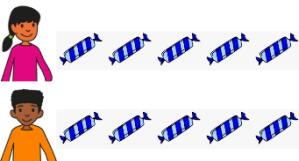
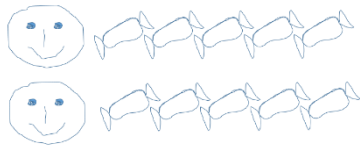
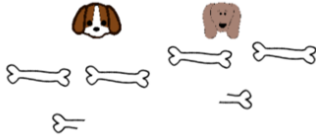
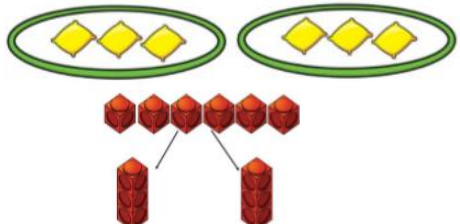
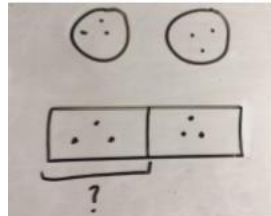
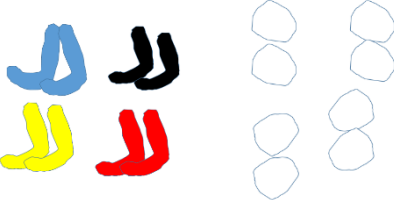
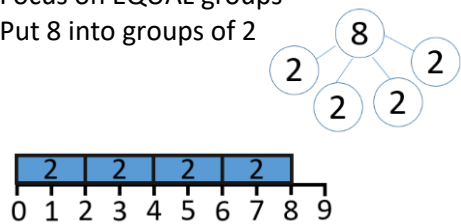


# Sledmere and Wetwang Federation Calculation Policy

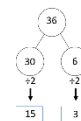
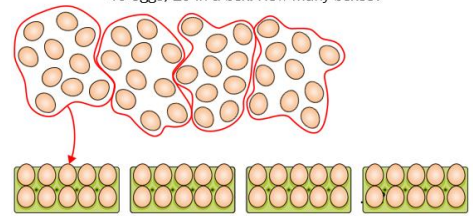
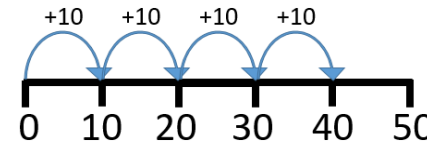
## EYFS Division

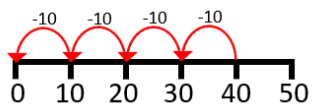
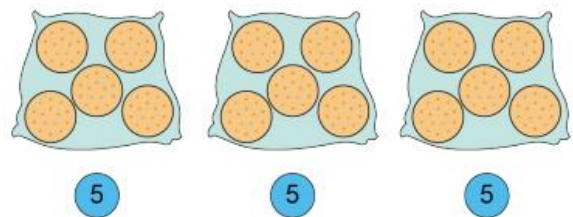
|      | Mental Strategies                                                                                                                                                                                                                                                                                             | Concrete                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Pictorial                                                                                                                                                                                                                                                                                                                                                                      | Abstract                                                                                                                                                                                   | Vocabulary                                                                                                         | Models, Images and resources                                                                                                                                                                                        |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EYFS | <p>The ELG states that children solve problems, including doubling, halving and sharing.</p> <p>Children need to see and hear representations of division as both grouping and sharing.</p> <p>Division can be introduced through halving.</p> <p>Count in twos; fives; tens both aloud and with objects.</p> | <p><b>Grouping Model</b><br/> <i>Rose has 6 socks. She grouped them into pairs – how many pairs did she make?</i></p>  <p><b>Sharing Model</b><br/> <i>I have 10 sweets. I want to share them with my friend. How many will we have each?</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p><b>Grouping Model</b><br/>           Children to draw the concrete resources they are using.</p>  <p><b>Sharing Model</b><br/>           Children to draw the concrete resources they are using.</p>  | <p><b>Grouping Model</b><br/>           Write the number sentence</p> <p>6 socks make 3 groups of 2</p> <p><b>Sharing Model</b></p> <p>10 sweets shared between 2 equals 5 sweets each</p> | <p>Share</p> <p>Sharing</p> <p>grouping</p> <p>Equal</p> <p>groups</p> <p>Left over</p> <p>Half</p> <p>halving</p> | <p>100 square</p> <p>Number lines</p> <p>Number tracks</p> <p>Bead strings (for children)</p> <p>Bead bar</p> <p>Tens Frame</p> <p>Numicon</p> <p>Place Value Disks</p> <p>Cuisenaire</p> <p>Base tens and ones</p> |
|      | Useful IWB links for manipulatives                                                                                                                                                                                                                                                                            | <p>Although not explicit in the Development Matters document, the sharing model is a useful way of introducing young children to simple halves as fractions.</p> <p>Setting the problems in real life context and solving them with concrete apparatus will support children's understanding.</p> <p>"I have got 5 bones to share between my two dogs. How many bones will they get each?"</p>  <p> <a href="https://www.coolmath4kids.com/manipulatives/base-ten-blocks">https://www.coolmath4kids.com/manipulatives/base-ten-blocks</a><br/> <a href="https://mathsbot.com/manipulatives/placeValueCounters">https://mathsbot.com/manipulatives/placeValueCounters</a><br/> <a href="https://mathsbot.com/manipulatives/bar">https://mathsbot.com/manipulatives/bar</a><br/> <a href="https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/">https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/</a><br/> <a href="https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/">https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/</a> </p> |                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                            |                                                                                                                    |                                                                                                                                                                                                                     |

## Year One Division

|        | Mental Strategies                                                                                                                                                                                                                                                   | Concrete                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pictorial                                                                                                                                                                                                                                                                                                                                                           | Abstract                                                                                                                                                                                                                                                                                                                                                              | Vocabulary                                                                                                         | Models, Images and resources                                                                                                                                                                                        |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 1 | <p>Share objects into equal groups and count how many in each group and consider 'left over'.</p> <p>Count on from and back to zero in ones, twos, fives or tens</p> <p>Make connections between arrays, number patterns, and counting in twos, fives and tens.</p> | <p><u>Sharing using a range of objects.</u><br/>Focus on EQUAL groups<br/>6 shared by 2</p>  <p><u>Put small numbers into groups</u><br/>Focus on EQUAL groups<br/>Put 8 into groups of 2</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p><u>Sharing using a range of objects.</u><br/>Focus on EQUAL groups<br/>6 shared by 2</p>  <p><u>Put small numbers into groups</u><br/>Focus on EQUAL groups<br/>Put 8 into groups of 2</p>  | <p><u>Sharing using a range of objects.</u><br/>Focus on EQUAL groups<br/>6 shared by 2</p>  <p><u>Put small numbers into groups</u><br/>Focus on EQUAL groups<br/>Put 8 into groups of 2</p>  | <p>Share</p> <p>Sharing</p> <p>grouping</p> <p>Equal</p> <p>groups</p> <p>Left over</p> <p>Half</p> <p>halving</p> | <p>100 square</p> <p>Number lines</p> <p>Number tracks</p> <p>Bead strings (for children)</p> <p>Bead bar</p> <p>Tens Frame</p> <p>Numicon</p> <p>Place Value Disks</p> <p>Cuisenaire</p> <p>Base tens and ones</p> |
|        | Useful IWB links for manipulatives                                                                                                                                                                                                                                  | <p>Practical problem solving activities involving equal sets or groups. Begin to understand division through grouping and sharing and halving small quantities<br/><i>Can you cut the cake in half? How many pieces are there? How many cakes are there in the box? Take half of them out.</i></p> <p>Solve simple one-step problems using concrete objects, pictorial representations and finding simple fractions of objects, numbers and quantities. with the support of the teacher</p> <p><a href="https://www.coolmath4kids.com/manipulatives/base-ten-blocks">https://www.coolmath4kids.com/manipulatives/base-ten-blocks</a><br/> <a href="https://mathsbot.com/manipulatives/placeValueCounters">https://mathsbot.com/manipulatives/placeValueCounters</a><br/> <a href="https://mathsbot.com/manipulatives/bar">https://mathsbot.com/manipulatives/bar</a></p> |                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                    |                                                                                                                                                                                                                     |

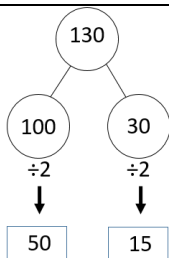
## Year Two Division

|        | Mental Strategies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Concrete                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Pictorial                                                                                                                                                                                                                                                                                                       | Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Vocabulary | Models, Images and resources |  |  |  |   |   |   |   |   |                                                                                                                                                                                           |                                                                                                                                                                                                                                |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------------|--|--|--|---|---|---|---|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 2 | <p>Practise to become fluent in recall and use of multiplication and division facts for the 2, 5 and 10 multiplication tables,</p> <p>Halve any multiple of 10 up to 100,</p>  <p>Find half of even numbers to 40</p>  <p>Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another</p> | <p><u>Sharing using a range of objects.</u></p> <p>Please see the guidance for Year 1</p> <p>Here is one example</p> <p>30 flowers are shared equally between 5 vases.</p>  <p>Cubes and other manipulatives can be used also</p> <p><u>Grouping using times tables 2 5 10</u></p> <p>40 eggs, 10 in a box. How many boxes?</p>  <p>40 divided into groups of 10.      40 ÷ 10</p> | <p><u>Sharing using a range of objects.</u></p> <p>Please see the guidance for Year 1</p> <p>Here is one example – hand drawn</p>  <p><u>Grouping using times tables 2 5 10</u></p> <p>Children can draw the groups of 10</p> | <p><u>Sharing using a range of objects.</u></p> <p>Please see the guidance for Year 1</p> <table border="1"><tr><td colspan="5">30</td></tr><tr><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td></tr></table> <p>30 ÷ 5 = 6</p> <p><u>Grouping using times tables 2 5 10</u></p> <p>See bar model or part whole model above</p>  <p>40 ÷ 10 = 4</p> | 30         |                              |  |  |  | 6 | 6 | 6 | 6 | 6 | <p>Divide</p> <p>Share equally,</p> <p>one each, two each...,</p> <p>Grouping</p> <p>equal groups,</p> <p>how many lots of, groups of...</p> <p>half of</p> <p>halved</p> <p>symbol ÷</p> | <p>100 square</p> <p>Number lines</p> <p>Number tracks</p> <p>Bead strings ( for children )</p> <p>Bead bar</p> <p>Tens Frame</p> <p>Numicon</p> <p>Place Value Disks</p> <p>Cuisenaire</p> <p>Base hundreds tens and ones</p> |
| 30     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |                              |  |  |  |   |   |   |   |   |                                                                                                                                                                                           |                                                                                                                                                                                                                                |
| 6      | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6                                                                                                                                                                                                                                                                                                               | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                              |  |  |  |   |   |   |   |   |                                                                                                                                                                                           |                                                                                                                                                                                                                                |

|                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                    |             |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------|-------------|
| cannot<br><br>Introduce the symbol for division<br>÷ |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  | Arrow Cards |
|                                                      | <p>Pupils need to be able to represent problems where the total quantity and group size is known, using multiplication equations with missing factors. For example, “There are 15 biscuits. If I put them into bags of 5, how many bags will I need?” can be represented by the following equation:<br/>.....× 5 = 15</p> <p>Pupils can use skip counting or their emerging 2, 5 and 10 multiplication table fluency to calculate the missing factor.</p> <div></div> <p>Begin to use other x tables and division facts to perform written calculation.<br/>Relate to fractions and measures eg. 40÷2 =20, 20 is a half of 40<br/>Check calculations using the inverse relationship between x and ÷</p>                                                                                   |  |                                                                                    |             |
| Useful IWB links for manipulatives                   | <a href="https://www.coolmath4kids.com/manipulatives/base-ten-blocks">https://www.coolmath4kids.com/manipulatives/base-ten-blocks</a><br><a href="https://mathsbot.com/manipulatives/placeValueCounters">https://mathsbot.com/manipulatives/placeValueCounters</a><br><a href="https://mathsbot.com/manipulatives/bar">https://mathsbot.com/manipulatives/bar</a><br><a href="https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/">https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/</a><br><a href="https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/">https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/</a><br><a href="http://www.ictgames.com/mobilePage/tenFrame/index.html">http://www.ictgames.com/mobilePage/tenFrame/index.html</a> |  |                                                                                    |             |

### Year 3 Division

|        | Mental Strategies                                  | Concrete                                                                                                      | Pictorial                                                                                                     | Abstract                                                                                                      | Vocabulary                   | Models, Images and resources   |
|--------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------|
| Year 3 | Halve any multiple of 10 up to 200, e.g. halve 170 | <u><a href="#">Apply division facts for 2, 4, 8, 5, 10 and 3 in both contexts of grouping and sharing</a></u> | <u><a href="#">Apply division facts for 2, 4, 8, 5, 10 and 3 in both contexts of grouping and sharing</a></u> | <u><a href="#">Apply division facts for 2, 4, 8, 5, 10 and 3 in both contexts of grouping and sharing</a></u> | Divide<br><br>Share equally, | 100 square<br><br>Number lines |

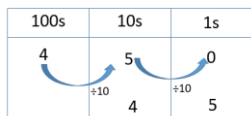


Recall and use division facts for the 3, 4 and 8 x tables, use halving to derive division by 2, 4 and 8

Calculate and write mathematical statements for division using related x tables facts, including for  $TU \div U$  mentally

Develop efficient mental methods using facts e.g.  $6 \div 3 = 2$  and  $2 \times 3 = 6$  to derive related facts  $60 \div 3 = 20$  and  $20 \times 3 = 60$

Divide TU and HTU numbers by 10, understand the effect of  $\div 10$  e.g.  $700 \div 10$ ,



I need 14 ping-pong balls. There are 2 ping-pong balls in a pack. How many packs do I need?



£14 is shared between 2 children. How much money does each child get?

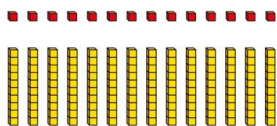


### Division with remainders

19 cars shared between 5 children



### Related Calculations

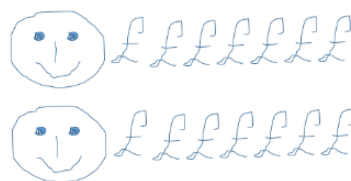


$$14 \div 2 = 7 \quad 140 \div 2 = 70$$

I need 14 ping-pong balls. There are 2 ping-pong balls in a pack. How many packs do I need?

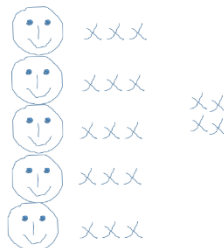


£14 is shared between 2 children. How much money does each child get?



### Division with remainders

19 cars shared between 5 children



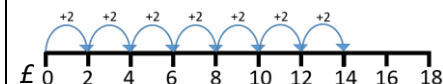
### Related Calculations

$$4 \times 30 = 120 - \text{draw it}$$

I need 14 ping-pong balls...

$$14 \div 2 = 7$$

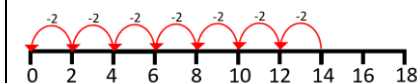
|    |   |   |   |   |   |   |
|----|---|---|---|---|---|---|
| 14 |   |   |   |   |   |   |
| 2  | 2 | 2 | 2 | 2 | 2 | 2 |



How much money does each child get?

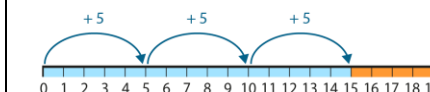
$$14 \div 2 = 7$$

|    |   |
|----|---|
| 14 |   |
| 7  | 7 |



### Division with remainders

19 cars shared between 5 children



|    |   |   |   |
|----|---|---|---|
| 19 |   |   |   |
| 5  | 5 | 5 | 4 |

$$19 \div 5 = 3r4$$

### Related Calculations

$$14 \div 2 = 7$$

$$140 \div 2 = 70$$

|     |    |
|-----|----|
| 14  |    |
| 7   | 7  |
| 140 |    |
| 70  | 70 |

one each,  
two each...,

Grouping

equal  
groups,

how many  
lots of,  
groups of...

half of

halved

symbol  $\div$

Remainder

Left over  
Repeated

subtraction

dividend

divisor

quotient

a tenth of  
the size

Number tracks

Bead strings (for children)

Bead bar

Tens Frame

Numicon

Place Value  
Disks

Cuisenaire

Base hundreds  
tens and ones

Arrow Cards

Gattegno  
chart

Place Value  
Grid

Also use the Gattegno Chart to help

Identify remainders when dividing by 2, 5 or 10

Know the vocabulary for division equations see below

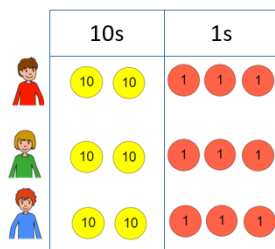
dividend      quotient  
 $20 \div 4 = 5$   
 divisor

Also use the Gattegno Chart to help

|        |        |        |        |        |        |        |        |        |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 10,000 | 20,000 | 30,000 | 40,000 | 50,000 | 60,000 | 70,000 | 80,000 | 90,000 |
| 1,000  | 2,000  | 3,000  | 4,000  | 5,000  | 6,000  | 7,000  | 8,000  | 9,000  |
| 100    | 200    | 300    | 400    | 500    | 600    | 700    | 800    | 900    |
| 10     | 20     | 30     | 40     | 50     | 60     | 70     | 80     | 90     |
| 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      |

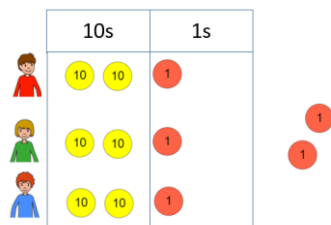
2 digit divided by 1 digit no exchange or remainders

£69 is shared between 3 children.  
How much money does each child get?



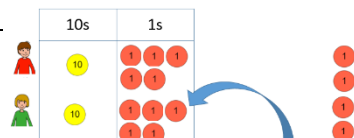
2 digit divided by 1 digit with no exchange but remainders

£65 is shared between 3 children.  
How much money does each child get?



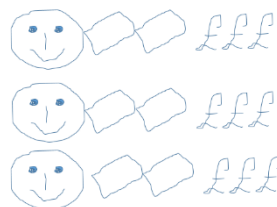
2 digit divided by 1 digit with exchange but no remainders

£45 is shared between 3 children.  
How much money does each child get?



2 2 digit divided by 1 digit no exchange or remainders

£69 is shared between 3 children.  
How much money does each child get?



2 digit divided by 1 digit with no exchange but remainders

£65 is shared between 3 children.  
How much money does each child get?



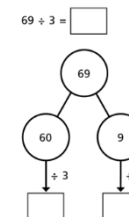
2 digit divided by 1 digit with exchange but no remainders

£45 is shared between 3 children.  
How much money does each child get?

2 digit divided by 1 digit no exchange or remainders

£69 is shared between 3 ...

$$69 \div 3 = 33$$

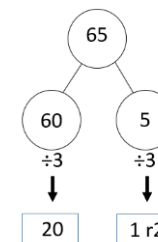


Can also count back on numberlines (repeated subtraction) or count on. See above.

2 digit divided by 1 digit with no exchange but remainders

£65 is shared between 3...

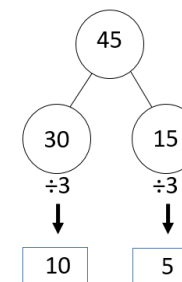
$$65 \div 3 = 23 \text{ r } 2$$



2 digit divided by 1 digit with exchange but no remainders

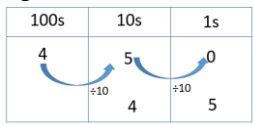
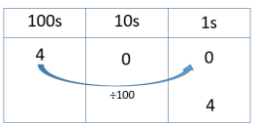
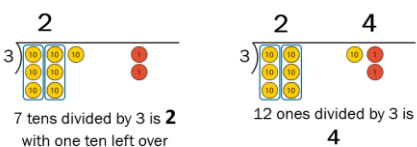
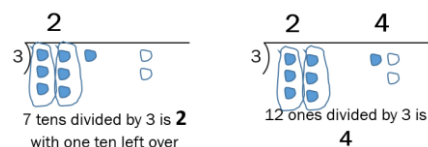
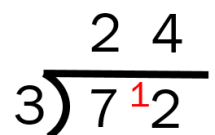
£45 is shared between 3...

$$45 \div 3 = 15$$



|  |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                          |  |  |
|--|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  |                                    | <p><u>2 digit divided by 1 digit with exchange with remainders</u></p> <p>Please see above worked examples – exactly the same principle, with a remainder and the need for exchanging tens for ones.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>Can be drawn – please see above example</p> <p><u>2 digit divided by 1 digit with exchange with remainders</u></p> <p>Please see above worked examples – exactly the same principle, with a remainder and the need for exchanging tens for ones.</p> | <p><u>2 digit divided by 1 digit with exchange with remainders</u></p> <p>Please see above worked examples – exactly the same principle, with a remainder and the need for exchanging tens for ones.</p> |  |  |
|  |                                    | <p>Solve problems in context deciding which method to use and why, including</p> <p>missing number problems</p> <p>measuring and money context</p> <p>correspondence problems in which m objects are connected to n objects eg 12 sweets shared equally between 4 children; 40 cakes shared equally between 8.</p> <p>Use practical methods and jottings, including remainders</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                          |  |  |
|  | Useful IWB links for manipulatives | <p><a href="https://www.coolmath4kids.com/manipulatives/base-ten-blocks">https://www.coolmath4kids.com/manipulatives/base-ten-blocks</a></p> <p><a href="https://mathsbot.com/manipulatives/placeValueCounters">https://mathsbot.com/manipulatives/placeValueCounters</a></p> <p><a href="https://mathsbot.com/manipulatives/bar">https://mathsbot.com/manipulatives/bar</a></p> <p><a href="https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/">https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/</a></p> <p><a href="https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/">https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/</a></p> <p><a href="http://www.ictgames.com/mobilePage/tenFrame/index.html">http://www.ictgames.com/mobilePage/tenFrame/index.html</a></p> |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                          |  |  |

## Year 4 Division

|        | Mental Strategies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Concrete                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Pictorial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Vocabulary                                                                                                                                                                                                                                                         | Models, Images and resources                                                                                                                                                                                                                                          |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 4 | <p>Practise and extend mental methods to three-digit numbers to derive facts e.g. <math>200 \times 3 = 600</math> into <math>600 \div 3 = 200</math></p> <p>Divide multiples of 10 up to 1000 by 10<br/>E.g. <math>120 \div 10</math></p>  <p>Divide multiples of 100 up to 10,000 by 100<br/>e.g. <math>600 \div 100</math> or <math>2800 \div 100</math></p>  <p>Divide two-digit numbers by 4 or 8, e.g. <math>296 \div 8</math></p> <p>Identify remainders when dividing by 1 to 12</p> <p>Find halves of multiples</p> | <p><u>Apply division facts for all multiplication tables in contexts of grouping and sharing – including remainders</u><br/>See Y3 guidance - same principle</p> <p><u>2 digit divided by 1 digit all 4 possibilities – moving to short division layout</u></p> <p>For all 4 informal possibilities – please see Year 3 examples as it is the same principle.</p> <p>£72 shared between three using short division layout</p>  <p><u>3 digit divided by 1 digit all 4 possibilities – moving to short division layout</u></p> <p>£705 shared between three using</p> | <p><u>Apply division facts for all multiplication tables in contexts of grouping and sharing – including remainders</u><br/>See Y3 guidance - same principle</p> <p><u>2 digit divided by 1 digit all 4 possibilities – moving to short division layout</u></p> <p>For all 4 informal possibilities – please see Year 3 examples as it is the same principle.</p> <p>£72 shared between three using short division layout</p>  <p><u>3 digit divided by 1 digit all 4 possibilities – moving to short division layout</u></p> <p>£705 shared between three using short division layout</p> | <p><u>Apply division facts for all multiplication tables in contexts of grouping and sharing – including remainders</u><br/>See Y3 guidance - same principle</p> <p><u>2 digit divided by 1 digit all 4 possibilities – moving to short division layout</u></p> <p>For all 4 informal possibilities – please see Year 3 examples as it is the same principle.</p> <p>£72 shared between three using short division layout</p>  <p><u>3 digit divided by 1 digit all 4 possibilities – moving to short division layout</u></p> <p>£705 shared between three using short division layout</p> | <p>Divide</p> <p>Share equally,</p> <p>one each,</p> <p>two each...,</p> <p>Grouping</p> <p>equal groups,</p> <p>how many lots of, groups of...</p> <p>half of</p> <p>halved</p> <p>symbol <math>\div</math></p> <p>Remainder</p> <p>Left over</p> <p>Repeated</p> | <p>100 square</p> <p>Number lines</p> <p>Number tracks</p> <p>Bead strings (for children)</p> <p>Bead bar</p> <p>Tens Frame</p> <p>Numicon</p> <p>Place Value Disks</p> <p>Cuisenaire</p> <p>Base hundreds tens and ones</p> <p>Arrow Cards</p> <p>Gattegno chart</p> |

of 10 , even numbers to 200 and three-digit multiples of 10 to 500  
e.g.  $760 \div 2$

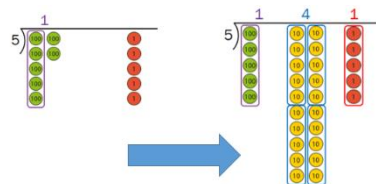
Know the vocabulary for division equations see below

$$\begin{array}{c} \text{dividend} \quad \text{quotient} \\ \downarrow \quad \downarrow \\ 20 \div 4 = 5 \\ \uparrow \quad \uparrow \\ \text{divisor} \end{array}$$

$$\begin{array}{c} 5 \leftarrow \text{quotient} \\ 4 \overline{) 20} \\ \text{divisor} \quad \text{dividend} \end{array}$$

$$\begin{array}{c} \text{dividend} \quad 20 \\ \text{divisor} \rightarrow 4 = 5 \\ \text{quotient} \end{array}$$

short division layout



### Related Calculations

E.g. 1200 pencils shared between 6 classes



Can be drawn just like the worked example above

### Related Calculations

E.g. 1200 pencils shared between 6 classes

Can be drawn out

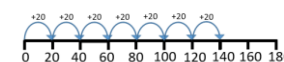
$$\begin{array}{r} 241 \\ 5 \overline{) 705} \end{array}$$

### Related Calculations

E.g. 1200 pencils shared between 6 classes

|    |   |   |   |   |   |
|----|---|---|---|---|---|
| 12 |   |   |   |   |   |
| 2  | 2 | 2 | 2 | 2 | 2 |

|     |    |    |    |    |    |
|-----|----|----|----|----|----|
| 120 |    |    |    |    |    |
| 20  | 20 | 20 | 20 | 20 | 20 |



$$\begin{array}{c} 12 \div 6 = 2 \\ \times 100 \downarrow \quad \times 100 \downarrow \\ 1,200 \div 6 = 200 \end{array}$$

subtraction  
dividend  
divisor  
quotient  
a tenth of the size

Place Value Grid

Develop fluency in efficient written method of short division with exact answers when dividing by a one-digit number. (eg.  $11 \div 2$  expressed as  $5 \frac{1}{2}$  or 5.5 not 5 remainder 1 )  
Solve two step problems with increasingly harder numbers including correspondence questions such as three cakes shared equally between 10 children.

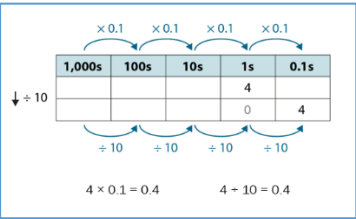
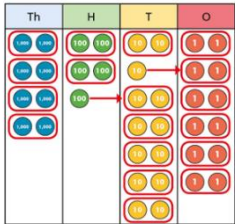
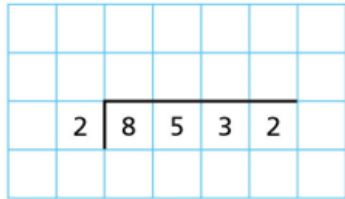
Introduce dividing using subtracting 10 lots of divisor and asking 'how many more left over?'  $52 \div 4$  I know that 10 lots of 4 are 40, there will be 12 left over which is another 3 lots of 4 so there are 13 lots of 4 in 52

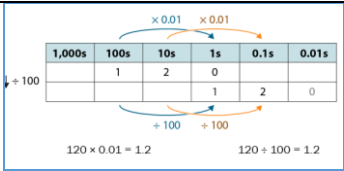
Useful IWB links

<https://www.coolmath4kids.com/manipulatives/base-ten-blocks>

|  |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | for manipulatives | <a href="https://mathsbot.com/manipulatives/placeValueCounters">https://mathsbot.com/manipulatives/placeValueCounters</a><br><a href="https://mathsbot.com/manipulatives/bar">https://mathsbot.com/manipulatives/bar</a><br><a href="https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/">https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/</a><br><a href="https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/">https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/</a><br><a href="http://www.ictgames.com/mobilePage/tenFrame/index.html">http://www.ictgames.com/mobilePage/tenFrame/index.html</a> |
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## Year 5 Division

|        | Mental Strategies                                                                                                                                                                                                                                                                                                                                                         | Concrete                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Pictorial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Vocabulary                                                                                                                                                                                                                               | Models, Images and resources                                                                                                                                                                                                                      |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 5 | <p>Divide numbers mentally using known facts for all multiplication tables to 12 x 12</p> <p>Divide whole numbers and decimals by 10, 100 or 1000, e.g. <math>25 \div 10</math>, <math>673 \div 100</math>, <math>74 \div 100</math></p> <p>Some examples using place value charts</p>  | <p><b><u>Apply division facts for all multiplication tables in contexts of grouping and sharing – including remainders</u></b><br/>See Y3 guidance - same principle</p> <p><b><u>4 digit divided by 1 digit all 4 possibilities – moving to short division layout</u></b></p> <p>Children should be confident enough to work in the abstract with this due . If needed, place value systems can still be used.</p>  <p><b><u>Related Calculations</u></b></p> <p>Division involving decimals<br/><math>1.2 \div 3</math></p> | <p><b><u>Apply division facts for all multiplication tables in contexts of grouping and sharing – including remainders</u></b><br/>See Y3 guidance - same principle</p> <p><b><u>4 digit divided by 1 digit all 4 possibilities – moving to short division layout</u></b></p> <p>Children should be confident enough to work in the abstract with this due. If needed, place value systems can still be used and drawings to represent the values</p> <p><b><u>Related Calculations</u></b></p> <p>Division involving decimals<br/><math>1.2 \div 3</math></p> | <p><b><u>Apply division facts for all multiplication tables in contexts of grouping and sharing – including remainders</u></b><br/>See Y3 guidance - same principle</p> <p><b><u>4 digit divided by 1 digit all 4 possibilities – moving to short division layout</u></b></p>  <p><b><u>Related Calculations</u></b></p> <p>Division involving decimals<br/><math>1.2 \div 3</math></p> | <p>Divide</p> <p>Share equally,</p> <p>one each,</p> <p>two each...,</p> <p>Grouping</p> <p>equal groups,</p> <p>how many lots of,</p> <p>groups of...</p> <p>half of</p> <p>halved</p> <p>symbol <math>\div</math></p> <p>Remainder</p> | <p>100 square</p> <p>Number lines</p> <p>Number tracks</p> <p>Bead strings ( for children )</p> <p>Bead bar</p> <p>Tens Frame</p> <p>Numicon</p> <p>Place Value Disks</p> <p>Cuisenaire</p> <p>Base hundreds tens and ones</p> <p>Arrow Cards</p> |



Use a place value chart to work out  $136 \div 1,000$

| H | T | O | Tths | Hths | Thths |
|---|---|---|------|------|-------|
| 1 | 3 | 6 |      |      |       |

Complete the calculation.

$136 \div 1,000 =$

Find the whole number remainder after dividing a two-digit number by a single-digit number, e.g.  $27 \div 4 = 6 \text{ R } 3$

Know the vocabulary for division equations see below

dividend  $\downarrow$  quotient  $\downarrow$

$20 \div 4 = 5$

divisor  $\uparrow$

5  $\leftarrow$  quotient

$4 \overline{)20}$

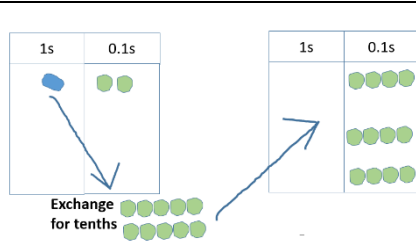
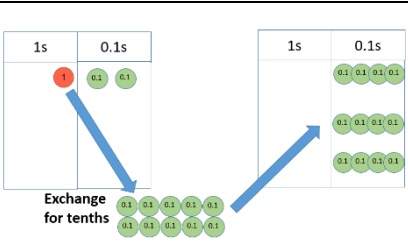
divisor dividend

dividend  $\rightarrow$  20

divisor  $\rightarrow$  4

$\frac{20}{4} = 5$

quotient  $\uparrow$



$12 \div 3 = 4$

$\times 0.1 \div 10$

$1.2 \div 3 = 0.4$

Practise and extend efficient written methods applying X tables and related facts confidently for larger calculations.

Divide up to ThHTU by U number using efficient short division

Solve problems including scaling by simple fractions

Use  $\times$  and  $\div$  as inverses to support dividing by powers of 10 in scale drawings or in converting units e.g km to m

Left over  
Repeated  
subtraction

dividend

divisor

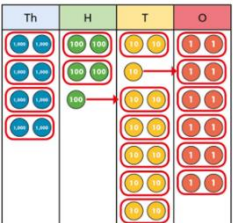
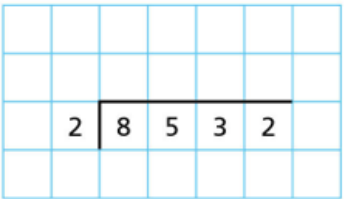
quotient

a tenth of  
the size

Gattegno chart  
Place Value  
Grid

|  |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |
|--|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |
|  | Useful IWB links for manipulatives | <a href="https://www.coolmath4kids.com/manipulatives/base-ten-blocks">https://www.coolmath4kids.com/manipulatives/base-ten-blocks</a><br><a href="https://mathsbot.com/manipulatives/placeValueCounters">https://mathsbot.com/manipulatives/placeValueCounters</a><br><a href="https://mathsbot.com/manipulatives/bar">https://mathsbot.com/manipulatives/bar</a><br><a href="https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/">https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/</a><br><a href="https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/">https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/</a><br><a href="http://www.ictgames.com/mobilePage/tenFrame/index.html">http://www.ictgames.com/mobilePage/tenFrame/index.html</a> |  |  |

### Year 6 Division

|        | Mental Strategies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Concrete                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Pictorial                                                                                                                                                                                                                                                                                                                                                                                         | Abstract                                                                                                                                                                                                                                                                | Vocabulary                                                                                                                                                                | Models, Images and resources                                                                                                                                                              |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 6 | <p>Divide TU by U number, eg. <math>68 \div 4</math> divide by 25 or 50, eg. <math>480 \div 25</math>, <math>3200 \div 50</math></p> <p>Divide two-digit decimals eg. <math>4.8 \div 6</math> and find halves of decimals with units and tenths, eg. half of 15.2</p> <p>Divide multiples of 100 by a multiple of 10 or 100 (whole number answers), e.g. <math>600 \div 20</math>, <math>800 \div 400</math>, <math>2100 \div 300</math></p> <p>Plus related facts e.g. <math>150 \div 30</math></p> | <p><b>Multiple digit divided by 1 digit with all 4 possibilities</b></p> <p>Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used.</p> <p><math>8,532 \div 2</math></p>  <p><b>Use short division to convert remainders to decimals</b></p> <p>Children should be confident enough to work in the abstract</p> | <p><b>Multiple digit divided by 1 digit with all 4 possibilities</b></p> <p>Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used and drawings to represent the values</p> <p><b>Use short division to convert remainders to decimals</b></p> <p>Children should be confident enough to work in the abstract with this. If</p> | <p><b>Multiple digit divided by 1 digit with all 4 possibilities</b></p>  <p><b>Use short division to convert remainders to decimals</b></p> <p><math>109 \div 4 = 27.25</math></p> | <p>Divide</p> <p>Share equally,</p> <p>one each, two each...,</p> <p>Grouping</p> <p>equal groups,</p> <p>how many lots of, groups of...</p> <p>half of</p> <p>halved</p> | <p>100 square</p> <p>Number lines</p> <p>Number tracks</p> <p>Bead strings (for children)</p> <p>Bead bar</p> <p>Tens Frame</p> <p>Numicon</p> <p>Place Value Disks</p> <p>Cuisenaire</p> |

$$\begin{array}{r}
 150 \div 30 = 5 \\
 \div 10 \quad \div 10
 \end{array}$$

$$\begin{array}{r}
 27.25 \\
 4 \overline{) 109.00}
 \end{array}$$

|                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|---------------|----|----|----|----|----|-----------|----|----|--------------|----|-----|-----------|----|-----|-------------|----|-----|-----------|----|-----|----------|----|-----|------------|----|-----|----------|-----|-----|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Scale up and down using known facts, e.g. given that six oranges cost 24p, find the cost of four oranges</p> <p>Know the vocabulary for division equations see below</p> <div><div>dividend<br/>↓<br/><b>20</b> ÷ <b>4</b> = <b>5</b><br/>divisor<br/>↑</div><div><div><b>5</b> ← quotient<br/><b>4</b>   <b>20</b><br/>divisor      dividend</div><div>dividend <b>20</b><br/>divisor → <b>4</b> = <b>5</b><br/>quotient ↑</div></div></div> | <p>with this. If needed, place value counters can still be used.</p> <p><b><u>Dividing with a two-digit number using factors</u></b></p> <p>Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used.</p> <p><b><u>Dividing with a two-digit number using partitioning</u></b></p> <p>Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used.</p> <p>Counters can also be used to create the multiplication table to support the division.</p> <p><b><u>Dividing with a two-digit number using short division</u></b></p> <p>Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used.</p> | <p>needed, place value counters can still be used.</p> <p><b><u>Dividing with a two-digit number using factors</u></b></p> <p>Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used.</p> <p><b><u>Dividing with a two-digit number using partitioning</u></b></p> <p>When undertaking a division using two-digit numbers. Create a multiple chart first – start with 10 and 5, then 2, 4, 8. If other multiples are required, calculate when needed.</p> <table><tr><td></td><td>31</td><td>mental method</td></tr><tr><td>x1</td><td>31</td><td>x1</td></tr><tr><td>x2</td><td>62</td><td>double 31</td></tr><tr><td>x3</td><td>93</td><td>add 31 to 62</td></tr><tr><td>x4</td><td>124</td><td>double 62</td></tr><tr><td>x5</td><td>155</td><td>half of 310</td></tr><tr><td>x6</td><td>186</td><td>double 93</td></tr><tr><td>x7</td><td>217</td><td>186 + 31</td></tr><tr><td>x8</td><td>248</td><td>double 124</td></tr><tr><td>x9</td><td>279</td><td>248 + 31</td></tr><tr><td>x10</td><td>310</td><td>easy to calculate</td></tr></table> <p><b><u>Dividing with a two-digit number using short division</u></b></p> <p>When undertaking a division using two-digit numbers. Create a multiple chart first – start with 10 and 5, then 2, 4, 8. If other multiples are</p> |  | 31 | mental method | x1 | 31 | x1 | x2 | 62 | double 31 | x3 | 93 | add 31 to 62 | x4 | 124 | double 62 | x5 | 155 | half of 310 | x6 | 186 | double 93 | x7 | 217 | 186 + 31 | x8 | 248 | double 124 | x9 | 279 | 248 + 31 | x10 | 310 | easy to calculate | <p><b><u>Dividing with a two-digit number using factors</u></b></p> <p>2560 ÷ 16 = 2560 ÷ 4 ÷ 4</p> <div><div>0 6 4 0<br/>4) 2 5 1 6 0</div><div>→</div><div>1 6 0<br/>4) 6 2 4 0</div></div> <p><b><u>Dividing with a two-digit number using partitioning</u></b></p> <p>See adjacent column to support this</p> <div><div>434</div><div>310</div><div>124</div></div> <div><div>310 ÷ 31 = 10</div><div>124 ÷ 31 = 4</div><div>434 ÷ 31 = 14</div></div> <p><b><u>Dividing with a two-digit number using short division</u></b></p> <p>See adjacent column to support this</p> | <p>symbol ÷</p> <p>Remainder</p> <p>Left over Repeated</p> <p>subtraction</p> <p>dividend</p> <p>divisor</p> <p>quotient</p> <p>a tenth of the size</p> <p>Base hundreds tens and ones</p> <p>Arrow Cards</p> <p>Gattegno chart</p> <p>Place Value Grid</p> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | mental method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
| x1                                                                                                                                                                                                                                                                                                                                                                                                                                               | 31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | x1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
| x2                                                                                                                                                                                                                                                                                                                                                                                                                                               | 62                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | double 31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
| x3                                                                                                                                                                                                                                                                                                                                                                                                                                               | 93                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | add 31 to 62                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
| x4                                                                                                                                                                                                                                                                                                                                                                                                                                               | 124                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | double 62                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
| x5                                                                                                                                                                                                                                                                                                                                                                                                                                               | 155                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | half of 310                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
| x6                                                                                                                                                                                                                                                                                                                                                                                                                                               | 186                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | double 93                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
| x7                                                                                                                                                                                                                                                                                                                                                                                                                                               | 217                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 186 + 31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
| x8                                                                                                                                                                                                                                                                                                                                                                                                                                               | 248                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | double 124                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
| x9                                                                                                                                                                                                                                                                                                                                                                                                                                               | 279                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 248 + 31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
| x10                                                                                                                                                                                                                                                                                                                                                                                                                                              | 310                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | easy to calculate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |    |               |    |    |    |    |    |           |    |    |              |    |     |           |    |     |             |    |     |           |    |     |          |    |     |            |    |     |          |     |     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |

|    | 31 | mental method |
|----|----|---------------|
| x1 | 31 | x1            |

Counters can also be used to create the multiplication table to support the division.

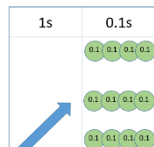
### Dividing with a two-digit number using long division

Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used.

Counters can also be used to create the multiplication table to support the division.

### Related Calculations

Division involving decimals  
 $1.2 \div 3$



required, calculate when needed.

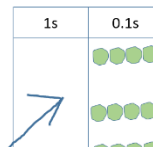
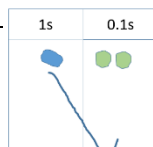
### Dividing with a two-digit number using long division

When undertaking a division using two-digit numbers. Create a multiple chart first – start with 10 and 5, then 2, 4, 8. If other multiples are required, calculate when needed.

|     | 31  | mental method     |
|-----|-----|-------------------|
| x1  | 31  | x1                |
| x2  | 62  | double 31         |
| x3  | 93  | add 31 to 62      |
| x4  | 124 | double 62         |
| x5  | 155 | half of 310       |
| x6  | 186 | double 93         |
| x7  | 217 | 186 + 31          |
| x8  | 248 | double 124        |
| x9  | 279 | 248 + 31          |
| x10 | 310 | easy to calculate |

### Related Calculations

Division involving decimals  
 $1.2 \div 3$



$$\begin{array}{r} 0 \ 1 \ 4 \\ 31 \overline{) 4 \ 3 \ 1 \ 2 \ 4} \end{array}$$

### Dividing with a two-digit number using long division

See adjacent column to support this

$$\begin{array}{r} 0 \ 1 \ 4 \\ 31 \overline{) 4 \ 3 \ 1} \\ \underline{- 3 \ 1} \phantom{2} \\ 1 \ 2 \ 4 \\ \underline{1 \ 2 \ 4} \\ 0 \end{array}$$

### Related Calculations

Division involving decimals  
 $1.2 \div 3$

$$\begin{array}{c} 12 \div 3 = 4 \\ \times 0.1 \downarrow \div 10 \quad \times 0.1 \downarrow \div 10 \end{array}$$

Divide numbers up to ThHTU by a TU whole number using efficient written method of long division, and interpret remainders as whole numbers, fractions, decimals fractions or by rounding as appropriate for the context

$$354 \div 15 = ?$$

Other worked examples  
of formal written division methods  
– with a remainder

|                                                                                                                                                          |                                                                                                                                                                 |                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $  \begin{array}{r}  2 \ 3 \ r \ 9 \\  15 \overline{) 3 \ 5 \ 4} \\  \underline{3 \ 0} \phantom{0} \\  5 \ 4 \\  \underline{4 \ 5} \\  9  \end{array}  $ | $  \begin{array}{r}  2 \ 3 \ \frac{9}{15} \\  15 \overline{) 3 \ 5 \ 4} \\  \underline{3 \ 0} \phantom{0} \\  5 \ 4 \\  \underline{4 \ 5} \\  9  \end{array}  $ | $  \begin{array}{r}  2 \ 3 \ . \ 6 \\  15 \overline{) 3 \ 5 \ 4 \ . \ 0} \\  \underline{3 \ 0} \phantom{00} \\  5 \ 4 \\  \underline{4 \ 5} \phantom{0} \\  9 \ 0 \\  \underline{9 \ 0} \\  0  \end{array}  $ |
| So, $354 \div 15 = 23 \text{ r } 9$                                                                                                                      | $\frac{9}{15} = \frac{3}{5}$ So, $354 \div 15 = 23\frac{3}{5}$                                                                                                  | So, $354 \div 15 = 23.6$                                                                                                                                                                                      |

Useful IWB links for  
manipulatives

<https://www.coolmath4kids.com/manipulatives/base-ten-blocks>  
<https://mathsbot.com/manipulatives/placeValueCounters>  
<https://mathsbot.com/manipulatives/bar>  
<https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/>  
<https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/>  
<http://www.ictgames.com/mobilePage/tenFrame/index.html>