



## **Barley Croft Primary Power Maths calculation policy – KS1**

The following pages show the *Power Maths* progression in calculation (addition, subtraction, multiplication and division) and how this works in line with the National Curriculum. The consistent use of the CPA (concrete, pictorial, abstract) approach across *Power Maths* helps children develop mastery across all the operations in an efficient and reliable way. This policy shows how these methods develop children's confidence in their understanding of both written and mental methods.

## KEY STAGE 1

Children develop the core ideas that underpin all calculation. They begin by connecting calculation with counting on and counting back, but they should learn that understanding wholes and parts will enable them to calculate efficiently and accurately, and with greater flexibility. They learn how to use an understanding of 10s and 1s to develop their calculation strategies, especially in addition and subtraction.

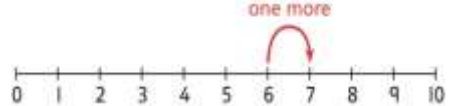
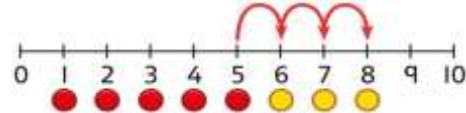
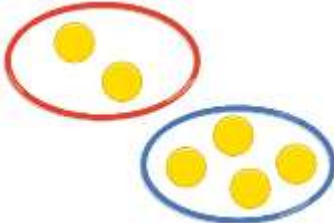
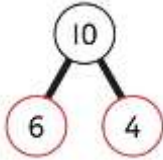
**Key language:** whole, part, ones, ten, tens, number bond, add, addition, plus, total, altogether, subtract, subtraction, find the difference, take away, minus, less, more, group, share, equal, equals, is equal to, groups, equal groups, times, multiply, multiplied by, divide, share, shared equally, times-table

**Addition and subtraction:** Children first learn to connect addition and subtraction with counting, but they soon develop two very important skills: an understanding of parts and wholes, and an understanding of unitising 10s, to develop efficient and effective calculation strategies based on known number bonds and an increasing awareness of place value. Addition and subtraction are taught in a way that is interlinked to highlight the link between the two operations. A key idea is that children will select methods and approaches based on their number sense. For example, in Year 1, when faced with  $15 - 3$  and  $15 - 13$ , they will adapt their ways of approaching the calculation appropriately. The teaching should always emphasise the importance of mathematical thinking to ensure accuracy and flexibility of approach, and the importance of using known number facts to harness their recall of bonds within 20 to support both addition and subtraction methods. In Year 2, they will start to see calculations presented in a column format, although this is not expected to be formalised until KS2. We show the column method in Year 2 as an option; teachers may not wish to include it until Year 3.

**Multiplication and division:** Children develop an awareness of equal groups and link this with counting in equal steps, starting with 2s, 5s and 10s. In Year 2, they learn to connect the language of equal groups with the mathematical symbols for multiplication and division. They learn how multiplication and division can be related to repeated addition and repeated subtraction to find the answer to the calculation. In this key stage, it is vital that children explore and experience a variety of strong images and manipulative representations of equal groups, including concrete experiences as well as abstract calculations. Children begin to recall some key multiplication facts, including doubles, and an understanding of the 2, 5 and 10 times-tables and how they are related to counting.

**Fractions:** In Year 1, children encounter halves and quarters, and link this with their understanding of sharing. They experience key spatial representations of these fractions, and learn to recognise examples and non-examples, based on their awareness of equal parts of a whole. In Year 2, they develop an awareness of unit fractions and experience non-unit fractions, and they learn to write them and read them in the common format of numerator and denominator.

## Year 1

|                                  | Concrete                                                                                                                                                                                                                                                                               | Pictorial                                                                                                                                                                                                                                                                                 | Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Year 1</b><br><b>Addition</b> | <b>Counting and adding more</b><br>Children add one more person or object to a group to find one more.                                                                                                                                                                                 | <b>Counting and adding more</b><br>Children add one more cube or counter to a group to represent one more.<br><br><br><br><i>One more than 4 is 5.</i>                                                  | <b>Counting and adding more</b><br>Use a number line to understand how to link counting on with finding one more.<br><br><br><br><i>One more than 6 is 7.</i><br><i>7 is one more than 6.</i><br><br>Learn to link counting on with adding more than one.<br><br><br><br>$5 + 3 = 8$ |
|                                  | <b>Understanding part-part-whole relationship</b><br>Sort people and objects into parts and understand the relationship with the whole.<br><br><br><br><i>The parts are 2 and 4. The whole is 6.</i> | <b>Understanding part-part-whole relationship</b><br>Children draw to represent the parts and understand the relationship with the whole.<br><br><br><br><i>The parts are 1 and 5. The whole is 6.</i> | <b>Understanding part-part-whole relationship</b><br>Use a part-whole model to represent the numbers.<br><br><br><br>$6 + 4 = 10$<br><br>$6 + 4 = 10$                                                                                                                                                                                                                  |
|                                  | <b>Knowing and finding number bonds within 10</b>                                                                                                                                                                                                                                      | <b>Knowing and finding number bonds within 10</b>                                                                                                                                                                                                                                         | <b>Knowing and finding number bonds within 10</b>                                                                                                                                                                                                                                                                                                                                                                                                          |

Break apart a group and put back together to find and form number bonds.

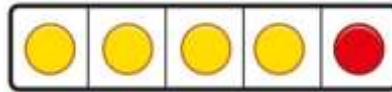


$$3 + 4 = 7$$

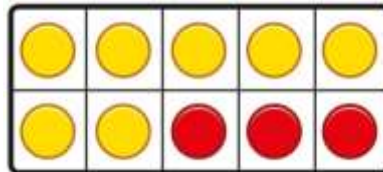


$$6 = 2 + 4$$

Use five and ten frames to represent key number bonds.

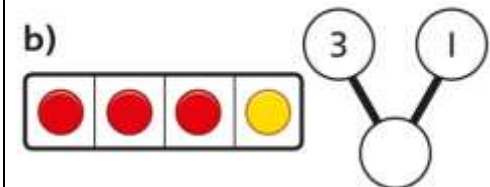
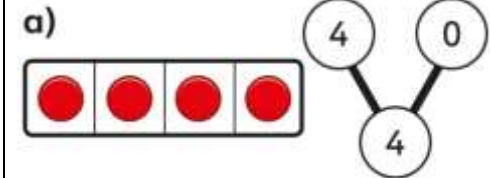


$$5 = 4 + 1$$



$$10 = 7 + 3$$

Use a part-whole model alongside other representations to find number bonds. Make sure to include examples where one of the parts is zero.



$$4 + 0 = 4$$

$$3 + 1 = 4$$

**Understanding teen numbers as a complete 10 and some more**

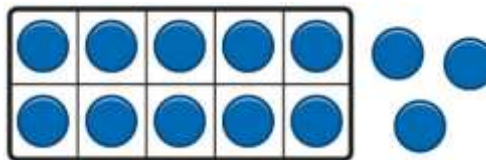
Complete a group of 10 objects and count more.



*13 is 10 and 3 more.*

**Understanding teen numbers as a complete 10 and some more**

Use a ten frame to support understanding of a complete 10 for teen numbers.



*13 is 10 and 3 more.*

**Understanding teen numbers as a complete 10 and some more.**

*1 ten and 3 ones equal 13.*

$$10 + 3 = 13$$

**Adding by counting on**

Children use knowledge of counting to 20 to find a total by counting on using people or objects.

**Adding by counting on**

Children use counters to support and represent their counting on strategy.

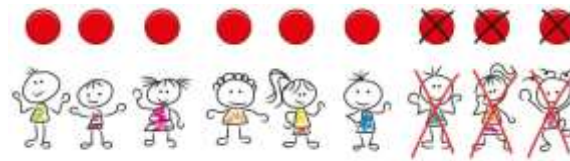
**Adding by counting on**

Children use number lines or number tracks to support their counting on strategy.

|                                  |                                                                                                                                                                                                                                                                  |                                                                                                                                                                           |                                                                                                                                                                                                     |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                  |                                                                                                                                                                                                                                                                  |                                                                                                                                                                           | <br>$7 + 5 = \square$                                                                                                                                                                               |
|                                  | <p><b>Adding the 1s</b><br/>Children use bead strings to recognise how to add the 1s to find the total efficiently.</p><br>$2 + 3 = 5$<br>$12 + 3 = 15$                                                                                                          | <p><b>Adding the 1s</b><br/>Children represent calculations using ten frames to add a teen and 1s.</p><br>$2 + 3 = 5$<br>$12 + 3 = 15$                                    | <p><b>Adding the 1s</b><br/>Children recognise that a teen is made from a 10 and some 1s and use their knowledge of addition within 10 to work efficiently.</p><br>$3 + 5 = 8$<br>So, $13 + 5 = 18$ |
|                                  | <p><b>Bridging the 10 using number bonds</b><br/>Children use a bead string to complete a 10 and understand how this relates to the addition.</p><br>$7 \text{ add } 3 \text{ makes } 10.$<br>So, $7 \text{ add } 5 \text{ is } 10 \text{ and } 2 \text{ more.}$ | <p><b>Bridging the 10 using number bonds</b><br/>Children use counters to complete a ten frame and understand how they can add using knowledge of number bonds to 10.</p> | <p><b>Bridging the 10 using number bonds</b><br/>Use a part-whole model and a number line to support the calculation.</p><br>$9 + 4 = 13$                                                           |
| <p><b>Year 1 Subtraction</b></p> | <p><b>Counting back and taking away</b><br/>Children arrange objects and remove to find how many are left.</p>                                                                                                                                                   | <p><b>Counting back and taking away</b><br/>Children draw and cross out or use counters to represent objects from a problem.</p>                                          | <p><b>Counting back and taking away</b><br/>Children count back to take away and use a number line or number track to support the method.</p>                                                       |



1 less than 6 is 5.  
6 subtract 1 is 5.



$$9 - \square = \square$$

There are  children left.



$$9 - 3 = 6$$

### Finding a missing part, given a whole and a part

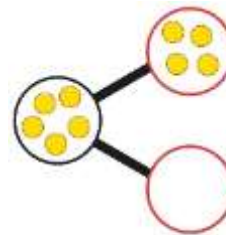
Children separate a whole into parts and understand how one part can be found by subtraction.



$$8 - 5 = ?$$

### Finding a missing part, given a whole and a part

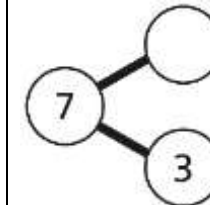
Children represent a whole and a part and understand how to find the missing part by subtraction.



$$5 - 4 = \square$$

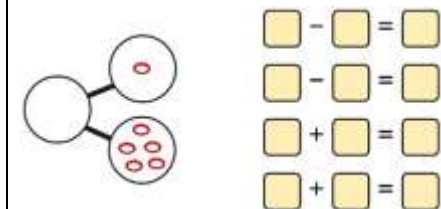
### Finding a missing part, given a whole and a part

Children use a part-whole model to support the subtraction to find a missing part.



$$7 - 3 = ?$$

Children develop an understanding of the relationship between addition and subtraction facts in a part-whole model.



### Finding the difference

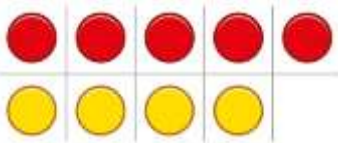
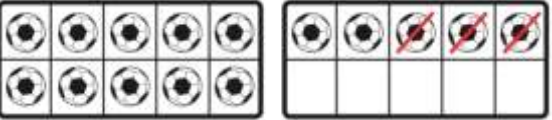
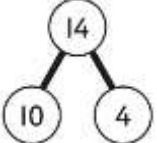
Arrange two groups so that the difference between the groups can be worked out.

### Finding the difference

Represent objects using sketches or counters to support finding the difference.

### Finding the difference

Children understand 'find the difference' as subtraction.

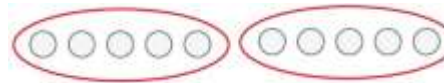
|  |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                       |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  <p>8 is 2 more than 6.<br/>6 is 2 less than 8.<br/>The difference between 8 and 6 is 2.</p>                                                                                                                 |  <p><math>5 - 4 = 1</math><br/>The difference between 5 and 4 is 1.</p>                                                                                                                                 |  <p><math>10 - 4 = 6</math><br/>The difference between 10 and 6 is 4.</p>                                                                                                                                          |
|  | <p><b>Subtraction within 20</b><br/>Understand when and how to subtract 1s efficiently.</p> <p>Use a bead string to subtract 1s efficiently.</p>  <p><math>5 - 3 = 2</math><br/><math>15 - 3 = 12</math></p> | <p><b>Subtraction within 20</b><br/>Understand when and how to subtract 1s efficiently.</p>  <p><math>5 - 3 = 2</math><br/><math>15 - 3 = 12</math></p>                                                 | <p><b>Subtraction within 20</b><br/>Understand how to use knowledge of bonds within 10 to subtract efficiently.</p> <p><math>5 - 3 = 2</math><br/><math>15 - 3 = 12</math></p>                                                                                                                        |
|  | <p><b>Subtracting 10s and 1s</b><br/>For example: <math>18 - 12</math></p> <p>Subtract 12 by first subtracting the 10, then the remaining 2.</p>  <p>First subtract the 10, then take away 2.</p>          | <p><b>Subtracting 10s and 1s</b><br/>For example: <math>18 - 12</math></p> <p>Use ten frames to represent the efficient method of subtracting 12.</p>  <p>First subtract the 10, then subtract 2.</p> | <p><b>Subtracting 10s and 1s</b><br/>Use a part-whole model to support the calculation.</p>  <p><math>19 - 14</math><br/><math>19 - 10 = 9</math><br/><math>9 - 4 = 5</math><br/>So, <math>19 - 14 = 5</math></p> |
|  | <p><b>Subtraction bridging 10 using number bonds</b><br/>For example: <math>12 - 7</math></p>                                                                                                                                                                                                 | <p><b>Subtraction bridging 10 using number bonds</b><br/>Represent the use of bonds using ten frames.</p>                                                                                                                                                                                 | <p><b>Subtraction bridging 10 using number bonds</b><br/>Use a number line and a part-whole model to support the method.</p>                                                                                                                                                                          |

|                          |                                                                                                                                                                    |                                                                                                                                                  |                                                                                                                                                                      |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          | <p>Arrange objects into a 10 and some 1s, then decide on how to split the 7 into parts.</p> <p>7 is 2 and 5, so I take away the 2 and then the 5.</p>              | <p>For <math>13 - 5</math>, I take away 3 to make 10, then take away 2 to make 8.</p>                                                            | <p><math>13 - 5</math></p>                                                                                                                                           |
| Year 1<br>Multiplication | <p><b>Recognising and making equal groups</b><br/>Children arrange objects in equal and unequal groups and understand how to recognise whether they are equal.</p> | <p><b>Recognising and making equal groups</b><br/>Children draw and represent equal and unequal groups.</p>                                      | <p><b>Describe equal groups using words</b></p> <p>Three equal groups of 4.<br/>Four equal groups of 3.</p>                                                          |
|                          | <p><b>Finding the total of equal groups by counting in 2s, 5s and 10s</b></p> <p>There are 5 pens in each pack ...<br/>5...10...15...20...25...30...35...40...</p> | <p><b>Finding the total of equal groups by counting in 2s, 5s and 10s</b><br/>100 squares and ten frames support counting in 2s, 5s and 10s.</p> | <p><b>Finding the total of equal groups by counting in 2s, 5s and 10s</b><br/>Use a number line to support repeated addition through counting in 2s, 5s and 10s.</p> |
| Year 1<br>Division       | <p><b>Grouping</b><br/>Learn to make equal groups from a whole and find how many equal groups of a certain size can be made.</p>                                   | <p><b>Grouping</b><br/>Represent a whole and work out how many equal groups.</p>                                                                 | <p><b>Grouping</b><br/>Children may relate this to counting back in steps of 2, 5 or 10.</p>                                                                         |

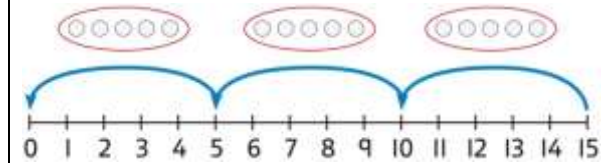
Sort a whole set people and objects into equal groups.



*There are 10 children altogether.  
There are 2 in each group.  
There are 5 groups.*

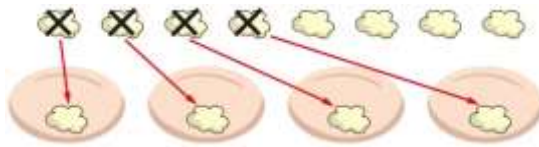


*There are 10 in total.  
There are 5 in each group.  
There are 2 groups.*



### Sharing

Share a set of objects into equal parts and work out how many are in each part.



### Sharing

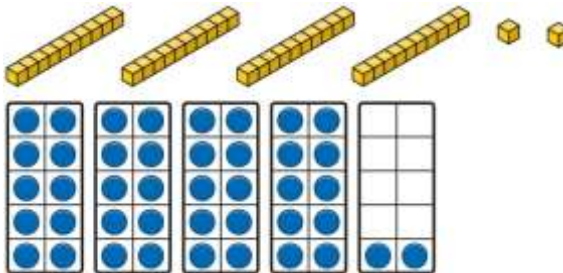
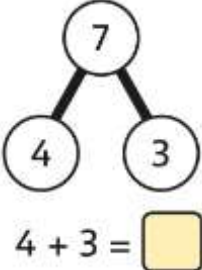
Sketch or draw to represent sharing into equal parts. This may be related to fractions.



### Sharing

*10 shared into 2 equal groups gives 5 in each group.*

## Year 2

|                                                                                     | Concrete                                                                                                                                                                                                                                                       | Pictorial                                                                                                                                                                                                                               | Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |      |                                                                                     |                                                                                     |   |   |      |      |   |   |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---|---|------|------|---|---|
| Year 2 Addition                                                                     |                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |                                                                                     |                                                                                     |   |   |      |      |   |   |
| Understanding 10s and 1s                                                            | <p>Group objects into 10s and 1s.</p>  <p>Bundle straws to understand unitising of 10s.</p>  | <p>Understand 10s and 1s equipment, and link with visual representations on ten frames.</p>                                                           | <p>Represent numbers on a place value grid, using equipment or numerals.</p> <table border="1"><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr><tr><td>3</td><td>2</td></tr><tr><th>Tens</th><th>Ones</th></tr><tr><td>4</td><td>3</td></tr></table> | Tens | Ones |  |  | 3 | 2 | Tens | Ones | 4 | 3 |
| Tens                                                                                | Ones                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |                                                                                     |                                                                                     |   |   |      |      |   |   |
|  |                                                                                                                                                                             |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |                                                                                     |                                                                                     |   |   |      |      |   |   |
| 3                                                                                   | 2                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |                                                                                     |                                                                                     |   |   |      |      |   |   |
| Tens                                                                                | Ones                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |                                                                                     |                                                                                     |   |   |      |      |   |   |
| 4                                                                                   | 3                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |                                                                                     |                                                                                     |   |   |      |      |   |   |
| Adding 10s                                                                          | <p>Use known bonds and unitising to add 10s.</p>  <p><i>I know that <math>4 + 3 = 7</math>.<br/>So, I know that 4 tens add 3 tens is 7 tens.</i></p>                         | <p>Use known bonds and unitising to add 10s.</p>  <p><i>I know that <math>4 + 3 = 7</math>.<br/>So, I know that 4 tens add 3 tens is 7 tens.</i></p> | <p>Use known bonds and unitising to add 10s.</p>  <p><math>4 + 3 = </math><span style="border: 1px solid black; padding: 2px 10px;"> </span></p> <p><math>4 + 3 = 7</math><br/><math>4 \text{ tens} + 3 \text{ tens} = 7 \text{ tens}</math><br/><math>40 + 30 = 70</math></p>                                                                                                     |      |      |                                                                                     |                                                                                     |   |   |      |      |   |   |
| Adding a 1-digit number                                                             | <p>Add the 1s to find the total. Use known bonds within 10.</p>                                                                                                                                                                                                | <p>Add the 1s.</p>                                                                                                                                                                                                                      | <p>Add the 1s.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |      |                                                                                     |                                                                                     |   |   |      |      |   |   |

to a 2-digit number not bridging a 10



41 is 4 tens and 1 one.  
41 add 6 ones is 4 tens and 7 ones.

This can also be done in a place value grid.

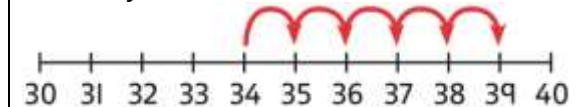
| T | O |
|---|---|
|   |   |



34 is 3 tens and 4 ones.  
4 ones and 5 ones are 9 ones.  
The total is 3 tens and 9 ones.

| T | O |
|---|---|
|   |   |
|   |   |

Understand the link between counting on and using known number facts. Children should be encouraged to use known number bonds to improve efficiency and accuracy.



This can be represented horizontally or vertically.

$$34 + 5 = 39$$

or

| T | O |
|---|---|
| 3 | 4 |
| + | 5 |
|   | 9 |

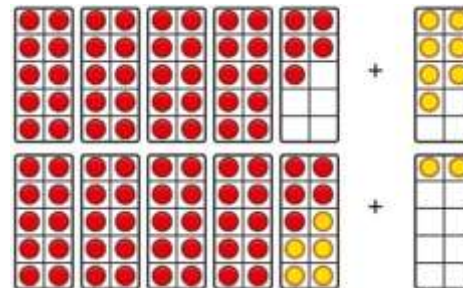
Adding a 1-digit number to a 2-digit number bridging 10

Complete a 10 using number bonds.

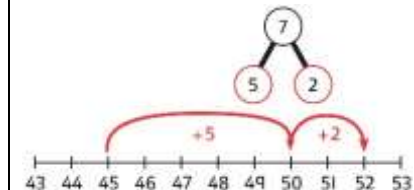


There are 4 tens and 5 ones.  
I need to add 7. I will use 5 to complete a 10, then add 2 more.

Complete a 10 using number bonds.



Complete a 10 using number bonds.



$$7 = 5 + 2$$

$$45 + 5 + 2 = 52$$

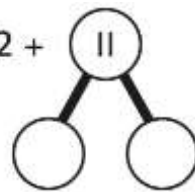
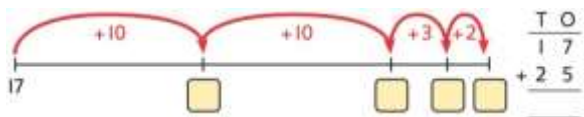
Adding a 1-digit number to a 2-digit

Exchange 10 ones for 1 ten.

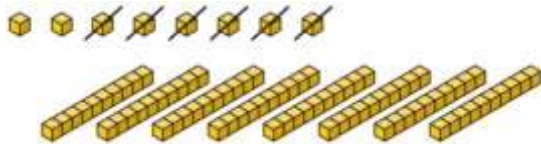
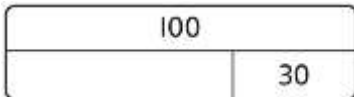
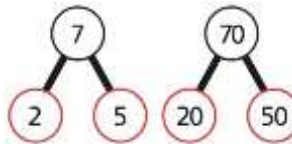
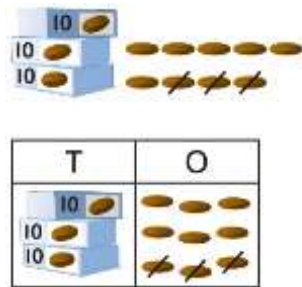
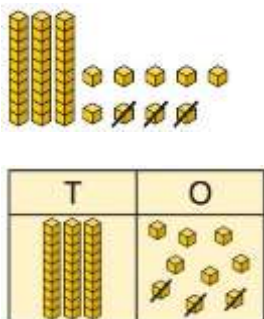
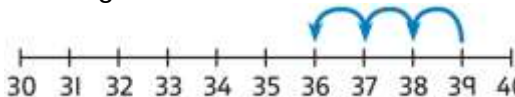
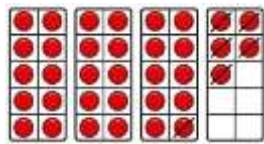
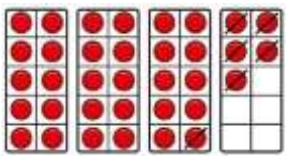
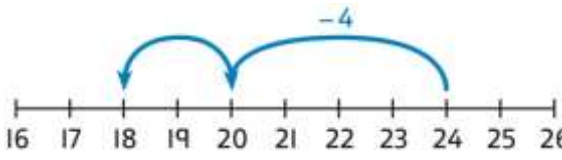
Exchange 10 ones for 1 ten.

Exchange 10 ones for 1 ten.

|                                                           |                                                                                                                                                                                          |                                                                                                                                                          |                                                                                                                                                                       |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>number using exchange</b></p>                       |                                                                                                                                                                                          |                                                                                                                                                          |                                                                                                                                                                       |
| <p><b>Adding a multiple of 10 to a 2-digit number</b></p> | <p>Add the 10s and then recombine.</p> <p>27 is 2 tens and 7 ones.<br/>50 is 5 tens.</p> <p>There are 7 tens in total and 7 ones.<br/>So, <math>27 + 50</math> is 7 tens and 7 ones.</p> | <p>Add the 10s and then recombine.</p> <p>66 is 6 tens and 6 ones.<br/><math>66 + 10 = 76</math></p> <p>A 100 square can support this understanding.</p> | <p>Add the 10s and then recombine.</p> <p><math>37 + 20 = ?</math></p> <p><math>30 + 20 = 50</math><br/><math>50 + 7 = 57</math></p> <p><math>37 + 20 = 57</math></p> |
| <p><b>Adding a multiple of 10 to a 2-digit</b></p>        | <p>Add the 10s using a place value grid to support.</p>                                                                                                                                  | <p>Add the 10s using a place value grid to support.</p>                                                                                                  | <p>Add the 10s represented vertically. Children must understand how the method relates to unitising of 10s and place value.</p>                                       |

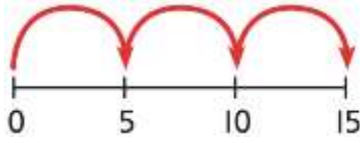
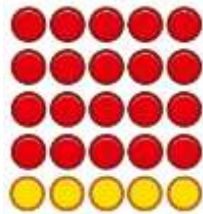
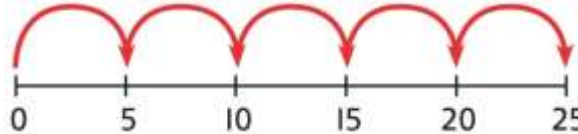
| number using columns                                                               | <table><tr><th>T</th><th>O</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> <p>16 is 1 ten and 6 ones.<br/>30 is 3 tens.<br/>There are 4 tens and 6 ones in total.</p> | T                                                                                                                                                                                                                                                                                                               | O                                                                                                                                                                                                                                             |  |  |  |  | <table><tr><th>T</th><th>O</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> <p>16 is 1 ten and 6 ones.<br/>30 is 3 tens.<br/>There are 4 tens and 6 ones in total.</p> | T | O |  |  |  |  | <table><tr><th>T</th><th>O</th></tr><tr><td>1</td><td>6</td></tr><tr><td>3</td><td>0</td></tr><tr><td>4</td><td>6</td></tr></table> <p><math>1 + 3 = 4</math><br/><math>1 \text{ ten} + 3 \text{ tens} = 4 \text{ tens}</math><br/><math>16 + 30 = 46</math></p> | T | O | 1 | 6 | 3 | 0 | 4 | 6 |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|
| T                                                                                  | O                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
|   |                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
| T                                                                                  | O                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
|  |                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
| T                                                                                  | O                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
| 1                                                                                  | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
| 3                                                                                  | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
| 4                                                                                  | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
| Adding two 2-digit numbers                                                         | <p>Add the 10s and 1s separately.</p> <div></div> <p><math>5 + 3 = 8</math><br/>There are 8 ones in total.</p> <p><math>3 + 2 = 5</math><br/>There are 5 tens in total.</p> <p><math>35 + 23 = 58</math></p>                                                                                                                                                    | <p>Add the 10s and 1s separately. Use a part-whole model to support.</p> <div><p>32 + </p></div> <p><math>11 = 10 + 1</math><br/><math>32 + 10 = 42</math><br/><math>42 + 1 = 43</math></p> <p><math>32 + 11 = 43</math></p> | <p>Add the 10s and the 1s separately, bridging 10s where required. A number line can support the calculations.</p> <div></div> <p><math>17 + 25</math></p> |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
| Adding two 2-digit numbers using a place value grid                                | <p>Add the 1s. Then add the 10s.</p>                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                 | <p>Add the 1s. Then add the 10s.</p>                                                                                                                                                                                                          |                                                                                   |                                                                                   |                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |                                                                                    |                                                                                     |                                                                                    |  |                                                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |

|                                          |                                                                              |  |                                                                                                                                                                                                                                                                                   |
|------------------------------------------|------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          | <br>                                                                         |  | $\begin{array}{r} \text{T} \quad \text{O} \\ 3 \quad 2 \\ + 1 \quad 4 \\ \hline 4 \quad 6 \end{array}$<br>$\begin{array}{r} \text{T} \quad \text{O} \\ 3 \quad 2 \\ + 1 \quad 4 \\ \hline 4 \quad 6 \end{array}$                                                                  |
| Adding two 2-digit numbers with exchange | <p>Add the 1s. Exchange 10 ones for a ten. Then add the 10s.</p><br><br><br> |  | <p>Add the 1s. Exchange 10 ones for a ten. Then add the 10s.</p> $\begin{array}{r} \text{T} \quad \text{O} \\ 3 \quad 2 \\ + 2 \quad 9 \\ \hline 6 \quad 5 \end{array}$<br>$\begin{array}{r} \text{T} \quad \text{O} \\ 3 \quad 2 \\ + 2 \quad 9 \\ \hline 6 \quad 5 \end{array}$ |
| Year 2 Subtraction                       |                                                                              |  |                                                                                                                                                                                                                                                                                   |

|                                                      |                                                                                                                                                                                                                                |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |   |   |   |   |   |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|
| <b>Subtracting multiples of 10</b>                   | <p>Use known number bonds and unitising to subtract multiples of 10.</p>  <p>8 subtract 6 is 2.<br/>So, 8 tens subtract 6 tens is 2 tens.</p> | <p>Use known number bonds and unitising to subtract multiples of 10.</p>  <p><math>10 - 3 = 7</math><br/>So, 10 tens subtract 3 tens is 7 tens.</p> | <p>Use known number bonds and unitising to subtract multiples of 10.</p>  <p>7 tens subtract 5 tens is 2 tens.<br/><math>70 - 50 = 20</math></p>                                                                                                                                                                                          |   |   |   |   |   |   |   |   |
| <b>Subtracting a single-digit number</b>             | <p>Subtract the 1s. This may be done in or out of a place value grid.</p>                                                                     | <p>Subtract the 1s. This may be done in or out of a place value grid.</p>                                                                           | <p>Subtract the 1s. Understand the link between counting back and subtracting the 1s using known bonds.</p>  <table><tr><td>T</td><td>O</td></tr><tr><td>3</td><td>9</td></tr><tr><td>-</td><td>3</td></tr><tr><td>3</td><td>6</td></tr></table> <p><math>9 - 3 = 6</math><br/><math>39 - 3 = 36</math></p> | T | O | 3 | 9 | - | 3 | 3 | 6 |
| T                                                    | O                                                                                                                                                                                                                              |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |   |   |   |   |   |
| 3                                                    | 9                                                                                                                                                                                                                              |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |   |   |   |   |   |
| -                                                    | 3                                                                                                                                                                                                                              |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |   |   |   |   |   |
| 3                                                    | 6                                                                                                                                                                                                                              |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |   |   |   |   |   |
| <b>Subtracting a single-digit number bridging 10</b> | <p>Bridge 10 by using known bonds.</p>  <p><math>35 - 6</math><br/>I took away 5 counters, then 1 more.</p>                                 | <p>Bridge 10 by using known bonds.</p>  <p><math>35 - 6</math><br/>First, I will subtract 5, then 1.</p>                                          | <p>Bridge 10 by using known bonds.</p>  <p><math>24 - 6 = ?</math><br/><math>24 - 4 - 2 = ?</math></p>                                                                                                                                                                                                                                  |   |   |   |   |   |   |   |   |
| <b>Subtracting a single-digit</b>                    | <p>Exchange 1 ten for 10 ones. This may be done in or out of a place value grid.</p>                                                                                                                                           | <p>Exchange 1 ten for 10 ones.</p>                                                                                                                                                                                                    | <p>Exchange 1 ten for 10 ones.</p>                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |   |   |   |   |   |

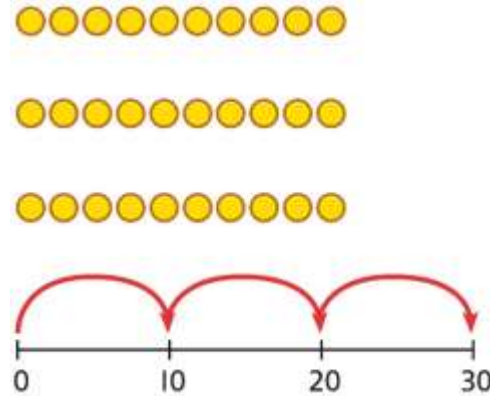
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| number using exchange | <div><div><div>T</div><div>O</div></div><div><div><div>10</div><div>10</div></div><div><div>10</div><div>10</div></div></div></div> <div><div><div>T</div><div>O</div></div><div><div><div>10</div></div><div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div><div>10</div></div></div></div> |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| value and columns                          | <table><tr><th>T</th><th>O</th></tr><tr><td></td><td></td></tr></table> <p><math>38 - 16 = 22</math></p> | T                                                                                                                                                                                                                                                                                                                                                                                                                | O    |      |  | <table><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr></table> | Tens | Ones |  |  | <table><tr><th>T</th><th>O</th></tr><tr><td>4</td><td>5</td></tr><tr><td>- 1</td><td>2</td></tr><tr><td colspan="2"><hr/></td></tr><tr><td>3</td><td>3</td></tr></table><br><table><tr><th>T</th><th>O</th></tr><tr><td>4</td><td>5</td></tr><tr><td>- 1</td><td>2</td></tr><tr><td colspan="2"><hr/></td></tr><tr><td>3</td><td>3</td></tr></table> | T    | O | 4 | 5    | - 1  | 2 | <hr/> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3 | 3 | T | O | 4   | 5 | - 1   | 2 | <hr/> |   | 3              | 3  |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|--|-------------------------------------------------------------------------------|------|------|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---|---|------|------|---|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|-----|---|-------|---|-------|---|----------------|----|-----|---|-------|--|--|---|---|---|----------------|----|-----|---|-------|--|---|---|
| T                                          | O                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
|                                            |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| Tens                                       | Ones                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
|                                            |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| T                                          | O                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| 4                                          | 5                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| - 1                                        | 2                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| <hr/>                                      |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| 3                                          | 3                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| T                                          | O                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| 4                                          | 5                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| - 1                                        | 2                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| <hr/>                                      |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| 3                                          | 3                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| Subtracting a 2-digit number with exchange |                                                                                                          | <p>Exchange 1 ten for 10 ones. Then subtract the 1s. Then subtract the 10s.</p> <table><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr></table><br><table><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr></table><br><table><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr></table><br><table><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr></table> | Tens | Ones |  |                                                                               | Tens | Ones |  |  | Tens                                                                                                                                                                                                                                                                                                                                                 | Ones |   |   | Tens | Ones |   |       | <p>Using column subtraction, exchange 1 ten for 10 ones. Then subtract the 1s. Then subtract the 10s.</p> <table><tr><th>T</th><th>O</th></tr><tr><td>4</td><td>5</td></tr><tr><td>- 2</td><td>7</td></tr><tr><td colspan="2"><hr/></td></tr></table><br><table><tr><th>T</th><th>O</th></tr><tr><td><del>3</del> 4</td><td>15</td></tr><tr><td>- 2</td><td>7</td></tr><tr><td colspan="2"><hr/></td></tr><tr><td></td><td>8</td></tr></table><br><table><tr><th>T</th><th>O</th></tr><tr><td><del>3</del> 4</td><td>15</td></tr><tr><td>- 2</td><td>7</td></tr><tr><td colspan="2"><hr/></td></tr><tr><td>1</td><td>8</td></tr></table> | T | O | 4 | 5 | - 2 | 7 | <hr/> |   | T     | O | <del>3</del> 4 | 15 | - 2 | 7 | <hr/> |  |  | 8 | T | O | <del>3</del> 4 | 15 | - 2 | 7 | <hr/> |  | 1 | 8 |
| Tens                                       | Ones                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
|                                            |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| Tens                                       | Ones                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
|                                            |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| Tens                                       | Ones                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
|                                            |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| Tens                                       | Ones                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
|                                            |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| T                                          | O                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| 4                                          | 5                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| - 2                                        | 7                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| <hr/>                                      |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| T                                          | O                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| <del>3</del> 4                             | 15                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| - 2                                        | 7                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| <hr/>                                      |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
|                                            | 8                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| T                                          | O                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| <del>3</del> 4                             | 15                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| - 2                                        | 7                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| <hr/>                                      |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| 1                                          | 8                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |
| Year 2 Multiplication                      |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |  |                                                                               |      |      |  |  |                                                                                                                                                                                                                                                                                                                                                      |      |   |   |      |      |   |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |   |   |     |   |       |   |       |   |                |    |     |   |       |  |  |   |   |   |                |    |     |   |       |  |   |   |

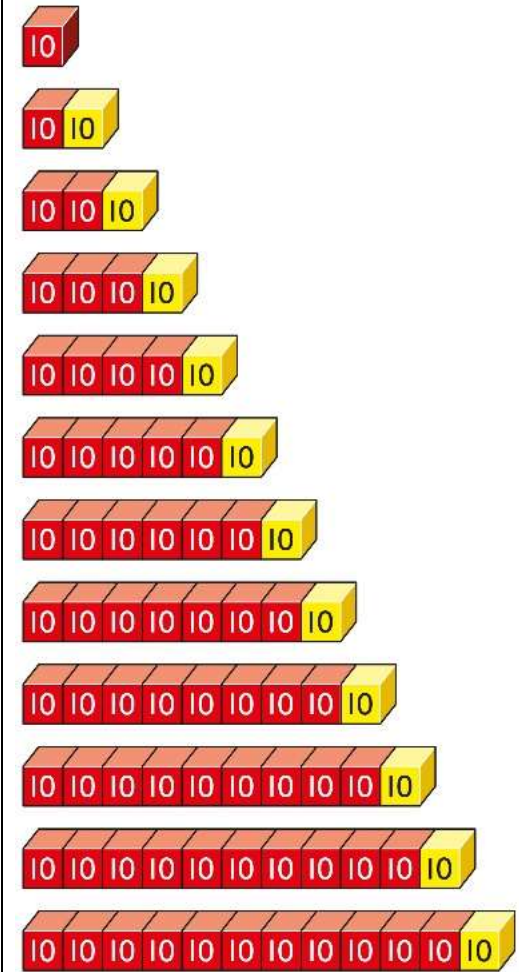
|                                                                                                     |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Equal groups and repeated addition</b>                                                           | <p>Recognise equal groups and write as repeated addition and as multiplication.</p>  <p><i>3 groups of 4 chairs<br/>12 chairs altogether</i></p> | <p>Recognise equal groups using standard objects such as counters and write as repeated addition and multiplication.</p>  <p><i>3 groups of 5<br/>15 in total</i></p>                                      | <p>Use a number line and write as repeated addition and as multiplication.</p>  <p><math>5 + 5 + 5 = 15</math><br/><math>3 \times 5 = 15</math></p>                                               |
| <b>Using arrays to represent multiplication and support understanding</b>                           | <p>Understand the relationship between arrays, multiplication and repeated addition.</p>  <p><i>4 groups of 5</i></p>                            | <p>Understand the relationship between arrays, multiplication and repeated addition.</p>  <p><i>4 groups of 5 ... 5 groups of 5</i></p>                                                                    | <p>Understand the relationship between arrays, multiplication and repeated addition.</p>  <p><math>5 \times 5 = 25</math></p>                                                                     |
| <b>Understanding commutativity</b>                                                                  | <p>Use arrays to visualise commutativity.</p>  <p><i>I can see 6 groups of 3.<br/>I can see 3 groups of 6.</i></p>                             | <p>Form arrays using counters to visualise commutativity. Rotate the array to show that orientation does not change the multiplication.</p>  <p><i>This is 2 groups of 6 and also 6 groups of 2.</i></p> | <p>Use arrays to visualise commutativity.</p>  <p><math>4 + 4 + 4 + 4 + 4 = 20</math><br/><math>5 + 5 + 5 + 5 = 20</math><br/><math>4 \times 5 = 20</math> and <math>5 \times 4 = 20</math></p> |
| <b>Learning <math>\times 2</math>, <math>\times 5</math> and <math>\times 10</math> table facts</b> | <p>Develop an understanding of how to unitise groups of 2, 5 and 10 and learn corresponding times-table facts.</p>                                                                                                                | <p>Understand how to relate counting in unitised groups and repeated addition with knowing key times-table facts.</p>                                                                                                                                                                        | <p>Understand how the times-tables increase and contain patterns.</p>                                                                                                                                                                                                                |



3 groups of 10 ... 10, 20, 30  
 $3 \times 10 = 30$



$10 + 10 + 10 = 30$   
 $3 \times 10 = 30$



$5 \times 10 = 50$   
 $6 \times 10 = 60$

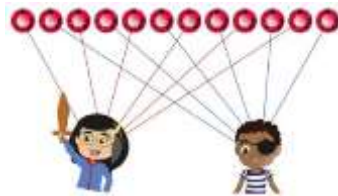
Year 2  
 Division

Sharing  
 equally

Start with a whole and share into equal parts, one at a time.

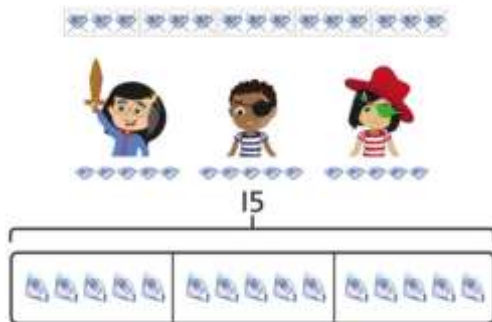
Represent the objects shared into equal parts using a bar model.

Use a bar model to support understanding of the division.



12 shared equally between 2.  
They get 6 each.

Start to understand how this also relates to grouping. To share equally between 3 people, take a group of 3 and give 1 to each person. Keep going until all the objects have been shared

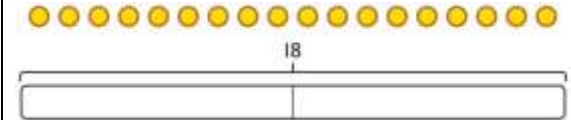


They get 5 each.

15 shared equally between 3.  
They get 5 each.



20 shared into 5 equal parts.  
There are 4 in each part.



$$18 \div 2 = 9$$

### Grouping equally

Understand how to make equal groups from a whole.



Understand the relationship between grouping and the division statements.

Understand how to relate division by grouping to repeated subtraction.

|                                                           |                                                                                                                                                        |                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                           | <p>8 divided into 4 equal groups.<br/>There are 2 in each group.</p>                                                                                   | <p><math>12 \div 3 = 4</math></p> <p><math>12 \div 4 = 3</math></p> <p><math>12 \div 6 = 2</math></p> <p><math>12 \div 2 = 6</math></p>                                                                                                     | <p>There are 4 groups now.</p> <p>12 divided into groups of 3.<br/><math>12 \div 3 = 4</math></p> <p>There are 4 groups.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p><b>Using known times-tables to solve divisions</b></p> | <p>Understand the relationship between multiplication facts and division.</p> <p>4 groups of 5 cars is 20 cars in total.<br/>20 divided by 4 is 5.</p> | <p>Link equal grouping with repeated subtraction and known times-table facts to support division.</p> <p>40 divided by 4 is 10.</p> <p>Use a bar model to support understanding of the link between times-table knowledge and division.</p> | <p>Relate times-table knowledge directly to division.</p> <p> <math>1 \times 10 = 10</math><br/> <math>2 \times 10 = 20</math><br/> <math>3 \times 10 = 30</math><br/> <math>4 \times 10 = 40</math><br/> <math>5 \times 10 = 50</math><br/> <math>6 \times 10 = 60</math><br/> <math>7 \times 10 = 70</math><br/> <math>8 \times 10 = 80</math> </p> <p>I used the 10 times-table to help me.<br/><math>3 \times 10 = 30</math>.</p> <p>I know that 3 groups of 10 makes 30, so I know that 30 divided by 10 is 3.</p> <p><math>3 \times 10 = 30</math> so <math>30 \div 10 = 3</math></p> |