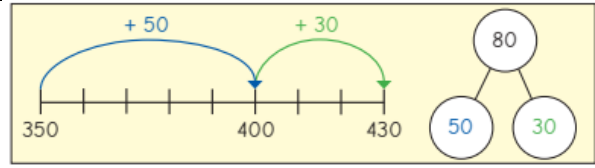
Leading on to adjusting to make a multiple of 10. $25 + 26 = 51$

$$30 + 21 = 51$$

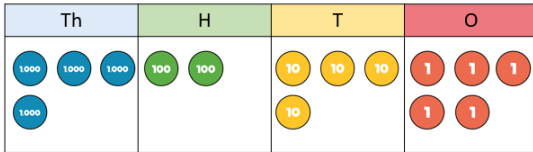
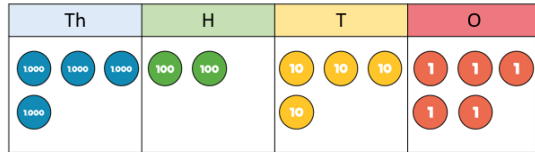
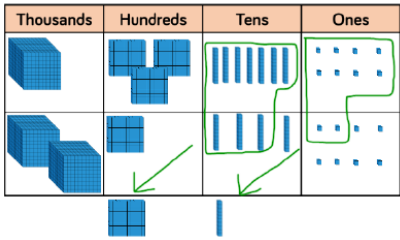
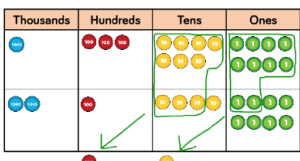

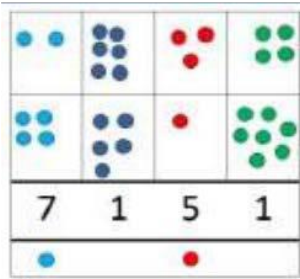
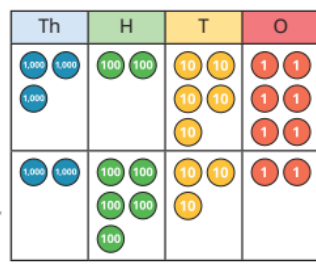
$$\begin{array}{r} 56 \\ +23 \\ \hline \end{array}$$

Addition Year 3

This work revises and reinforces ideas from Key Stage 1, including the focus on place value

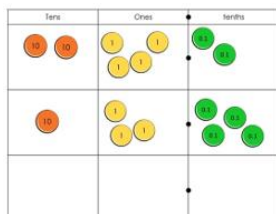
| Objectives | Concrete | Pictorial | Abstract |
|---|---|---|--|
| <p>To add ones to a three-digit number (using number bonds)</p> <p>To add tens to a three-digit number (using number bonds)</p> <p>To add hundreds to a three-digit number (using number bonds)</p> |    <p>Apply these methods to adding 10 and 100 also.</p> |   | <p>$123 + 5 =$</p> <p>$123 + 50 =$</p> <p>$123 + 200 =$</p> |
| <p>To add ones to a three digit number (crossing 10)</p> <p>To add tens to a three digit number (crossing 100)</p> |  |  | <p>$123 + 7 =$</p> <p>$123 + 70 =$</p> |

Addition Year 4

| Objectives | Concrete | Pictorial | Abstract | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--|--|----|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|---|---|---|--|--|--|--|----|
| <p>To add a multiple of 1000 or 100 to a 4 digit number.</p> |  <p style="text-align: center;"><i>You may choose to also show a representation in dienes.</i></p> |  | <p style="text-align: center;"> $4526 + 2000 =$ $5362 + 300 =$ </p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>To add numbers with up to 4 digits</p> <p>To use formal written methods of columnar addition where appropriate add numbers with up to 4 digits (with exchange)</p> |    |   | <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin: 0 auto;"> $1,378 + 2,148 = 3,526$ </div> <div style="text-align: center; margin-top: 20px;"> <table border="1" style="border-collapse: collapse; margin: 0 auto;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">3</td><td style="width: 20px; height: 20px;">7</td><td style="width: 20px; height: 20px;">8</td></tr> <tr><td style="text-align: right;">+</td><td>2</td><td>1</td><td>4</td><td>8</td></tr> <tr><td colspan="5" style="border-top: 1px solid black;"></td></tr> <tr><td></td><td>3</td><td>5</td><td>2</td><td>6</td></tr> <tr><td colspan="4"></td><td style="text-align: right;">11</td></tr> </table> </div> | | 1 | 3 | 7 | 8 | + | 2 | 1 | 4 | 8 | | | | | | | 3 | 5 | 2 | 6 | | | | | 11 |
| | 1 | 3 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | |
| + | 2 | 1 | 4 | 8 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 5 | 2 | 6 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 11 | | | | | | | | | | | | | | | | | | | | | | | | |

To add decimals with 2 decimal places, including money.

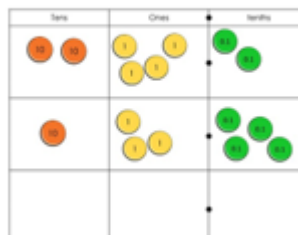
$$24.2 + 13.4 =$$



$$11.29 + 19.56 =$$



$$24.2 + 13.4 =$$



$$£24.20 + £13.40 =$$

Addition Year 5

Objectives

Concrete

Pictorial

Abstract

To add numbers with more than 4 digits.
To add decimals with 2 decimal places, including money.

$104,328 + 61,731 = 166,059$

| | | | | |
|---|---|---|---|---|
| 8 | 1 | 0 | 5 | 9 |
| | | 3 | 6 | 8 |
| | | 1 | 5 | 0 |
| + | 2 | 0 | 5 | 5 |
| | 1 | 2 | 0 | 5 |
| | | 1 | 1 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 2 | 3 | . | 3 | 6 | 1 |
| | | | 9 | . | 0 |
| + | 5 | 9 | . | 7 | 7 |
| | | | 1 | . | 3 |
| | 9 | 3 | . | 5 | 1 |
| | 2 | 1 | | 2 | |

Addition Year 6




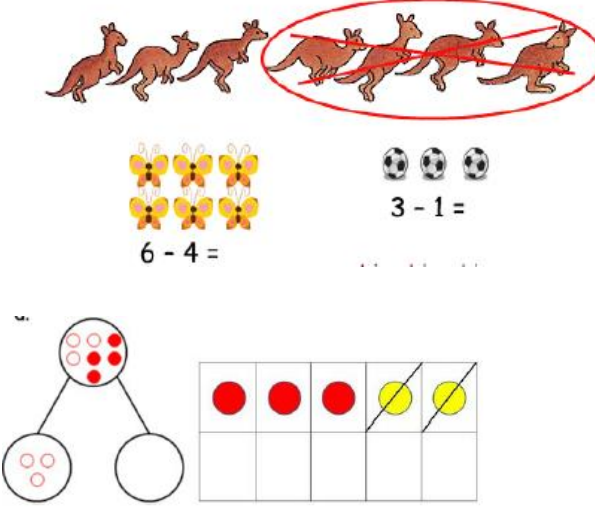
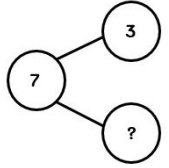
| Objectives | Concrete | Pictorial | Abstract | | |
|---|--|-----------|---|--|--|
| <p>To add several numbers of increasing complexity Including adding money, measure and decimals with different numbers of decimal points.</p> | | | <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px; text-align: center;"> $104,328 + 61,731 = 166,059$ </div> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 5px;"> $\begin{array}{r} 81,059 \\ 3,668 \\ 15,301 \\ + 20,551 \\ \hline 120,579 \end{array}$ </td> <td style="padding: 5px;"> $\begin{array}{r} 23.361 \\ 9.080 \\ 59.770 \\ + 1.300 \\ \hline 93.511 \end{array}$ </td> </tr> </table> | $\begin{array}{r} 81,059 \\ 3,668 \\ 15,301 \\ + 20,551 \\ \hline 120,579 \end{array}$ | $\begin{array}{r} 23.361 \\ 9.080 \\ 59.770 \\ + 1.300 \\ \hline 93.511 \end{array}$ |
| $\begin{array}{r} 81,059 \\ 3,668 \\ 15,301 \\ + 20,551 \\ \hline 120,579 \end{array}$ | $\begin{array}{r} 23.361 \\ 9.080 \\ 59.770 \\ + 1.300 \\ \hline 93.511 \end{array}$ | | | | |

Subtraction.

Subtraction - EYFS

ELG Number: - Have a deep understanding of number to 10, including the composition of each number; Subitise (recognise quantities without counting) up to 5; Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

ELG Numerical Patterns: Verbally count beyond 20, recognising the pattern of the counting system; Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

| Objectives | Concrete | Pictorial | Abstract |
|--|---|--|---|
| <p>To find one less from a group of five objects, then ten objects.</p> <p>To know that a group of things change in quantity when something is taken away</p> <p>To use quantities and objects, they subtract two single digit numbers and</p> | <p>Use toys and general classroom resources for children to physically manipulate, group/regroup.</p>  <p>Use specific maths resources such as counters, cubes, rekenrek, numicon etc.</p>  <p>Use visual supports such as ten frames, part-part-whole and addition mats, with the physical objects and resources that can be manipulated.</p>  |  | <p>A focus on symbols and numbers to form a calculation.</p> <div style="border: 2px solid blue; padding: 5px; display: inline-block; margin: 10px;"> $10 - 6 = 4$ </div>  |

count back to find the answer.

Subtraction Year 1

Objectives

Concrete

Pictorial

Abstract

To subtract from one-digit and two-digit numbers to 20, including 0.

Use physical objects, counters, cubes etc. to show how objects can be taken away.

Cross out drawn objects to show what has been taken away.

$7 - 4 = 3$

$16 - 9 = 7$

To subtract ones

$6 - 4 = 2$

$4 - 2 = 2$

$18 - 4 =$

To subtract by counting back

13 - 4

6 - 2

5 - 3 = 2

10 - 6 = 4

6 - 2

13 - 4 =

10 - 6 = 4

To find the difference

?

7
4

'7 is 3 more than 4.'

?

Find the difference between 8 and 6.

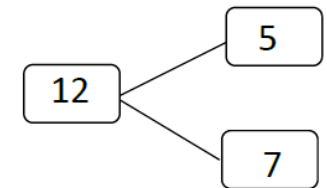
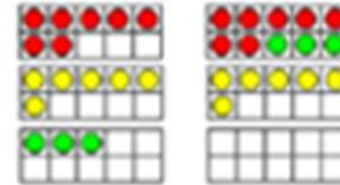
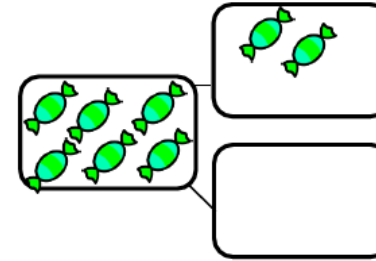
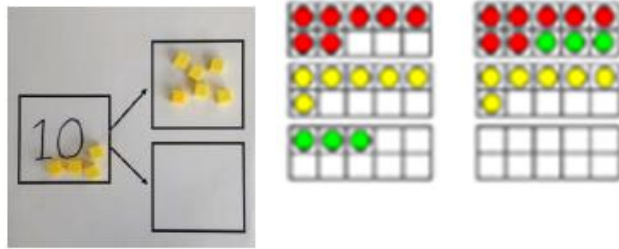
8 - 6, the difference is?

Children to also explore

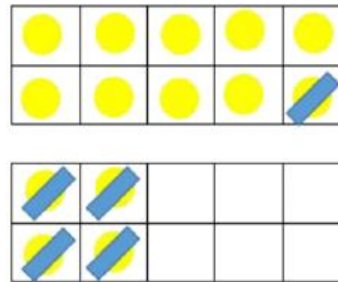
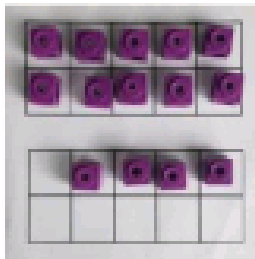
9 - 7 = 8 - 6

Hannah has 12 sweets and her sister has 5. How many more does Hannah have than her sister?

To represent and use number bonds and related subtraction facts within 20



To subtract by making 10



$14 - 4 =$
 How many do we take off to reach the next 10?
 How many do we have left to take off?
 $14 - 5 = 9$
 You also want children to see related facts e.g.
 $15 - 9 = 4$

| | | | |
|--|--|---|--|
| <p>To solve missing number problems.</p> | <p>$13 - \underline{\quad} = 5$</p> | <p>$13 - \underline{\quad} = 5$</p> <p>8 jumps</p> | <p>Children who have grasped the use of the number line concept will be taught to mentally</p> <p>$13 - 3 - 5 = 5$</p> <p>$13 - \underline{\quad} = 5$</p> |
|--|--|---|--|

Subtraction Year 2

| Objectives | Concrete | Pictorial | Abstract |
|--|----------|--|---|
| <p>To subtract a two-digit number and ones, a two-digit number and tens, two two-digit numbers</p> | | <p>Children draw representations of dienes and cross off.</p> <p>$43 - 21 = 22$</p> | <p>$43 - 21 = 22$</p> $\begin{array}{r} 43 \\ - 21 \\ \hline 22 \end{array}$ |

To subtract by using the make ten strategy.

$65 - 28 = 37$

| Tens | Ones |
|------|------|
| | |

$65 - 28 = 37$

| Tens | Ones |
|------|------|
| | |

$65 - 28 = 37$

Subtraction Year 3
- This work revises and reinforces ideas from Key Stage 1, including the focus on place value

Objectives

To subtract ones from a three-digit number (using bonds leading to partitioning)

To subtract tens from a three-digit number (using bonds leading

Concrete

**Examples here show one objective, procedural knowledge to be applied to all. You could also use dienes if children require.*

| Hundreds | Tens | Ones |
|----------|------|------|
| | | |

Pictorial

| Hundreds | Tens | Ones |
|----------|------|------|
| | | |

Abstract

$425 - 1 =$

$563 - 40 =$

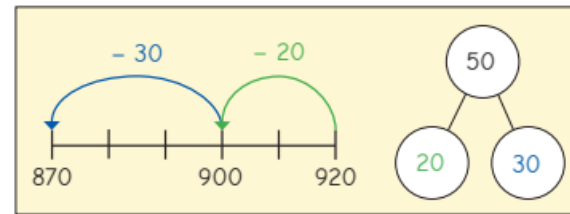
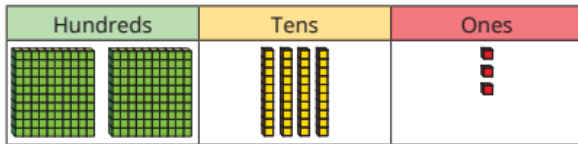
$526 - 200 =$

to partitioning)

To subtract hundreds from a three-digit number (using bonds leading partitioning)

To subtract ones from a three-digit number (using bonds leading to partitioning)

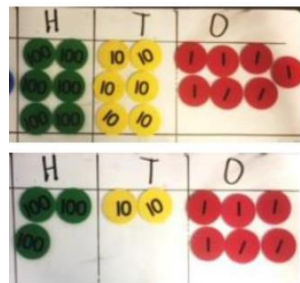
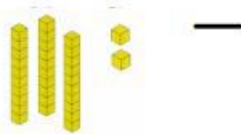
To subtract tens from a three-digit number (using bonds leading to partitioning)



$$243 - 4 =$$

$$342 - 50 =$$

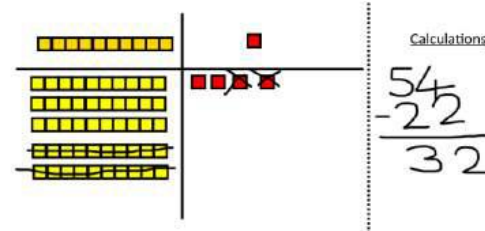
Use dienes to model.



To subtract numbers with up to three-digits, using formal written methods of columnar subtraction.

Column subtraction (without exchanging)

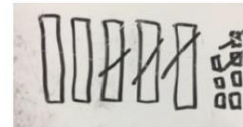
Draw representations to support understanding.



Calculations

$$\begin{array}{r} 57 \\ - 32 \\ \hline 25 \end{array}$$

$$57 - 32 = 25$$



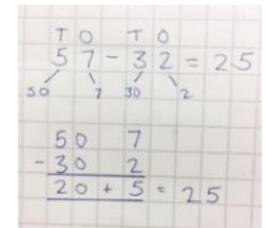
Children should begin with the expanded form.

Intermediate step may be needed to lead to clear subtraction understanding.

$$47 - 24 = 23$$

$$\begin{array}{r} 40 + 7 \\ - 20 + 4 \\ \hline 20 + 3 \end{array}$$

Moving onto a more formal way as below.



- Arrange in a column
- Subtract the ones
- Subtract the tens combine

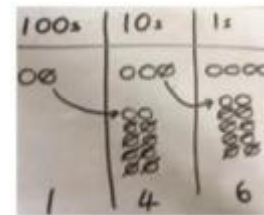
$$\begin{array}{r} 435 \\ - 223 \\ \hline \end{array}$$

Column Subtraction (with exchanging)

45-26



- 1) Start by partitioning 45
- 2) Exchange one ten for ten more ones
- 3) Subtract the ones, then the tens.

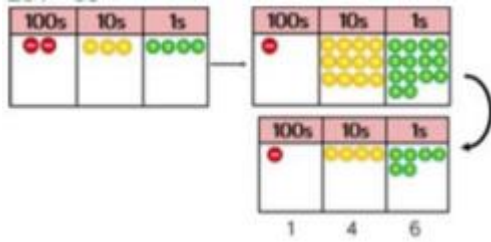


Children should begin with the expanded form by partitioning into place value columns (if required)

$$836 - 254 = 582$$

$$\begin{array}{r} 800 & 30 & 6 \\ - 200 & 50 & 4 \\ \hline 600 & 80 & 2 \end{array}$$

Then move to formal method.



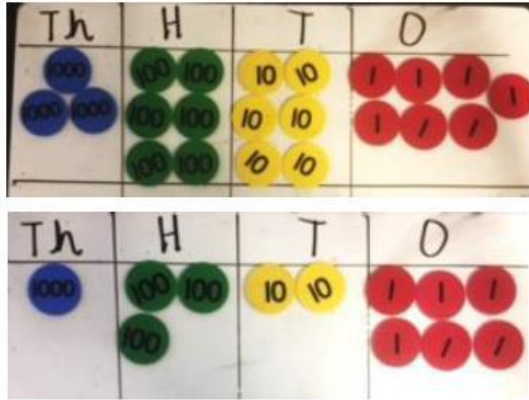
Children must understand what has happened when they have crossed out the digits.

$$\begin{array}{r} 2\cancel{3}4 \\ - \quad 88 \\ \hline \quad \quad 6 \end{array}$$

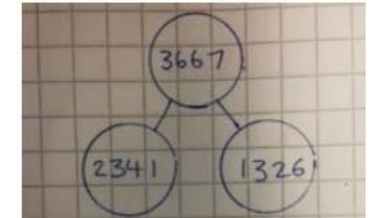
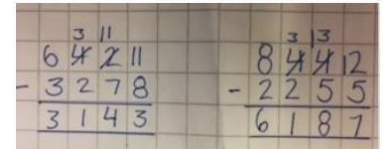
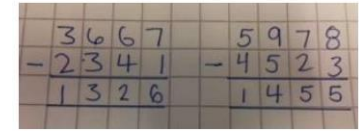
Subtraction Year 4

| Objectives | Concrete | Pictorial | Abstract |
|---|--|-----------|---|
| <p>To subtract multiples of 10, 100 and 1000 from a 4 digit number.</p> | <p>You may choose to also show a representation in dienes.</p> | | <p>2536 - 10</p> <p>3524 - 200</p> <p>2435 - 1000</p> |

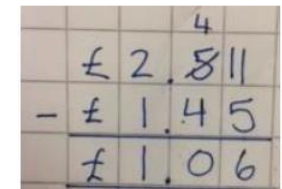
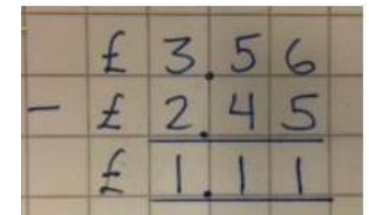
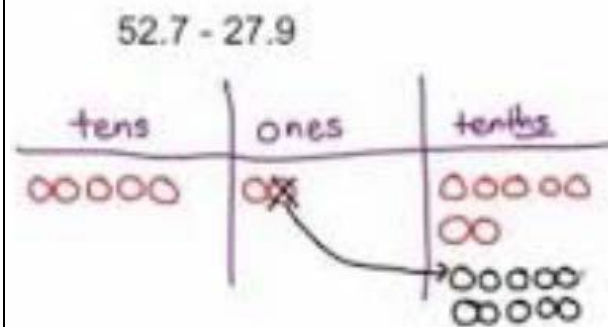
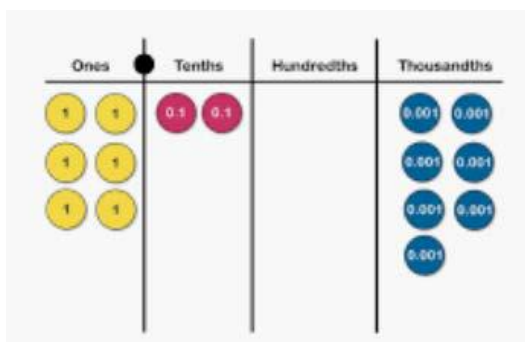
To subtract numbers with up to 4 digits using the formal written methods appropriate of columnar subtraction where appropriate



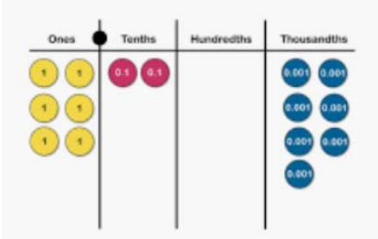
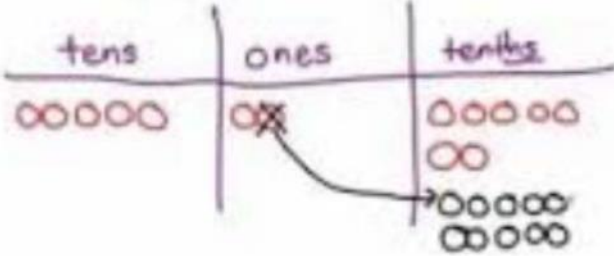
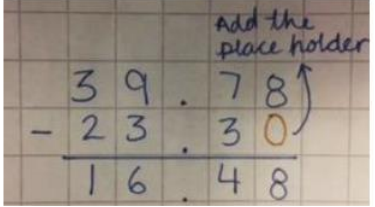
$$3667 - 2341 = 1326$$



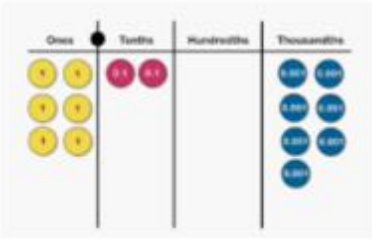


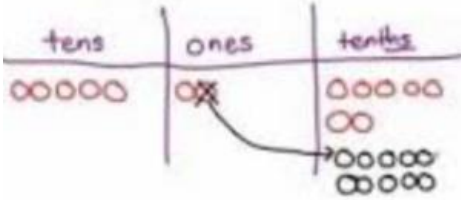

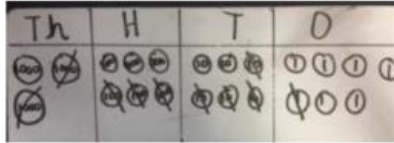
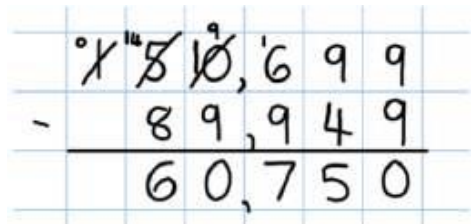
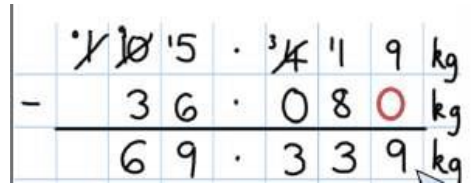
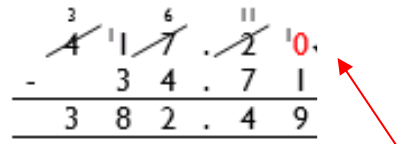
To subtract decimal numbers up to 2dp through context of money

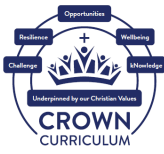


Subtraction Year 5

| Objectives | Concrete | Pictorial | Abstract | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|-----------|----------|---|---|------|-----|----|---|----|---|---|---|------|-----|----|---|--|----|---|---|---|------|-----|----|---|----|---|---|---|------|-----|----|---|----|---|---|---|------|-----|----|---|----|---|---|---|------|-----|----|---|--|
| <p>To subtract with increasingly large and more complex numbers and decimal values (up to 3 decimal place).</p> | <p>Procedural methods from Year 4 shown below which is applied here to larger numbers.</p> <div style="text-align: center;">  </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr><td>1000</td><td>100</td><td>10</td><td>1</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr><td>1000</td><td>100</td><td>10</td><td>1</td></tr> </table> </div> | Th | H | T | O | 1000 | 100 | 10 | 1 | Th | H | T | O | 1000 | 100 | 10 | 1 | <div style="text-align: center; margin-bottom: 20px;"> $52.7 - 27.9$ </div>  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr><td>1000</td><td>100</td><td>10</td><td>1</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr><td>1000</td><td>100</td><td>10</td><td>1</td></tr> </table> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr><td>1000</td><td>100</td><td>10</td><td>1</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr><td>1000</td><td>100</td><td>10</td><td>1</td></tr> </table> </div> | Th | H | T | O | 1000 | 100 | 10 | 1 | Th | H | T | O | 1000 | 100 | 10 | 1 | Th | H | T | O | 1000 | 100 | 10 | 1 | Th | H | T | O | 1000 | 100 | 10 | 1 | <div style="text-align: center; margin-bottom: 20px;"> $\begin{array}{r} \cancel{5}^2 \cancel{2}^1 \cancel{0}^0 \cancel{7}^0 \cancel{6}^0 \\ - \quad \quad 2128 \\ \hline 28928 \end{array}$ </div> <div style="text-align: center; margin-bottom: 20px;">  </div> <div style="text-align: center;"> $\begin{array}{r} \cancel{7}^6 \cancel{7}^5 \cancel{6}^4 \cancel{9}^3 \cdot \cancel{0}^2 \\ - \quad \quad 372 \cdot 5 \\ \hline 6796 \cdot 5 \end{array}$ </div> |
| Th | H | T | O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1000 | 100 | 10 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Th | H | T | O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1000 | 100 | 10 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Th | H | T | O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1000 | 100 | 10 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Th | H | T | O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1000 | 100 | 10 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Th | H | T | O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1000 | 100 | 10 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Th | H | T | O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1000 | 100 | 10 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Subtraction Year 6


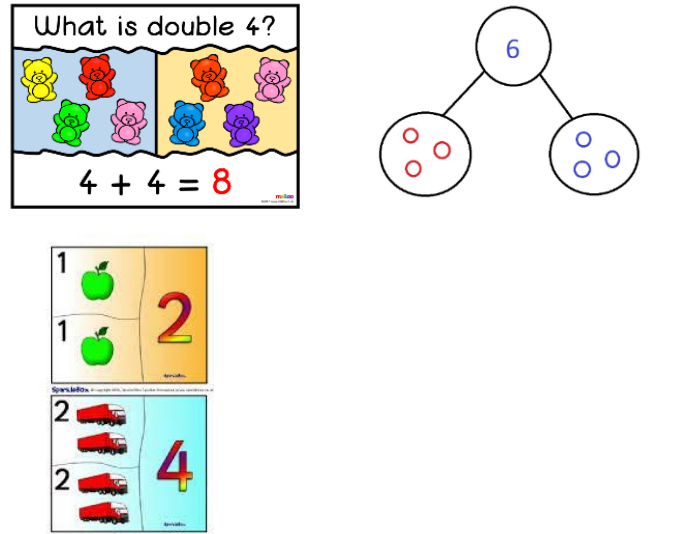


| Objectives | Concrete | Pictorial | Abstract |
|---|--|---|---|
| <p>To subtract with increasingly large and more complex numbers and decimal values.</p> | <p>Procedural methods from Year 4 shown below which is applied here to larger numbers.</p>    | <p style="text-align: center;">$52.7 - 27.9$</p>    |    |



Multiplication - EYFS

ELG Number: ELG Number: - Have a deep understanding of number to 10, including the composition of each number; Subitise (recognise quantities without counting) up to 5; Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

ELG Numerical Patterns: Verbally count beyond 20, recognising the pattern of the counting system; Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

| Objectives | Concrete | Pictorial | Abstract | | | | |
|--|--|--|---|------|------|------|------|
| <p>To solve problems involving doubling</p> |  <p>Physical and real-life examples</p> |  | <p>With a focus to move onto abstract stage. Most children will stay in the concrete and pictorial stage to explore doubling</p> <p>For those children who are ready, exposure of:</p> <table border="1" data-bbox="1713 837 1848 1021"> <tr><td>1+1=</td></tr> <tr><td>2+2=</td></tr> <tr><td>3+3=</td></tr> <tr><td>4+4=</td></tr> </table> | 1+1= | 2+2= | 3+3= | 4+4= |
| 1+1= | | | | | | | |
| 2+2= | | | | | | | |
| 3+3= | | | | | | | |
| 4+4= | | | | | | | |
| <p>To count in ones, twos, tens, odd and even numbers Matching pairs e.g., socks, Noah's ark</p> |  |  | | | | | |

Year 1

| Objectives | Concrete | Pictorial | Abstract |
|--|----------|---|---|
| To use repeated addition | | <p>There are 3 sweets in one bag. How many sweets are in 5 bags altogether?</p> | <p>3×4 $4 + 4 + 4$</p> |
| To count in multiples of twos, fives and tens, | | | <p>Count in multiples of a number aloud. Write sequences with multiples of numbers. $2, 4, 6, 8, 10$ $5, 10, 15, 20, 25, 30$</p> <p>There are two apples on one plate. How many apples on 3 plates?</p> |

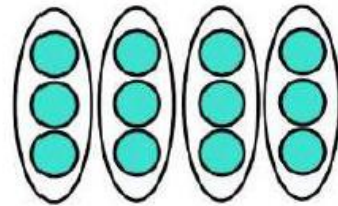
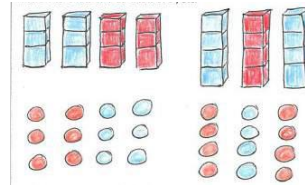
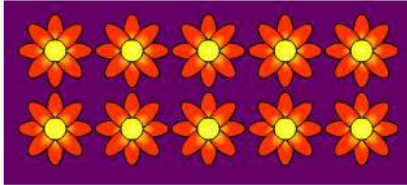
To understand arrays and their connection with repeated addition.

Use objects laid out in arrays to find the answers to 2 lots 5, 3 lots of 2 etc.

Draw representations of arrays to show understanding

$$3 \times 2 = 6$$

$$2 \times 5 = 10$$



Year 2

Objectives

Concrete

Pictorial

Abstract

To count in multiples of 2, 5 and 10.
To recall and use multiplication facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

0 5 10 15 20

$$5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40$$

Count in multiples of a number aloud.
Write sequences with multiples of numbers.
0, 2, 4, 6, 8, 10
0, 3, 6, 9, 12, 15

$$4 \times 3 = \square$$

| | | | |
|---|--|---|---|
| <p>To write the multiplication symbol within a number sentence. Children will also understand that multiplication can be carried out in any order (commutative)</p> | | <p> $5 + 5 + 5 = 15$ $3 + 3 + 3 + 3 + 3 = 15$ $5 \times 3 = 15$ $3 \times 5 = 15$ </p> <p> $4 \times 2 = 8$ $2 \times 4 = 8$ $4 \times 2 = 8$ $2 \times 4 = 8$ </p> | <p> $12 = 3 \times 4$ $12 = 4 \times 3$ $5 + 5 + 5 = 15$ $3 + 3 + 3 + 3 + 3 = 15$ $5 \times 3 = 15$ $3 \times 5 = 15$ </p> |
|---|--|---|---|

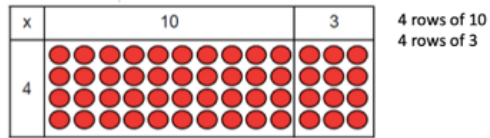
Year 3

| Objectives | Concrete | Pictorial | Abstract |
|---|--|-----------|--|
| <p>To count in multiples of 3, 4 and 8.</p> | <p>Concrete methods from Year 2 applied to new multiplication facts</p> <p> $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40$ </p> | | <p> $3 \times 4 = 12$ $4 + 4 + 4 = 12$ 0, 5, 10, 15, ... 'Multiples of 4 end in 0, 2, 4, 6, 8. They are even numbers.' </p> |

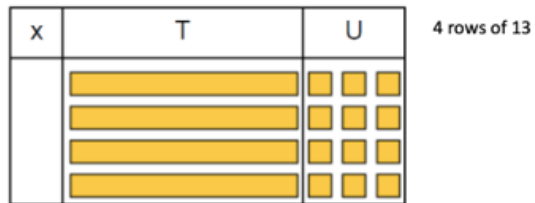
To multiply two-digit number by a one-digit number

Grid method progressing to the formal method. Solving problems including missing number problems, integer scaling problems.

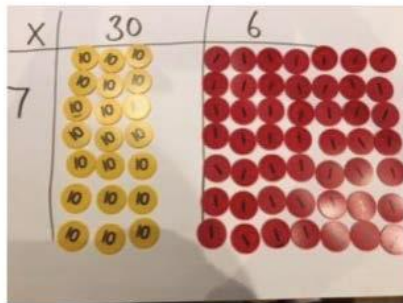
Show the link to arrays to first introduce the grid method.



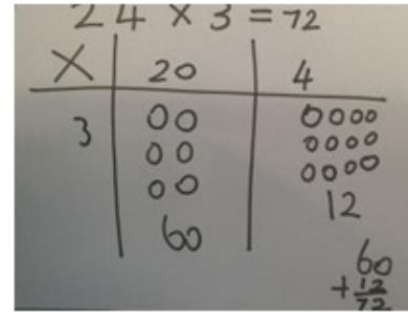
Move on to using Dienes to move towards a more compact method.



Move on to place value counters to show how we are finding groups of a number. Add up each column, starting with the ones making any exchanges needed.



Children can draw place value counters to support their understanding.

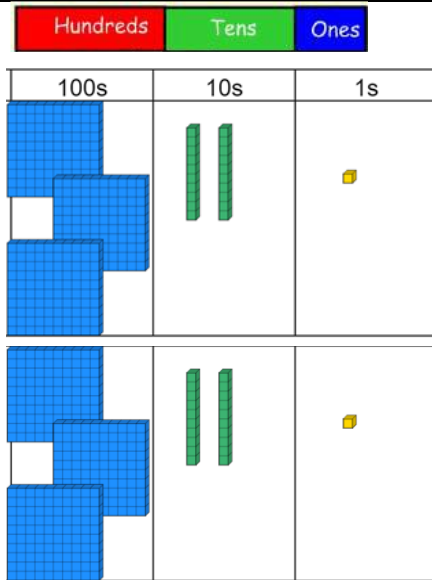


| | | |
|---|-----|----|
| x | 30 | 5 |
| 7 | 210 | 35 |

$$210 + 35 = 245$$

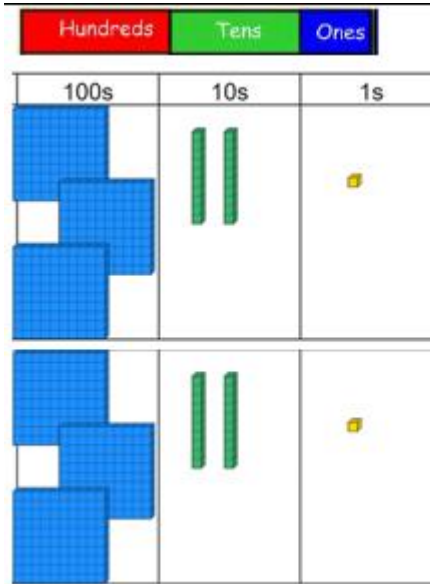
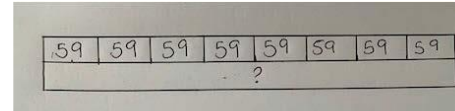
(Progress to column multiplication see below)

To multiply a two or three digit number by a one digit number using column multiplication.

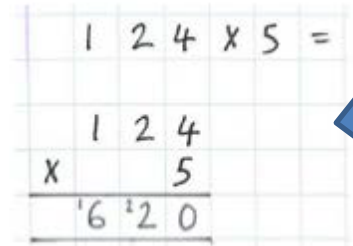
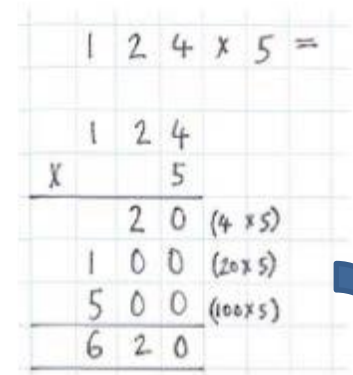


$$321 \times 2 = 642$$

Bar modelling can support learners when solving problems with multiplication alongside the formal written methods.



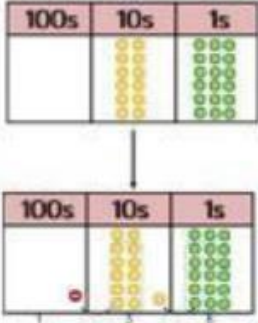
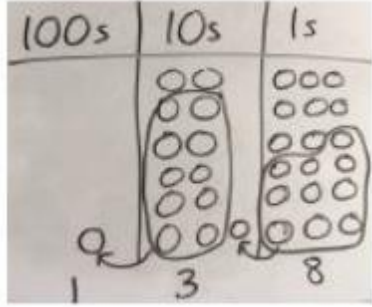
$$321 \times 2 = 642$$



Year 4

| Objectives | Concrete | Pictorial | Abstract | | | | | | | | | | | | | | | | | | |
|---|---|-----------|----------|----|--|--|--|------|-----|----|--|--|--|---|--|---|----|---|---|-----|----|
| <p>To multiply two-digit and three-digit numbers by a one-digit number using formal written layout</p> <p>Grid method recap from year 3 for 2 digits \times 1 digit (for those children who require)</p> <p>Multiplying numbers by 1 digit (year 4 expectation)</p> <p>Multiply two-digit and three-digit numbers by a one-digit number using a formal written layout.</p> | <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 33%;">100s</td> <td style="width: 33%;">10s</td> <td style="width: 33%;">1s</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table> <p style="text-align: right;">$321 \times 2 = 642$</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 33%;">100s</td> <td style="width: 33%;">10s</td> <td style="width: 33%;">1s</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table> | 100s | 10s | 1s | | | | 100s | 10s | 1s | | | | <p style="text-align: center;">$59 \times 8 = 472$</p> | <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 15%;">x</td> <td style="width: 15%;">30</td> <td style="width: 15%;">5</td> </tr> <tr> <td>7</td> <td>210</td> <td>35</td> </tr> </table> <p style="text-align: center;">$210 + 35 = 245$</p> | x | 30 | 5 | 7 | 210 | 35 |
| 100s | 10s | 1s | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| 100s | 10s | 1s | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| x | 30 | 5 | | | | | | | | | | | | | | | | | | | |
| 7 | 210 | 35 | | | | | | | | | | | | | | | | | | | |

Year 5

| Objectives | Concrete | Pictorial | Abstract | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|--|---|----|---|---|---|--|---|---|---|---|---|--|---|---|---|--|---|---|---|---|--|---|---|---|--|--|--|--|--|--|--|--|-------|--|--|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|--|--|---|---|---|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|--|--|---|---|---|---|--|--|--|--|--|--|-------|--|--|--|--|--|--|--|--|--|---|---|---|---|--|--|--|--|
| <p>To multiply numbers up to 4 digits by a one-digit number using a formal written layout.</p> <p>Column multiplication (short multiplication)</p> | <p>$6 \times 23 =$</p>  | <p>$23 \times 6 =$</p>  | <table border="1" data-bbox="1816 352 2029 555"> <tr><td></td><td>Th</td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td>1</td><td>8</td><td>2</td><td>6</td></tr> <tr><td>x</td><td></td><td></td><td></td><td>3</td></tr> <tr><td></td><td>5</td><td>4</td><td>7</td><td>8</td></tr> <tr><td></td><td>2</td><td></td><td>1</td><td></td></tr> </table> | | Th | H | T | O | | 1 | 8 | 2 | 6 | x | | | | 3 | | 5 | 4 | 7 | 8 | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Th | H | T | O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 8 | 2 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| x | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5 | 4 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>To multiply numbers up to 4 digits by two-digit numbers, including long multiplication for two-digit numbers.</p> <p>Column multiplication (long multiplication)</p> | | | <table data-bbox="1704 715 2096 970"> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>x</td> <td></td> <td>8</td> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>2</td> <td>7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td colspan="2">-----</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>2</td> <td>8</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>5</td> <td>6</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>8</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>1</td> <td>6</td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td colspan="3">-----</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>2</td> <td>2</td> <td>6</td> <td>8</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | | | | | | | | | | | x | | 8 | 4 | | | | | | | | | 2 | 7 | | | | | | | | | ----- | | | | | | | | | | 2 | 8 | | | | | | | | | 5 | 6 | 0 | | | | | | | | 8 | 0 | | | | | | | | | 1 | 6 | 0 | 0 | | | | | | | ----- | | | | | | | | | | 2 | 2 | 6 | 8 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| x | | 8 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | ----- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 5 | 6 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 8 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 6 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | ----- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2 | 2 | 6 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Year 6

| Objectives | Concrete | Pictorial | Abstract | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----------------------------------|--|--|--|---|---|---|--|---|---|---|---|---|--|--|--|---|--|---|---|---|---|--|---|--|---|--|
| <p>(Consolidate Year 5 short multiplication)</p> <p>To multiply numbers up to 4 digits by a one-digit number using a formal written layout</p> | <p>Formal column method with place value counters.</p> <p>$6 \times 23 =$</p> | <p>$23 \times 6 =$</p> | <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>Th</td> <td>H</td> <td>T</td> <td>O</td> </tr> <tr> <td></td> <td>1</td> <td>8</td> <td>2</td> <td>6</td> </tr> <tr> <td>x</td> <td></td> <td></td> <td></td> <td>3</td> </tr> <tr> <td></td> <td>5</td> <td>4</td> <td>7</td> <td>8</td> </tr> <tr> <td></td> <td>2</td> <td></td> <td>1</td> <td></td> </tr> </table> | | Th | H | T | O | | 1 | 8 | 2 | 6 | x | | | | 3 | | 5 | 4 | 7 | 8 | | 2 | | 1 | |
| | Th | H | T | O | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 8 | 2 | 6 | | | | | | | | | | | | | | | | | | | | | | | | |
| x | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5 | 4 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>To use long multiplication for multiplying a number up to four digits by two-digit number (consolidate from Year 5)</p> | | | <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;"> $\begin{array}{r} 84 \\ \times 27 \\ \hline 28 \\ 560 \\ 80 \\ \hline 1,600 \\ 2268 \end{array}$ </td> <td style="text-align: right;"> $\begin{array}{r} 84 \\ \times 27 \\ \hline 588 \\ 1,680 \\ \hline 2268 \end{array}$ </td> </tr> </table> | $\begin{array}{r} 84 \\ \times 27 \\ \hline 28 \\ 560 \\ 80 \\ \hline 1,600 \\ 2268 \end{array}$ | $\begin{array}{r} 84 \\ \times 27 \\ \hline 588 \\ 1,680 \\ \hline 2268 \end{array}$ | | | | | | | | | | | | | | | | | | | | | | | |
| $\begin{array}{r} 84 \\ \times 27 \\ \hline 28 \\ 560 \\ 80 \\ \hline 1,600 \\ 2268 \end{array}$ | $\begin{array}{r} 84 \\ \times 27 \\ \hline 588 \\ 1,680 \\ \hline 2268 \end{array}$ | | | | | | | | | | | | | | | | | | | | | | | | | | | |



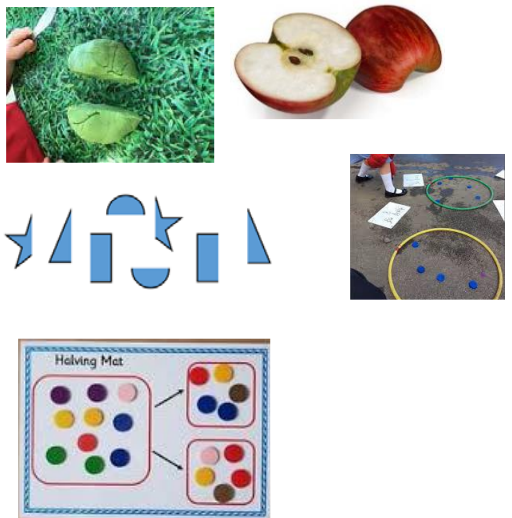
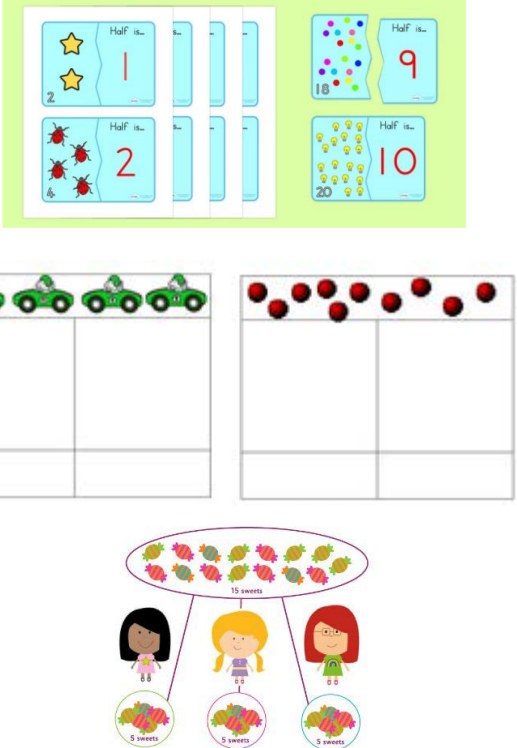
| | | | <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>TTh</th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td>2</td> <td>7</td> <td>3</td> <td>9</td> </tr> <tr> <td>x</td> <td></td> <td></td> <td>2</td> <td>8</td> </tr> <tr> <td>2</td> <td>1</td> <td>9</td> <td>1</td> <td>2</td> </tr> <tr> <td>2</td> <td>5</td> <td>3</td> <td>7</td> <td></td> </tr> <tr> <td>5</td> <td>4</td> <td>7</td> <td>8</td> <td>0</td> </tr> <tr> <td>1</td> <td></td> <td>1</td> <td></td> <td></td> </tr> <tr> <td>7</td> <td>6</td> <td>6</td> <td>9</td> <td>2</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>1</td> </tr> </tbody> </table> | TTh | Th | H | T | O | | 2 | 7 | 3 | 9 | x | | | 2 | 8 | 2 | 1 | 9 | 1 | 2 | 2 | 5 | 3 | 7 | | 5 | 4 | 7 | 8 | 0 | 1 | | 1 | | | 7 | 6 | 6 | 9 | 2 | | | | | 1 |
|--|----|---|--|-----|----|---|---|---|--|---|---|---|---|---|--|--|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|---|--|---|--|--|---|---|---|---|---|--|--|--|--|---|
| TTh | Th | H | T | O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | 7 | 3 | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| x | | | 2 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 1 | 9 | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 5 | 3 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 4 | 7 | 8 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 6 | 6 | 9 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p><i>To multiply decimals up to 2 decimal places by a single digit.</i></p> | | | $ \begin{array}{r} 641.85 \\ \times 4 \\ \hline 2567.40 \end{array} $ <p style="text-align: right;"> It has 2 decimal places We place the decimal point so that there are 2 decimal places </p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Division

EYFS

ELG Number: ELG Number: ELG Number: - Have a deep understanding of number to 10, including the composition of each number; Subitise (recognise quantities without counting) up to 5; Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.



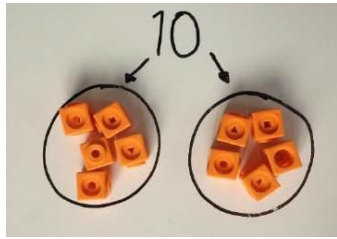

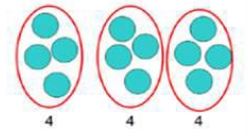
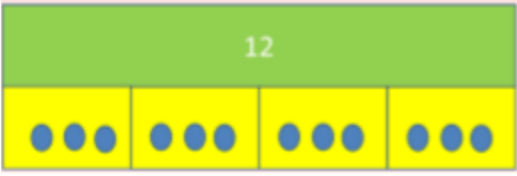
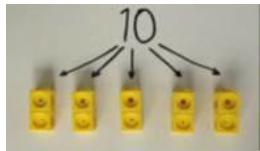
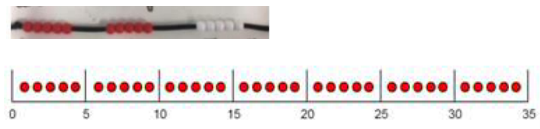
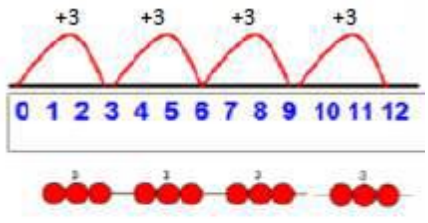
ELG Numerical Patterns: Verbally count beyond 20, recognising the pattern of the counting system; Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

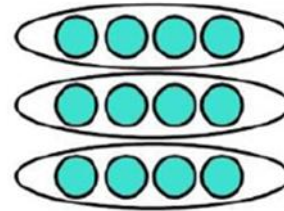
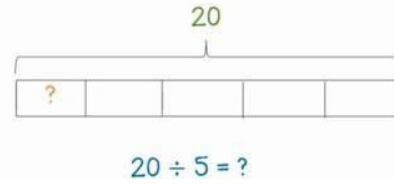
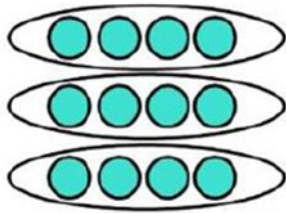
| Objectives | Concrete | Pictorial | Abstract |
|---|---|--|----------|
| <p>To solve problems including halving and sharing.</p> <ul style="list-style-type: none"> • Halving a whole, halving a quantity of objects. • Sharing a quantity of objects. | <p>Real life examples.</p>  |  | |

Year 1


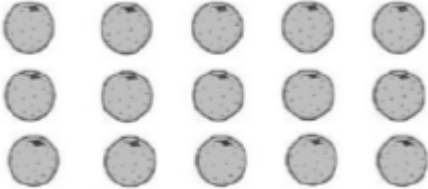
| Objectives | Concrete | Pictorial | Abstract |
|---|----------|--|---|
| <p>To share objects into equal groups</p> | | <p>8 shared between 2 is 4</p> <p>12 shared between 3 is 4</p> | <p>12 shared between 4 is 3</p> <p>Share 9 buns between 3 people.</p> |

Year 2

| Objectives | Concrete | Pictorial | Abstract |
|---|---|--|--|
| <p>To solve one-step problems with division by sharing into equal groups.</p> |    | <p>8 shared between 2 is 4</p>  <p>Sharing.</p>  <p>12 shared between 3 is 4</p>  <p>$12 \div 4 = 3$</p> | <p>12 shared between 4 is 3</p> $12 \div 4 = 3$ <p>Share 9 buns between 3 people.</p> $9 \div 3 = 3$ |
| <p>To solve one-step problems with division as grouping.</p> |   |  <p>$12 \div 4 = 3$</p> | <p>$28 \div 7 = 4$</p> <p>Divide 28 into 7 groups.</p> <p>How many are in each group?</p> |



Year 3

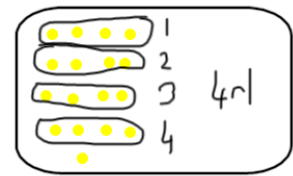
| Objectives | Concrete | Pictorial | Abstract |
|-------------------------------------|--|---|---|
| <p>To divide by using an array.</p> | <p>Eg $15 \div 3 = 5$ $5 \times 3 = 15$ $15 \div 5 = 3$ $3 \times 5 = 15$</p>  |  | <p>$7 \times 4 = 28$ $4 \times 7 = 28$ $28 \div 7 = 4$ $28 \div 4 = 7$ $28 = 7 \times 4$ $28 = 4 \times 7$ $4 = 28 \div 7$ $7 = 28 \div 4$</p> |

To divide by a 1 digit number, using remainders.

$$17 \div 4 = 4 \text{ r } 1$$



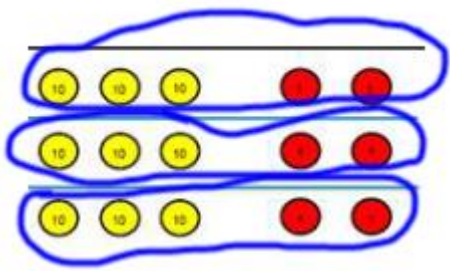
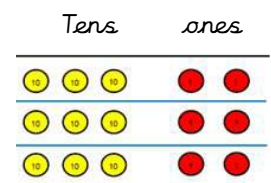
$$17 \div 4 =$$



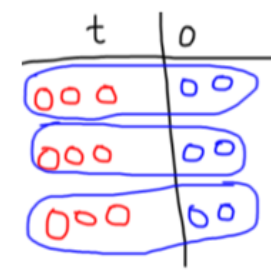
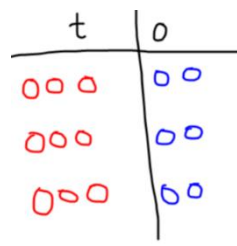
$$17 \div 4 = 4 \text{ r } 1$$

To divide a 3 digit number by a 1 digit number using short division.

$$96 \div 3$$



$$96 \div 3$$



$$96 \div 3$$

$$\begin{array}{r} 32 \\ 3 \overline{)96} \end{array}$$

$$\begin{array}{r} 218 \\ 4 \overline{)872} \end{array}$$

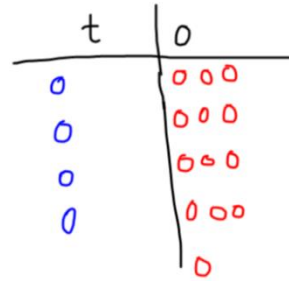
| | | | | | |
|---|---|---|---|---|---|
| 6 | 1 | 5 | ÷ | 5 | = |
| | | | | | |
| | 1 | 2 | 3 | | |
| 5 | 6 | 1 | 5 | | |

Year 4

| Objectives | Concrete | Pictorial | Abstract | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----------|----------|--|----|----|----|---|---|---|--|----|----|----|---|---|---|--|----|----|----|---|---|---|--|---|---|-----|----|-----|----|-----|----|---|
| <p>To divide 3-digit numbers by 1 digit using short division</p> | <p style="text-align: center;">$96 \div 3$</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Tens</th> <th style="text-align: center;">ones</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 60px; height: 20px;"> <tr><td style="text-align: center;">10</td><td style="text-align: center;">10</td><td style="text-align: center;">10</td></tr> </table> </td> <td style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="text-align: center;">●</td><td style="text-align: center;">●</td></tr> </table> </td> </tr> <tr> <td style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 60px; height: 20px;"> <tr><td style="text-align: center;">10</td><td style="text-align: center;">10</td><td style="text-align: center;">10</td></tr> </table> </td> <td style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="text-align: center;">●</td><td style="text-align: center;">●</td></tr> </table> </td> </tr> <tr> <td style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 60px; height: 20px;"> <tr><td style="text-align: center;">10</td><td style="text-align: center;">10</td><td style="text-align: center;">10</td></tr> </table> </td> <td style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="text-align: center;">●</td><td style="text-align: center;">●</td></tr> </table> </td> </tr> </tbody> </table> | Tens | ones | <table border="1" style="border-collapse: collapse; width: 60px; height: 20px;"> <tr><td style="text-align: center;">10</td><td style="text-align: center;">10</td><td style="text-align: center;">10</td></tr> </table> | 10 | 10 | 10 | <table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="text-align: center;">●</td><td style="text-align: center;">●</td></tr> </table> | ● | ● | <table border="1" style="border-collapse: collapse; width: 60px; height: 20px;"> <tr><td style="text-align: center;">10</td><td style="text-align: center;">10</td><td style="text-align: center;">10</td></tr> </table> | 10 | 10 | 10 | <table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="text-align: center;">●</td><td style="text-align: center;">●</td></tr> </table> | ● | ● | <table border="1" style="border-collapse: collapse; width: 60px; height: 20px;"> <tr><td style="text-align: center;">10</td><td style="text-align: center;">10</td><td style="text-align: center;">10</td></tr> </table> | 10 | 10 | 10 | <table border="1" style="border-collapse: collapse; width: 40px; height: 20px;"> <tr><td style="text-align: center;">●</td><td style="text-align: center;">●</td></tr> </table> | ● | ● | <p style="text-align: center;">$96 \div 3$</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">t</th> <th style="text-align: center;">o</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">○○○</td> <td style="text-align: center;">○○</td> </tr> <tr> <td style="text-align: center;">○○○</td> <td style="text-align: center;">○○</td> </tr> <tr> <td style="text-align: center;">○○○</td> <td style="text-align: center;">○○</td> </tr> </tbody> </table> | t | o | ○○○ | ○○ | ○○○ | ○○ | ○○○ | ○○ | <p style="text-align: center;">$96 \div 3$</p> $\begin{array}{r} 32 \\ 3 \overline{)96} \\ \underline{96} \\ 0 \end{array}$ $\begin{array}{r} 218 \\ 4 \overline{)872} \\ \underline{8} \\ 7 \\ \underline{72} \\ 0 \end{array}$ |
| Tens | ones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 10 | 10 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 10 | 10 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 10 | 10 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ○○○ | ○○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ○○○ | ○○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ○○○ | ○○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

To divide a 2 and 3 digit number using short division using remainders.

$$53 \div 4$$



$$53 \div 4 = 13 \text{ r}1$$

$$4 \overline{) 53} \begin{matrix} 13 \text{ r}1 \end{matrix}$$

Year 5

Objectives

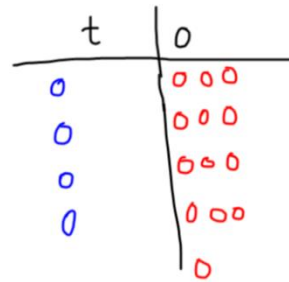
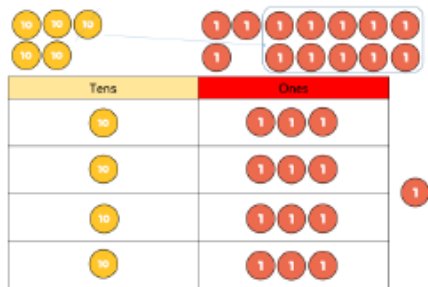
Concrete

Pictorial

Abstract

To use short division to solve division problems, including with remainders (numbers greater than 4 digits)

$$53 \div 4$$



$$53 \div 4 = 13 \text{ r}1$$

$$4 \overline{) 53} \begin{matrix} 13 \text{ r}1 \end{matrix}$$



NUMBER FACTS FLUENCY OVERVIEW



Year 6

| Objectives | Concrete | Pictorial | Abstract |
|--|---|-----------|---|
| <p>To divide numbers up to 4 digits by a two-digit whole number using the formal written method of division. (Long division)</p> | <p>Children to be secure with short division prior to progression to long division.</p> | | $\begin{array}{r} 32r13 \\ 15 \overline{)493} \\ \underline{450} \\ 43 \\ \underline{30} \\ 13 \end{array}$ $\begin{array}{r} 406r11 \\ 22 \overline{)8943} \\ \underline{8800} \\ 143 \\ \underline{132} \\ 11 \end{array}$ |

