Division

Overview

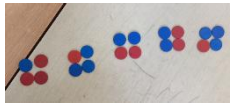
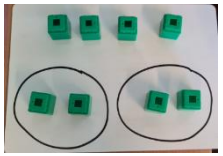
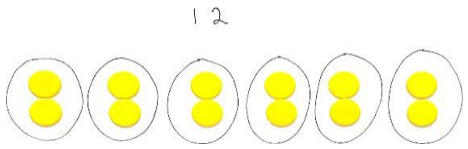
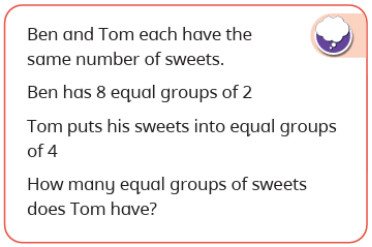
This document gives a suggested guidance as to how division strategies may be taught in all year groups showing clear progression from Year 1 to Year 6.

Division

Year 1: Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- Solve simple one-step problems involving division, using concrete objects, pictorial representations and arrays with the support of the teacher.
- Recognise, find and name a half as one of two equal parts of a quantity.
- Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Concrete	**Pictorial**	**Abstract**
Make Equal Groups – Grouping Encourage children to physically move objects into equal groups. Children can use beanbags/sticks/stones etc. to see how many groups they can make from a set number of objects. Unifix cubes/counters/dienes can also be used. There are … altogether. How many groups of … can you make?   Take … cubes. Make equal groups. Snip in half add arrow. 	**Make Equal Groups – Grouping** They can circle equal groups when using pictures. There are … altogether. There are …. equal groups of …..  Circle groups of 2 There are … groups of 2  Extend children by asking them to draw their own representations: 'Draw a picture to match the sentence. 20 has been sorted into 4 equal groups of 5.'	**Make Equal Groups – Grouping** Solve problems involving grouping. Extend children by asking them to explain their reasoning.  *There are ____ altogether. There are ____ equal groups of ____.*

Division

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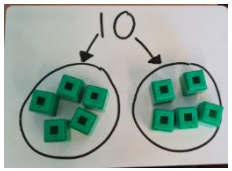
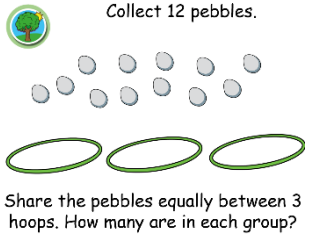
Make equal groups – sharing

Share quantities into equal groups using dienes/cubes/counters etc.

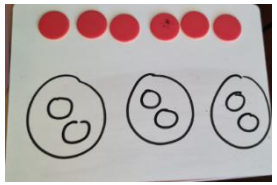


Use ‘real-life’ resources such as pebbles, blocks, sticks etc. Allow children to share these into equal groups.



Take … counters.
Share them between …

… shared between … is …



Playdough can be used to make cupcakes. Decorations (counters) can be used to show different amounts.

Ensure they understand they need to share into ***equal*** groups.

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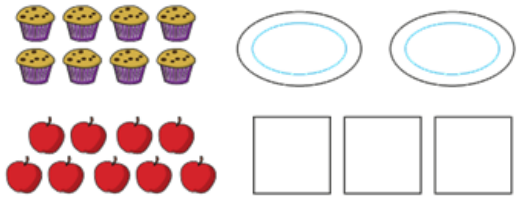
Make equal groups – sharing

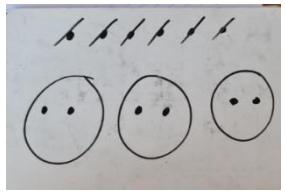
Use pictures to share objects. Use circles rather than dots to aid counting.

… have been shared equally between…
There are … on/in each …



Draw… counters.
Share them between …

… shared between … is …



Chn can cross out the counters as they are used.

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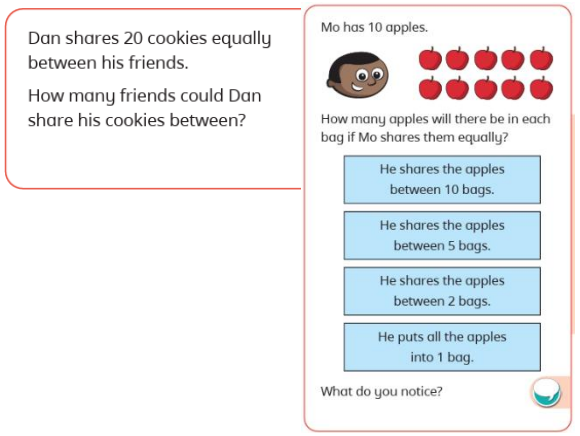
Make equal groups – sharing

Children to choose appropriate concrete/pictorial methods to work out one-step problems.



____ have been shared equally between ____.

There are ____ in ____.

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Using Arrays

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Using Arrays

Draw arrays and use pictures to show how pictures/amounts are divided.

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Using Arrays

“There are 3 equal groups of 5. There are 15 altogether.”

“There are 15 altogether. If I share them into 3 equal groups, there are 5 in each group.”

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Division

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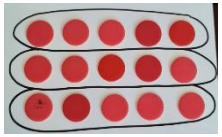
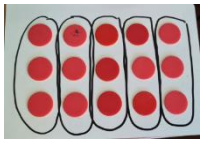
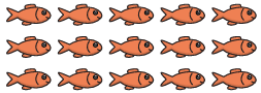
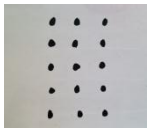
<td>Link division to multiplication by creating arrays. How can these be grouped/shared?
  
There are …. equal groups of ….</td>
<td>   
  Chn can draw dots in squares of their book to help draw arrays.</td>
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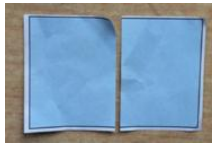
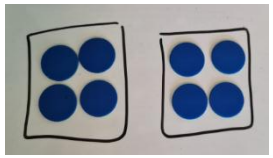
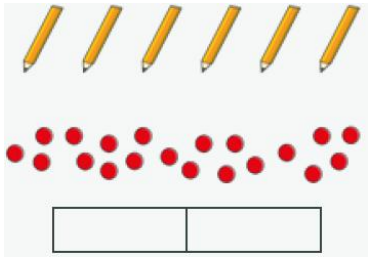
<td>Finding a Half

Start practically exploring what we mean by ‘half’. Use objects/shapes/paper. Folding paper shapes in half to show the two sides are the same.
  
Move onto practically sharing an amount/quantity into 2 equal groups.
Recognise then find.
Objects from the classroom can be used to support this as well as dienes/counters/cubes etc.
 
They have been shared into … equal groups.
Each group is …. of the whole.</td>
<td>Finding a Half

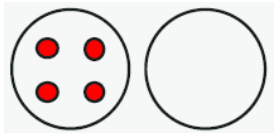
Progress to circling half of the objects in a picture and then to finding the whole from a given half.

To find half, I need to share into 2 equal groups.
  There are … in each group.

Half of … is …
  </td>
<td>Finding a Half

If … is half, what is the whole?

4 is half of …

Children can use their understanding of pictorial representations to choose correct strategy.
Example:
  </td>
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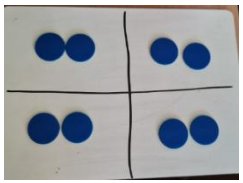
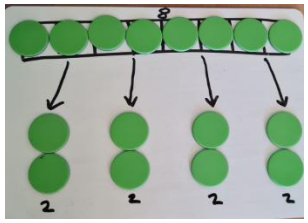
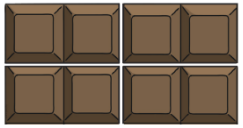
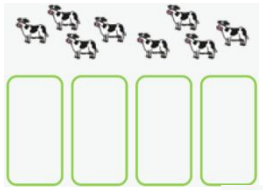
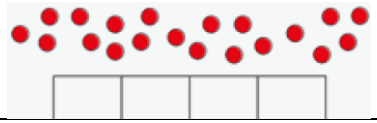
Division

Finding a Quarter	**Finding a Quarter**	**Finding a Quarter**
Start practically exploring what we mean by 'quarter'. Use objects/shapes/paper. Folding paper shapes into quarters to show the four parts are the same. Move onto recognising what a quarter of a quantity looks like. Use concrete resources.   Move to practical opportunities to share a quantity into 4 groups. 	Visually understanding what a quarter looks like and that each part is the ***same***.   To find a quarter, I need to share into 4 equal groups.  There are … in each group. A quarter of … is …  Chn to be aware they do not need to draw the actual picture eg. a cow but draw a representation. 	Children can use their understanding of pictorial representations to choose correct strategy. Example: If … is one quarter, what is the whole?  3 is one quarter of ….

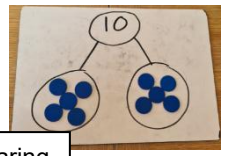
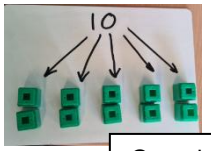
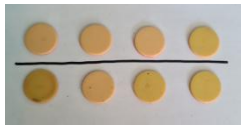
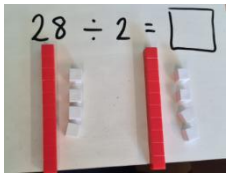
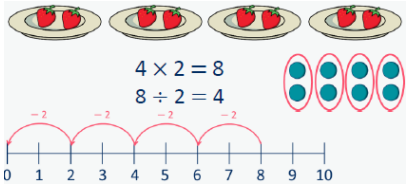
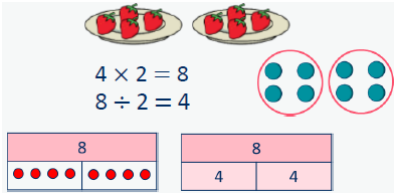
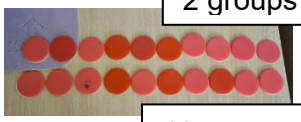
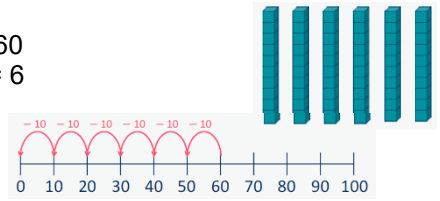
Year 2: Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

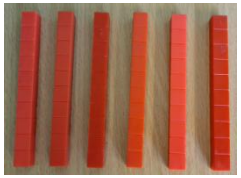
- Recall and use division facts for the 2, 5 and 10 multiplication tables.
- Calculate mathematical statements for division within the multiplication tables and write them using the division (÷) and equals (=) signs.
- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, and $\frac{3}{4}$ of a quantity.

Concrete	**Pictorial**	**Abstract**
Divide by 2	**Divide by 2**	**Divide by 2**

Division

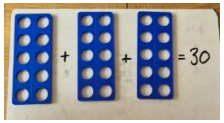
Encourage children to compare the grouping and sharing structures of division and to make links to the 2 times tables facts and halving.  Sharing  Grouping   Repeated addition  Bead strings can be used to help show repeated addition as well as arrays.	Use pictures and arrays to share objects and make link to multiplication (2 x tables). Introduce the division symbol. There are … equal groups of 2 … ÷ 2 = …  … shared equally between 2 is … Half of … is … … ÷ 2 = …  	Choose appropriate methods to answer number problems and write them using the correct symbols.  _____ × 2 = 16 16 ÷ 2 = _____  _____ × 2 = _____ _____ ÷ 2 = _____ 24 ÷ 2 = _____ Ben has 24p. He divides it equally between 2 friends. How much will they each get? What is the same? What is different? Ben has 24p in 2p coins. How many 2p coins does he have? Who do you agree with?
Divide by 10 Encourage children to compare the grouping and sharing structures of division and to make links with the 10 times-table facts. There are … groups of 10. Put them in 10 equal groups of … 2 groups of 10.  Arrays: 10 groups of 10.	**Divide by 10** Use pictorial representations to imitate the concrete and develop link with 10 x tables. There are … equal groups of 10 … ÷ 10 = 6 x 10 = 60 60 ÷ 10 = 6  … shared equally between 10 is …	**Divide by 10** Choose appropriate methods to answer number problems and write them using the correct symbols. 60 ÷ 10 = _____ 40 ÷ _____ = 4

Division

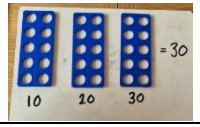


There are … equal groups of 10
… ÷ 10 = …
6 × 10 = 60
60 ÷ 10 = 6

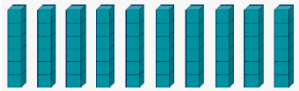
Repeated addition:
10 + 10 + 10 + 10 + 10 + 10 = 60

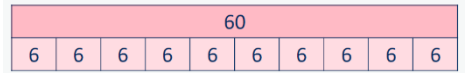


Counting up: 10, 20, 30, 40, 50, 60

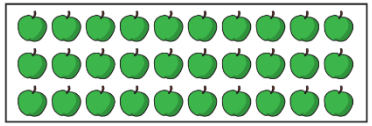


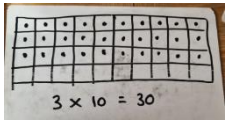
… ÷ 10 = …
6 x 10 = 60
60 ÷ 10 = 6

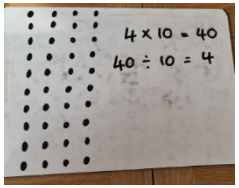




Use arrays to help link with times tables.

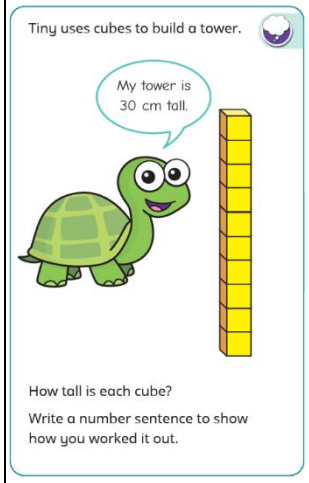


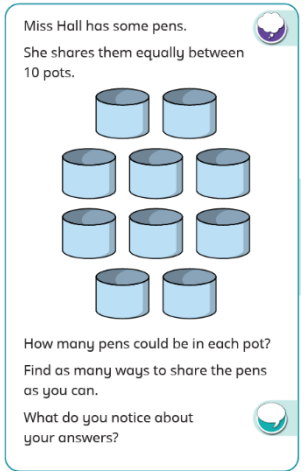




30 ÷ 10 = 3

____ ÷ 10 = 3





Divide by 5

Encourage children to compare the grouping and sharing structures of division and to make links with the 5 times-table facts.



Repeated addition:
5 + 5 + 5 + 5 = 20

Counting up: 5, 10, 15, 20

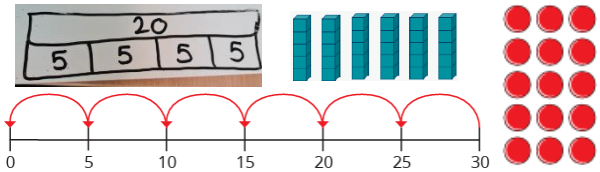
Use concrete strategies as shown above (÷10 but for ÷ 5).

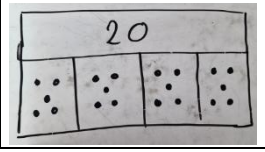
Bar model:

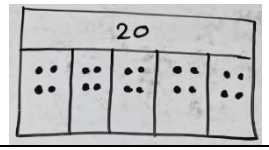
Divide by 5

Use pictorial representations to support counting in 5s and dividing by five.

Bar charts, arrays, number lines, dienes.

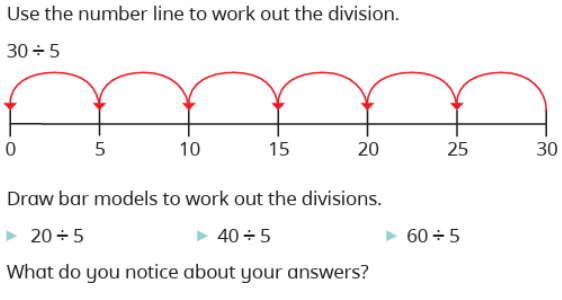




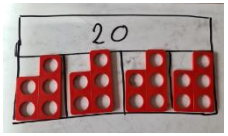


Divide by 5

Choose appropriate methods to work out number and word problems. Along with application of skills questions:



Division



How many lots of 5 in 20?

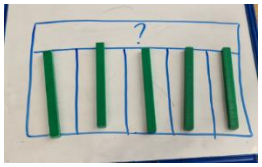
There are … equal groups of
… ÷ 5 = …

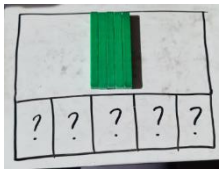
… shared equally between is …
… ÷ 5 = …

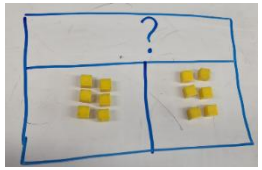


Missing numbers

Bar models are useful to show the link between multiplication and division. Use concrete resources to help show this.







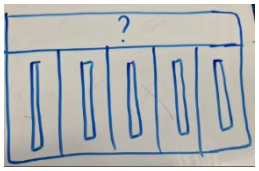
There are … equal groups of
… ÷ 5 = …

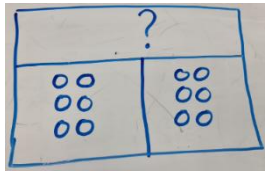
… shared equally between is …
… ÷ 5 = …

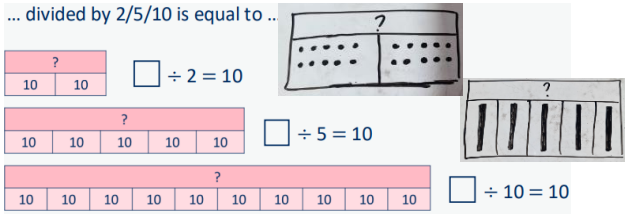


Missing numbers

Bar models are useful to show the link between multiplication and division. Use pictorial representations that link to concrete method previously taught.





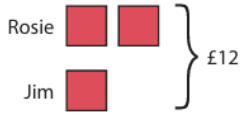


Missing numbers

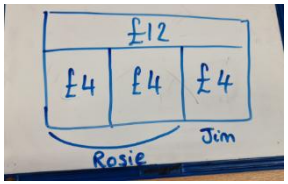
Chn choose appropriate strategy to help solve missing number problems – they can also do this with mental strategies.

Abstract example:

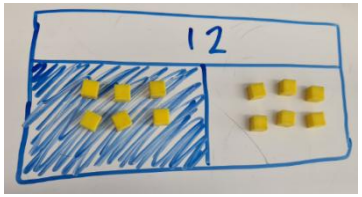
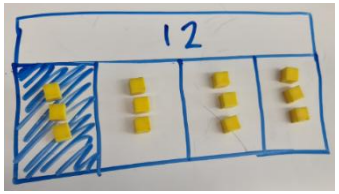
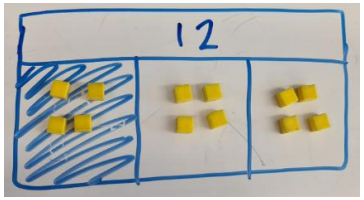
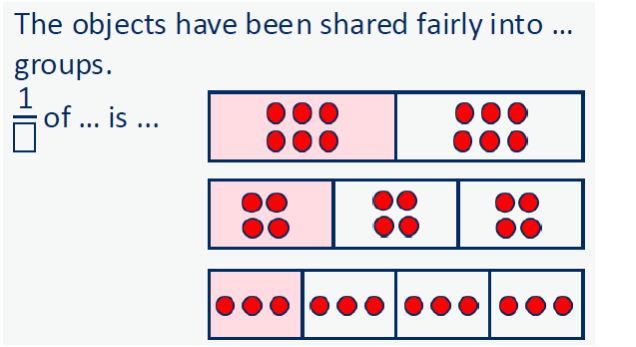
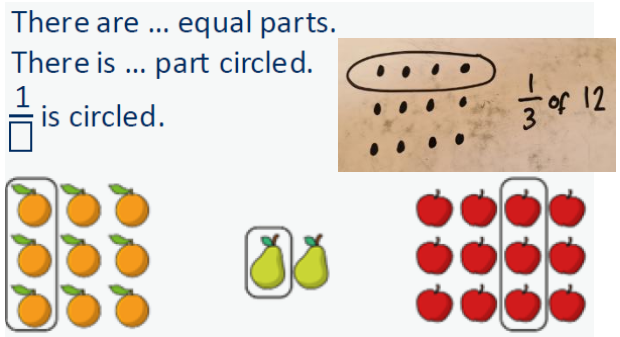
Together Rosie and Jim have £12.
Rosie has twice as much as Jim.
How much does Jim have?
The bar model can be helpful in solving these types of problems.



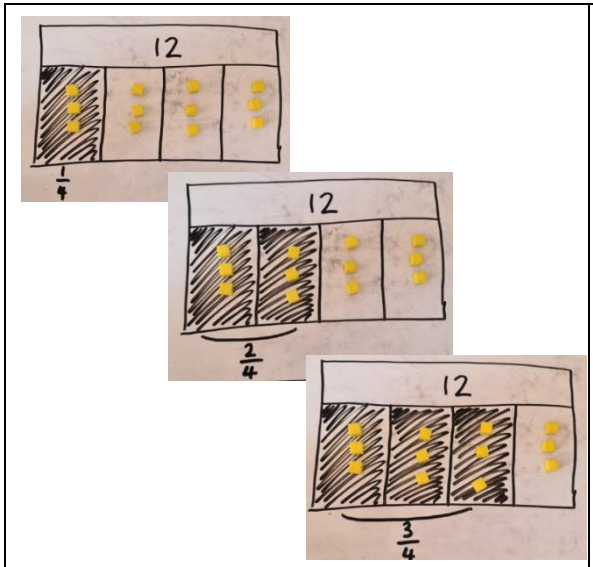
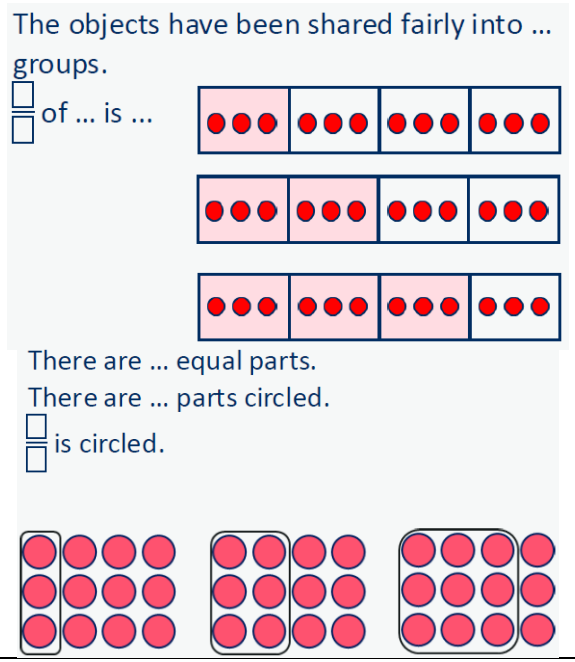
12 ÷ 3 = 4
Jim has £4



Division

Unit Fractions The focus is on finding $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$. Bar models are useful to show the link between division and finding a fraction. $\frac{1}{2}$ of 12 = 6  $\frac{1}{4}$ of 12 = 3  $\frac{1}{3}$ of 12 = 4  	**Unit Fractions**   	**Unit Fractions** To choose appropriate methods to answer abstract problems as well as understand more abstract representations. $\frac{1}{2}$ of 12 = $\frac{1}{4}$ of 12 = $\frac{1}{3}$ of 12 = $\frac{1}{?}$ of 12 = 4
Non-unit Fractions The focus is on finding $\frac{2}{4}$ and $\frac{3}{4}$. Encourage children to notice two quarters is the same as a half.	**Non-unit Fractions**	**Non-unit Fractions** To choose appropriate methods to answer abstract problems as well as understand more abstract representations. – of ___ = ___ $\frac{2}{4}$ of 12 =

Division

		$\frac{3}{4}$ of 12 =

Year 3: Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

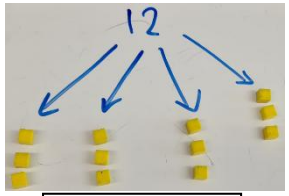
- Recall and use division facts for the 3, 4 and 8 multiplication tables.
- Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.
- Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.

Concrete	**Pictorial**	**Abstract**

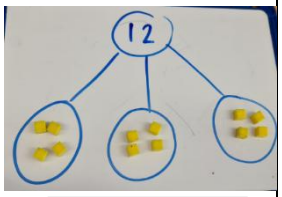
Division

Divide by 3

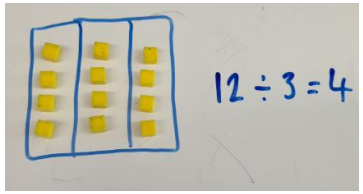
Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.



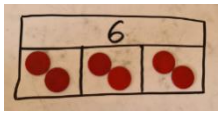
Groups of 3



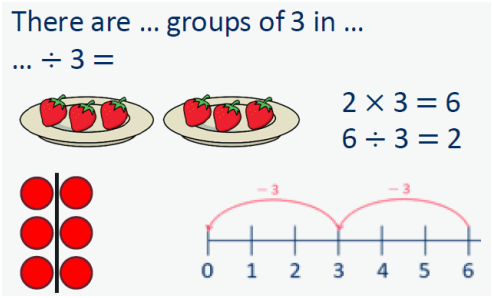
Sharing into 3 groups.

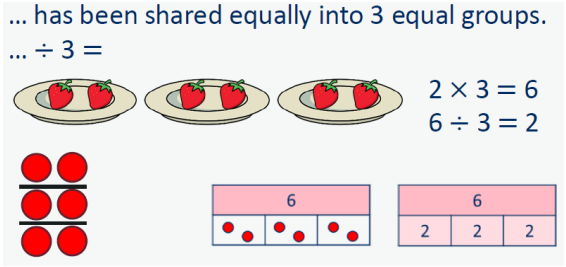






2 x 3 = 6
6 ÷ 3 = 2





Choose appropriate methods to answer number problems and write them using the correct symbols.

Brett has 18 seeds and some plant pots.

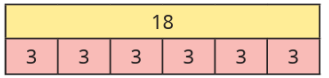
He plants 3 seeds in each pot.

Which bar model shows this?

A



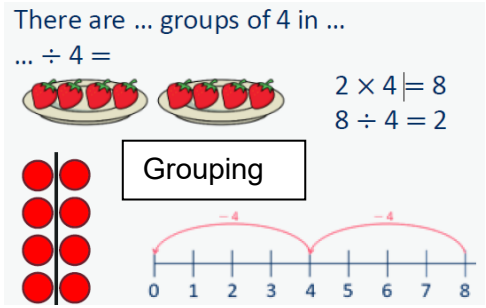
B



Children can go on to writing this as a number problem and word problem.

Divide by 4

Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts. Make link to 2 x tables.



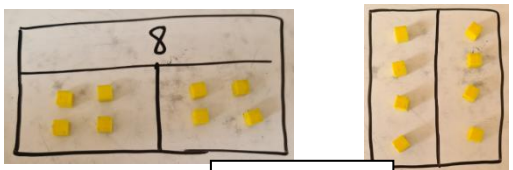
Choose appropriate methods to answer problems and write them using the correct symbols.

8 ÷ 4 =

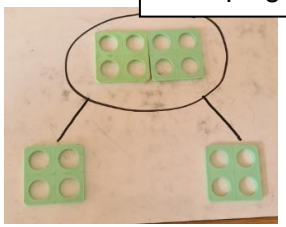
16 ÷ 4 =

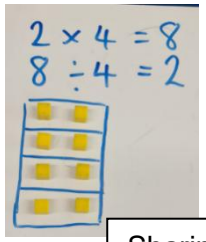
4 x __ = 16

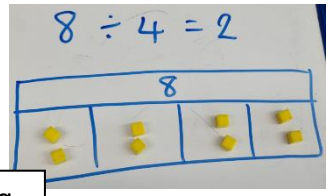
Division



Grouping





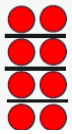


Sharing

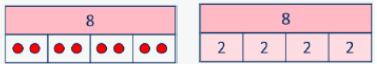
... has been shared equally into 4 equal groups.
... ÷ 4 =



Sharing



$2 \times 4 = 8$
$8 \div 4 = 2$



Four children are playing a game.

They score 4 points for every cup they knock down.



Here are their scores.

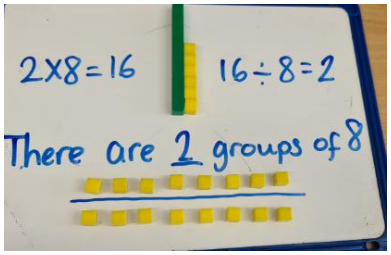
Huan	16
Nijah	28
Kim	12
Tom	32

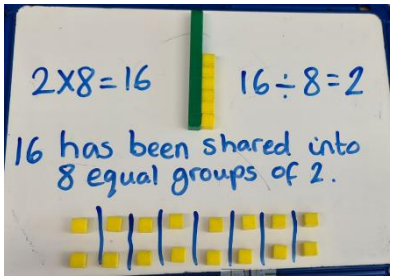
How many cups did they each knock down?

Division

Divide by 8

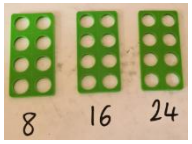
Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts. Link to 2- and 4-times tables.

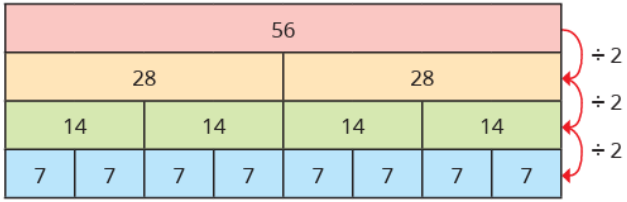


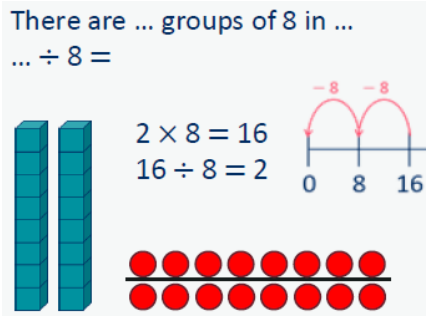


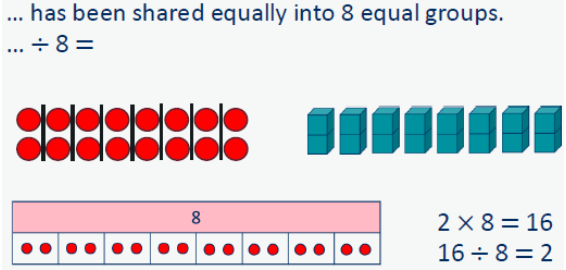
Exchange tens for ones where needed.

Counting up in 8s. Can use resources such as numicon to support.

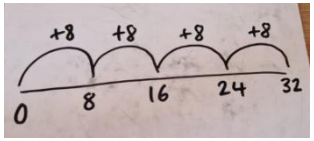




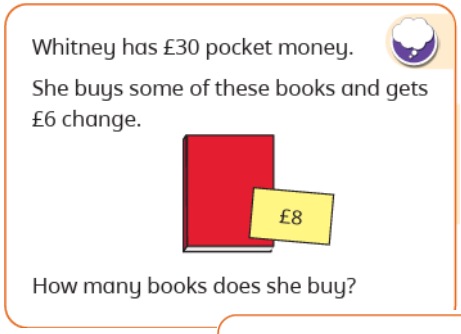


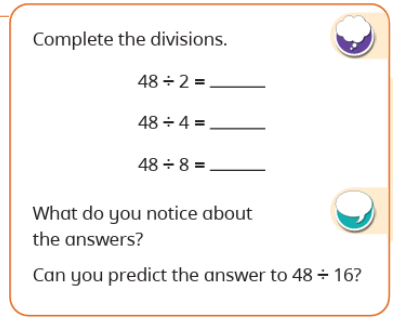


Counting up in 8s.









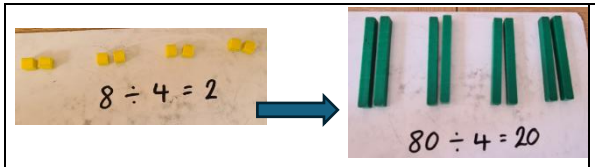
Related Facts

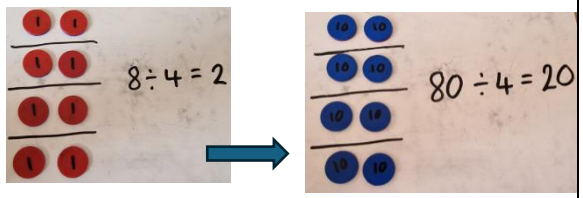
Link to known times tables facts.

___ ÷ ___ is equal to ___, so ___ tens ÷ ___ is equal to ___ tens.

Choose appropriate methods to answer problems and write them using the correct symbols.

Division

<table>
<tr>
<td> 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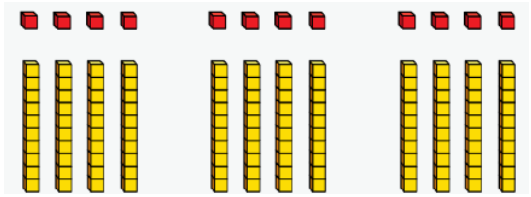
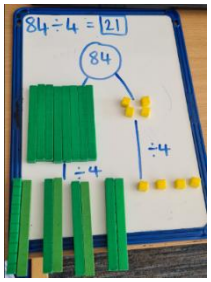
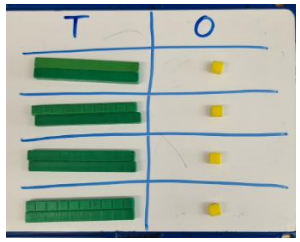
<td> 

12 ÷ 3 = 4
120 ÷ 3 = 40</td>
<td>12 ÷ 3 = 4

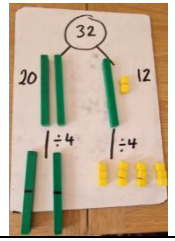
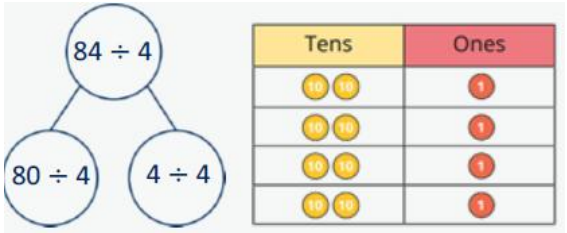
120 ÷ 3 = 40</td>
</tr>
<tr>
<td>Divide a 2-digit number by a 1-digit number – no exchange

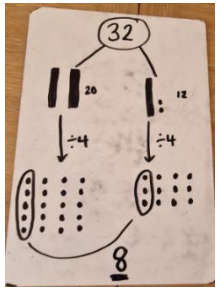
Partition into tens and ones and then recombine.



Encourage children to partition numbers flexibly as well to help them divide more efficiently.

Eg. 32 ÷ 4 = 8
 
</td>
<td>Use pictorial representations to show the division:
 

32 ÷ 4 = 8
 
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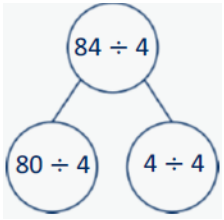
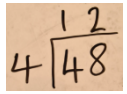
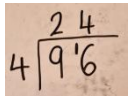
<td> 

84 ÷ 4 =
24 ÷ 4 =

Teachers to use judgement but can move onto simple short division written method in preparation for Year 4. Begin with divisions that divide equally and do not need exchanging.
 

Then move onto divisions that divide equally with no remainders:
 
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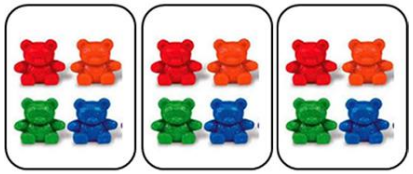
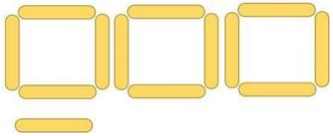
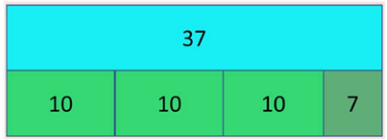
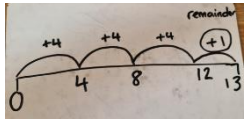
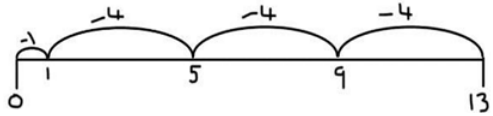
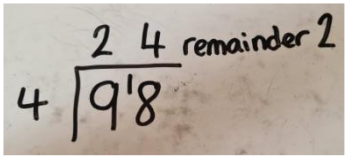
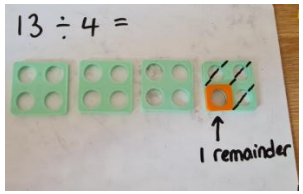
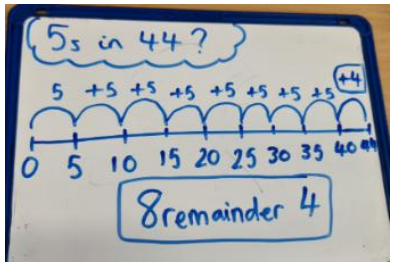
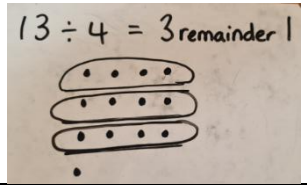
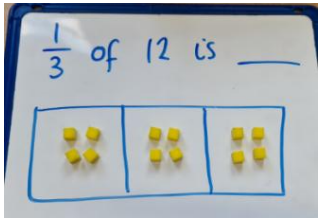
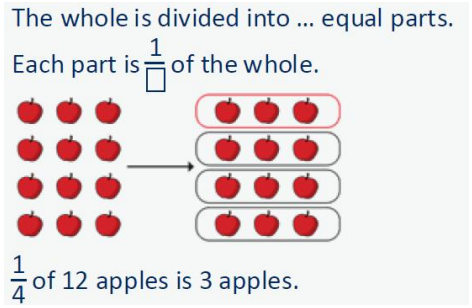
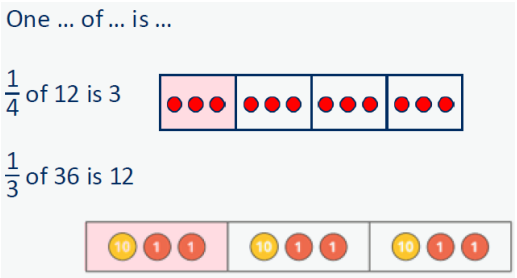
Divide a 2-digit number by a 1-digit number – with remainders Encourage children to partition numbers flexibly to help them divide more efficiently. 14 ÷ 3 = Divide objects between groups and see how   much is left over. When dividing by 4, Cuisenaire rods or sticks can be used: 13÷4=  Use of lollipop sticks to form wholes- squares are made because we are dividing by 4. There are 3 whole squares, with 1 left over.	Draw dots and group them to divide an amount and clearly show a remainder.  Use bar models to show division with remainders.  37 ÷ 10 = 3 r7 When dividing by 4, represent the sticks: 13÷4=  There are 3 whole squares, with 1 left over.	Choose an appropriate method to work out divisions with remainder. Show the remainder with r.  Children should be encouraged to use their times table facts; they could also represent repeated addition on a number line: 13÷4=  They could also count backwards, taking away 4 each jump.  If children were taught simple short division written methos without remainders, those that are ready can be taught with remainders. Keep the questions simple: 

Division

<table>
<tr>
<td>Children could count up in the number they are dividing by:
 
</td>
<td>Use a number line to count and find what is left (the remainder).
 

They could use arrays to help them see what is leftover.
 
</td>
<td></td>
</tr>
<tr>
<td>Unit Fractions of a set of objects

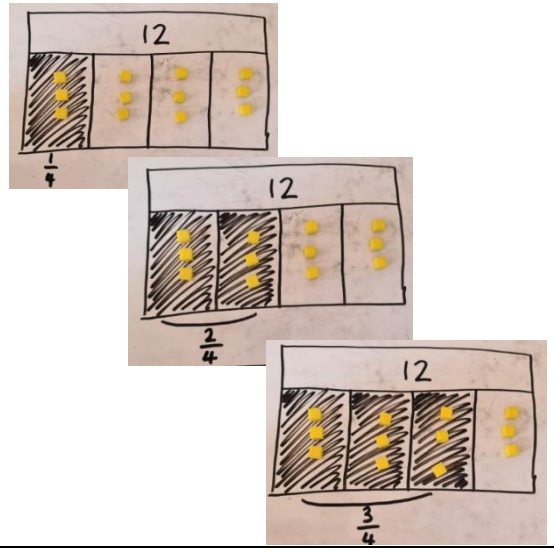
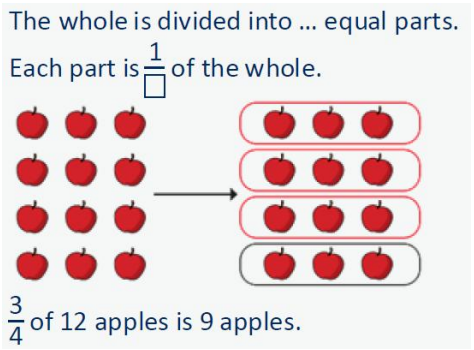
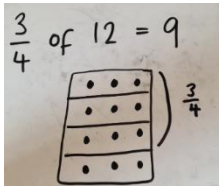
Bar models are useful to show the link between division and fractions, for example, dividing by 3 and finding a third.
 
</td>
<td> 

 
</td>
<td>Choose appropriate methods to answer problems and write them using the correct symbols.

$\frac{1}{4}$ of 12 is _____

$\frac{1}{3}$ of 36 is _____</td>
</tr>
</table>

Division

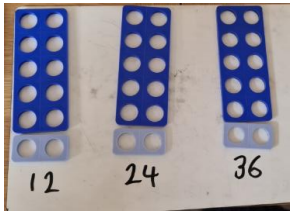
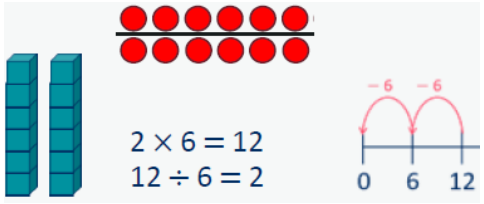
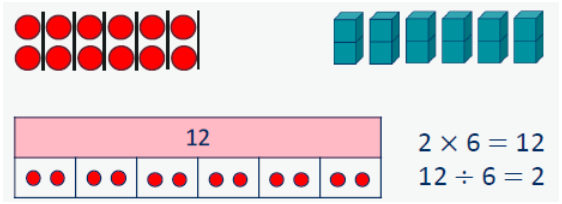
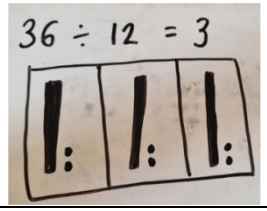
Non-unit Fractions of a set of objects Bar models are a useful representation and show the links with division and multiplication. 	 	Choose appropriate methods to answer problems and write them using the correct symbols. Children should understand they can find 1 part and multiply by the number of parts they need or use repeated addition to help them. $\frac{3}{4}$ of 12 = _____ $\frac{3}{8}$ of 24 = _____

Division

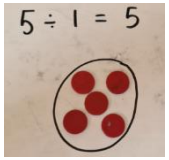
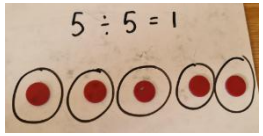
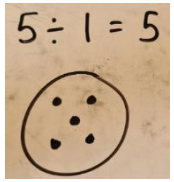
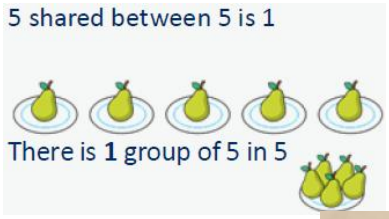
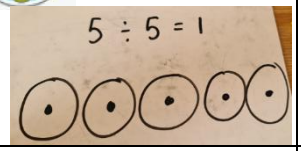
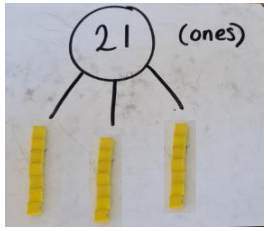
Year 4: Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- Recall division facts for multiplication tables up to 12 × 12
- Use place value, known and derived facts to divide mentally, including: dividing by 1
- Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

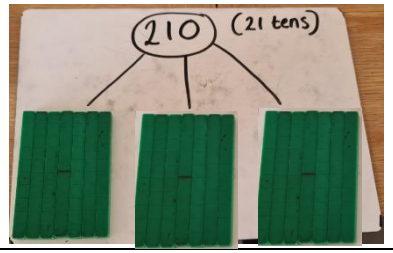
Concrete	Pictorial	Abstract
Division Facts to 12 x 12 Encourage children to compare the grouping and sharing structures of division and to make links with times tables facts. *See previous year groups for more clarity on this.* 3 x 12 = 36 36 ÷ 12 = 3   Children can also use resources such as numicon to count up.  	There are _____ groups of _____ in _____ _____ ÷ _____ = _____  _____ has been shared equally into ___ groups. ___ ÷ ___ = ___   Use sharing and grouping strategies (see previous year groups) to help divide by numbers they are less familiar with.	Children to be exposed to times tables and their inverse. Children to understand times tables are commutative and use their knowledge of tables to answer division questions linked to times tables up to 12 x 12. 3 x 12 = 36 12 x 3 = 36 36 ÷ 3 = 12 36 ÷ 12 = 3

Division

Divide a number by 1 and itself Children may try to divide a number by zero and it should be highlighted that this is not possible. Use counters/dienes to show what happens for the following: When I divide a number by 1, the number remains the same. 5 ÷ 1 = 5  When I divide a number by itself, the answer is 1. 5 ÷ 5 =  	When I divide a number by 1, the number remains the same.   When I divide a number by itself, the answer is 1.   	Ensure children understand the difference between dividing a number by 1 and dividing a number by itself. Stem sentences can be used to encourage children to see this, for example: • 5 grouped into 5s is equal to 1 (5 ÷ 5 = 1) • 5 grouped into 1s is equal to 5 (5 ÷ 1 = 5) 8 ÷ 1 = 8 ÷ 8 = etc.
Related Facts Link to known times tables facts. 21 ÷ 3 = 7  	___ ÷ ___ is equal to ___ so ___ tens ÷ ___ is equal to ___ tens and ___ hundreds ÷ ___ is equal to ___ hundreds. 	21 ÷ 7 = 3 210 ÷ 7 = 30 2,100 ÷ 7 = 300 21 ÷ 3 = 7 210 ÷ 3 = 70 2,100 ÷ 3 = 700

Division

210 ÷ 3 = 70

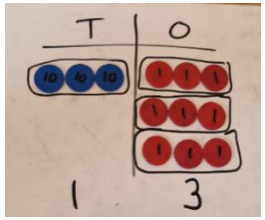


Divide a 2 or 3-digit number by a 1-digit number

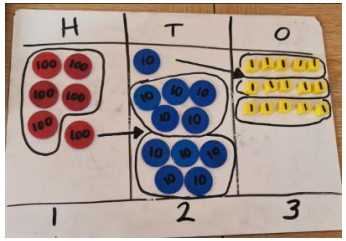
Progress from divisions with no exchange, to divisions with exchange and then divisions with remainders.

Short division:

39 ÷ 3 = 13

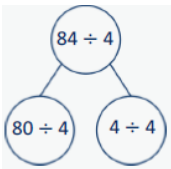


Eg. using place value counters to group.
615 ÷ 5 =

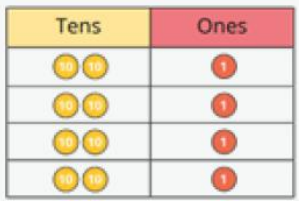


1. Make 615 with place value counters.
2. How many groups of 5 hundreds can you make with 6 hundred counters?

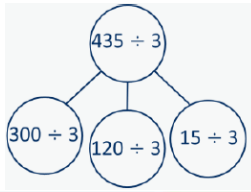
I can partition ____ into ___ tens and ___ ones.



80 ÷ 4 = 20
4 ÷ 4 = 1
84 ÷ 4 = 21



I cannot share the hundreds/tens equally, so I need to exchange 1 ___ for 10 ___.

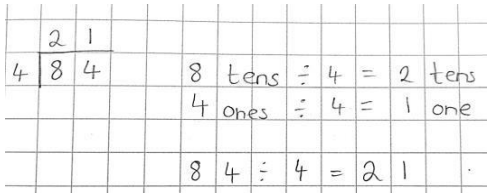


300 ÷ 3 = 100
120 ÷ 3 = 40
15 ÷ 3 = 5
435 ÷ 3 = 145

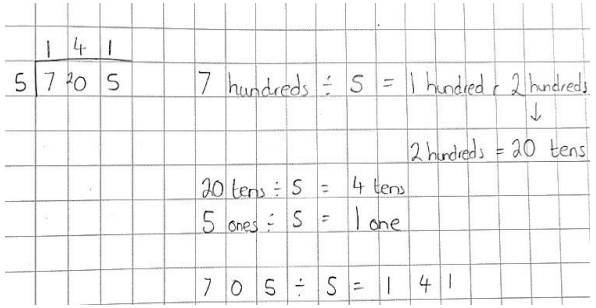


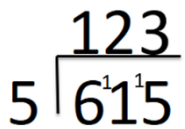
Children to solve calculations using the short division method.

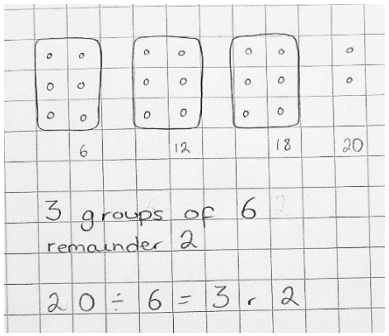
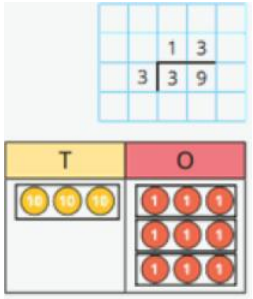
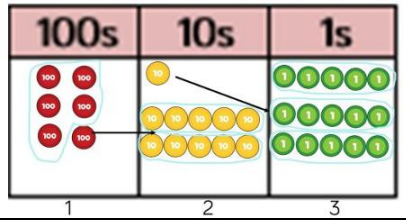
84 ÷ 4 =



705 ÷ 5 =





3. Exchange 1 hundred for 10 tens. 4. How many groups of 5 tens can you make with 11 ten counters? 5. Exchange 1 ten for 10 ones. 6. How many groups of 5 ones can you make with 15 ones?	*20 eggs in boxes of 6.* *How many boxes of eggs?*  Short division: Represent the place value counters pictorially. 39 ÷ 3 = 13  615 ÷ 5 =  	

Division

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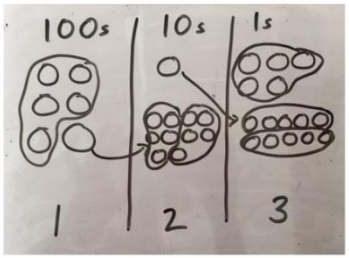
<td> 
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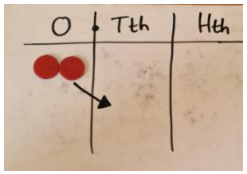
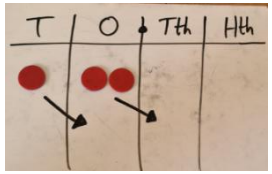
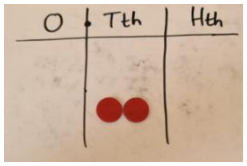
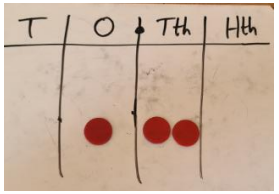
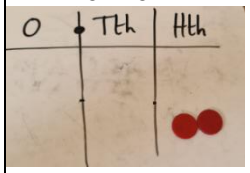
</tr>
<tr>
<td>Divide by 10 and 100

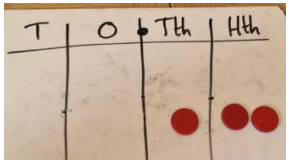
Encourage children to notice that dividing by 100 is the same as dividing by 10 twice.
 

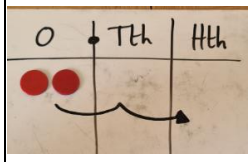


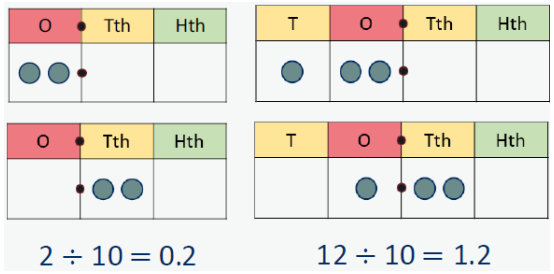




2 ÷ 10 = 0.2
12 ÷ 10 = 1.2
 

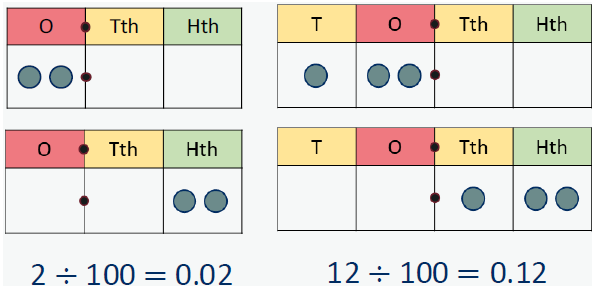





</td>
<td>When I divide by 10, the digits move 1 place value column to the right.
___ is one-tenth the size of ___
 

When I divide by 100, the digits move 2 place value columns to the right.</td>
<td>2 ÷ 10 =
2 ÷ 100 =

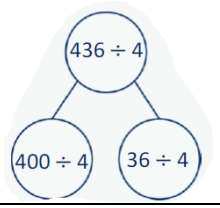
12 ÷ 10 =
12 ÷100 =</td>
</tr>
</table>

2 ÷ 100 = 0.02 12 ÷ 100 = 0.12	___ is one-hundredth the size of ___ 	

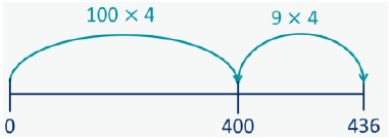
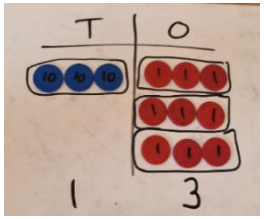
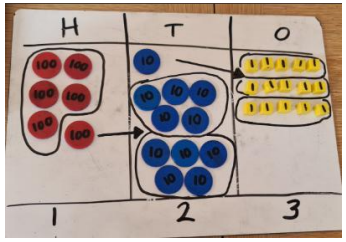
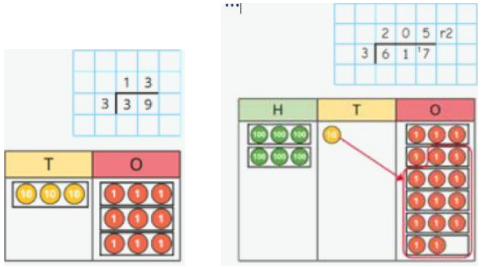
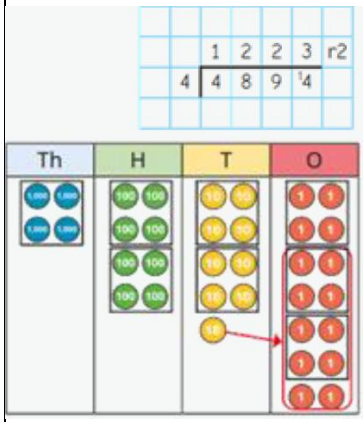
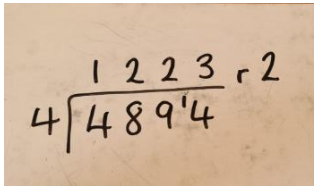
Year 5: Selected National Curriculum Programme of Study Statements

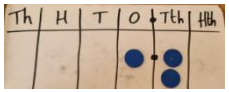
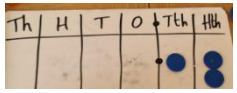
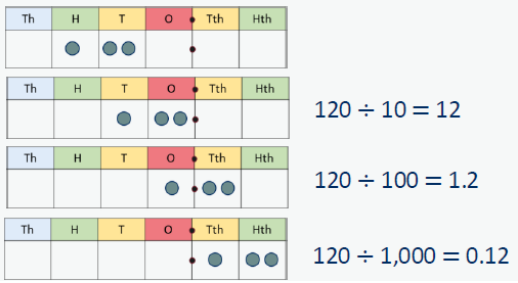
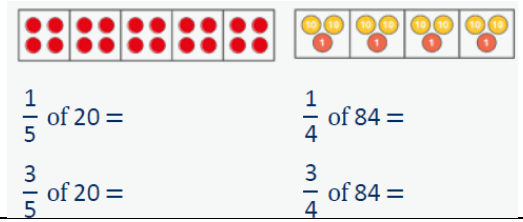
Pupils should be taught to:

- Divide numbers mentally drawing upon known facts.
- Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.
- Divide whole numbers and those involving decimals by 10, 100 and 1,000

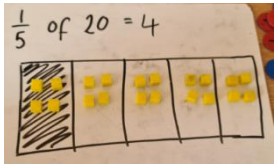
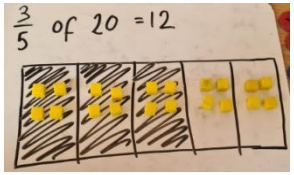
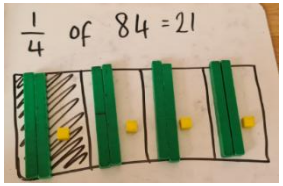
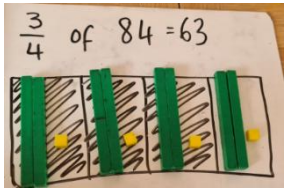
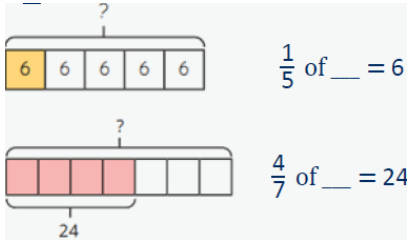
Concrete	Pictorial	Abstract
Mental strategies Include partitioning and number line strategies as well as division using factors. Have concrete resources available for those that need it.	I can partition ___ into ___ and ___ to help me to divide more easily.  Children can use jottings like these to support them.	To divide by ___, I can divide by ___ and then divide the result by ___ 436 ÷ 4 = 436 ÷ 2 ÷ 2 436 ÷ 2 = 218 218 ÷ 2 = 109

Division

	I can show groups of _____ on a number line. 	
Divide numbers up to 4 digits by a 1-digit number Short division will have been introduced last year, but ensure approach is understood by starting simply. Use concrete and pictorial resources. Short division: 39 ÷ 3 = 13  Eg. using place value counters to group. 615 ÷ 5 =  1. Make 615 with place value counters. 2. How many groups of 5 hundreds can you	There are ___ groups of ___ hundreds/tens/ones/ in ___ I can exchange 1 ___ for 10 ___.  	Use appropriate short division method to solve questions such as: 39 ÷ 3 = 61 ÷ 3 = 4894 ÷ 4 = 

make with 6 hundred counters? 3. Exchange 1 hundred for 10 tens. 4. How many groups of 5 tens can you make with 11 ten counters? 5. Exchange 1 ten for 10 ones. 6. How many groups of 5 ones can you make with 15 ones?		
Divide by 10, 100 and 1000 Encourage children to notice that dividing by 100 is the same as dividing by 10 twice, and that dividing by 1,000 is the same as dividing by 10 three times.   120 ÷ 10 = 12  120 ÷ 100 = 1.2  120 ÷ 1000 = 0.12	To divide by 10/100/1,000, I move all the digits ___ places to the right. ___ is one-tenth/one-hundredth/one-thousandth the size of ___ 	To divide any given number by 10, 100 and 1000 using mental strategies or applying previously taught strategies. 120 ÷ 10 = 120 ÷ 100 = 120 ÷ 1000 =
Fraction of an amount Bar models support children to understand that to find a fraction of an amount, we divide by the denominator and multiply by the numerator.	To find ─ of ___, I need to divide by ___ and multiply by ___ 	$\frac{1}{5}$ of 20 = $\frac{3}{5}$ of 20 = $\frac{1}{4}$ of 84 = $\frac{3}{4}$ of 84 =

Division

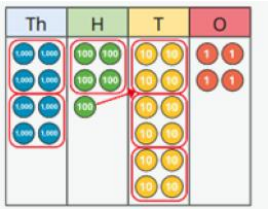
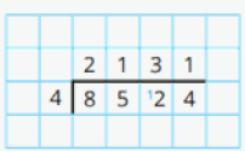
   	If $\frac{1}{?}$ is ___, then the whole is ___ × ___ 	$\frac{1}{5}$ of _____ = 6 $\frac{4}{7}$ of _____ = 24

Division

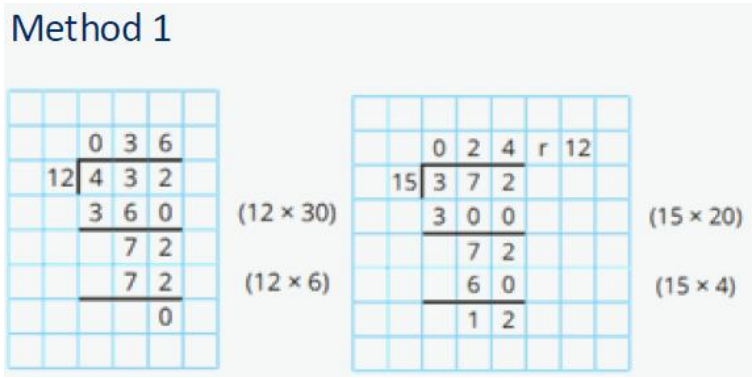
Year 6: Selected National Curriculum Programme of Study Statements

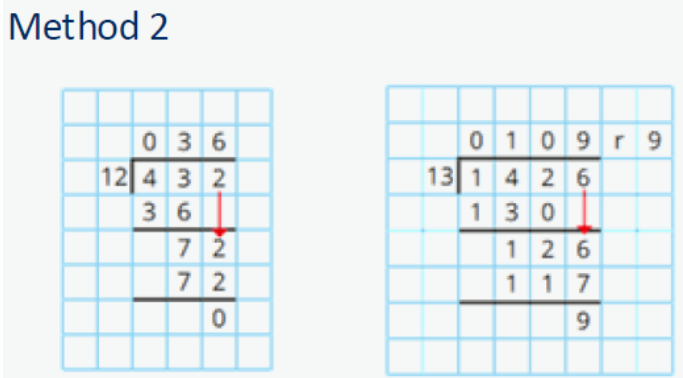
Pupils should be taught to:

•Perform mental calculations, including with mixed operations and large numbers.
•Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.
•Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.
•Divide numbers by 10, 100 and 1,000 giving answers up to three decimal places.
•Use written division methods in cases where the answer has up to two decimal places.
•Associate a fraction with division and calculate decimal fraction equivalents.
•Divide proper fractions by whole numbers [for example, 1 ÷ 2 =1]
•Solve problems involving the calculation of percentages.

Concrete	Pictorial	Abstract
Short Division Encourage children to interpret remainders in context, for example knowing that "remainder 1" could mean complete boxes with 1 left over so 5 boxes will be needed. Use resources as shown in Year 3, 4 and 5.	There are ___ groups of ___ hundreds/tens/ones/ in ___ I can exchange 1 ___ for 10 ___ 	Use appropriate short division method to solve questions such as: 8524 ÷ 4 = 
Mental Strategies Include partitioning and number line strategies outlined in Y5 as well as division using factors. (See Y5 above). Have concrete resources available for those that need it.	To divide by ___, I can first divide by ___ and then divide the answer by ___  Children can use jottings to support them.	240 ÷ 60 = 9120 ÷ 15 =
Long Division The long division method is introduced for the first time. Two alternative methods are shown.		

Division

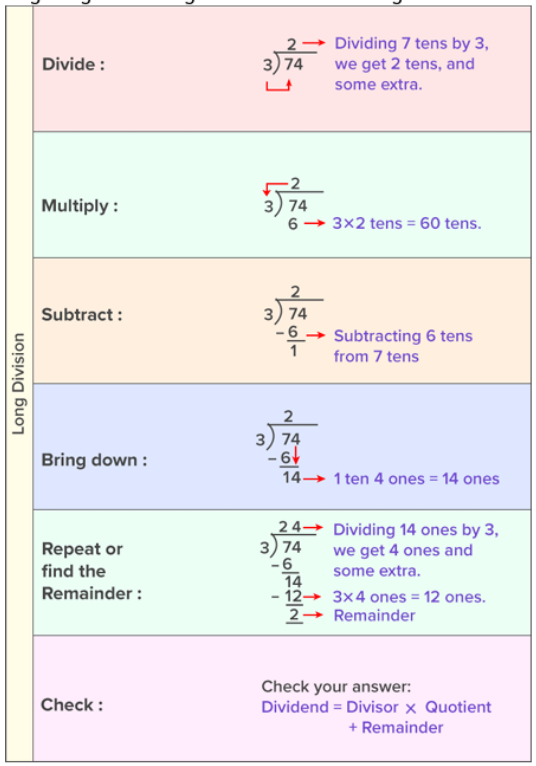




Method 2 in more detail:

Division

Begin by modelling method with a 1-digit divisor.



Divide- the number inside the house with the number outside of the house. Put the answer on top.

Multiply –the number outside of the house by the number on top of the house. Put this answer below the number inside the house.

Subtract- the number inside the house from the number below the inside number.

Bring down- the next number in the dividend.

Repeat- all the steps repeated as many times as needed until you get down to 0.
If there is a leftover this is your remainder.

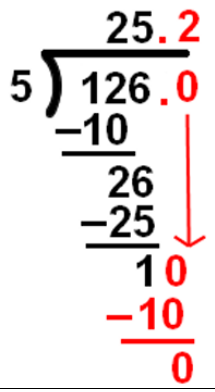
When moving onto using long division with a 2-digit divisor, children can write out multiples first:

2	2	)	6	7	1	0

22, 44, 66, 88, 110 etc

Long division with decimal remainders:

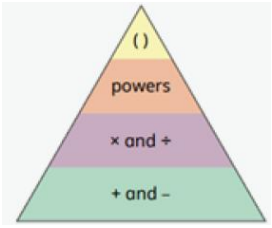
When there is a remainder which you need to write as a decimal, bring down the 0 from then tenths column, and repeat the process as before.

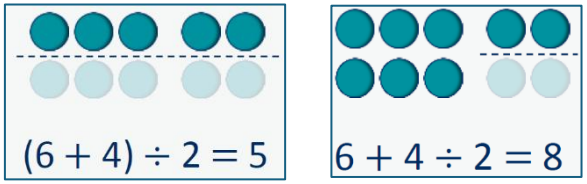


Order of Operations	____ has greater priority than ___ so the first	

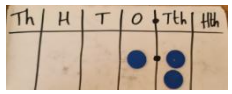
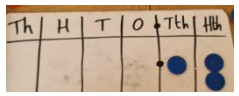
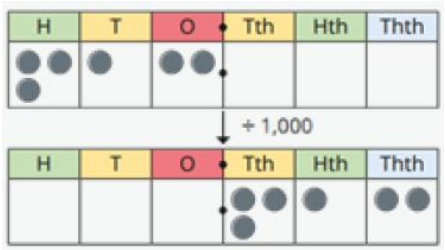
Division

<table>
<tr>
<td>Calculations in brackets should be done first, then powers. Multiplication and division should be performed before addition and subtraction.

Concrete resources such as counters, dienes, place value charts etc. can be used for each stage of the calculation.</td>
<td>part of the calculation I need to do is ____.
 

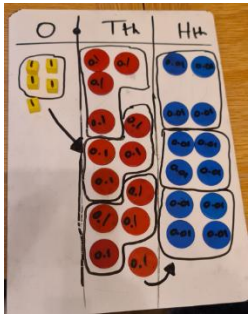
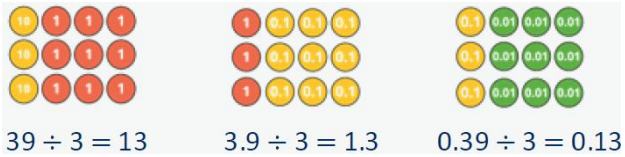
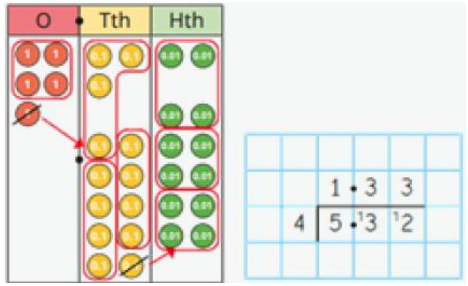
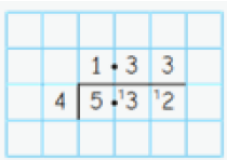
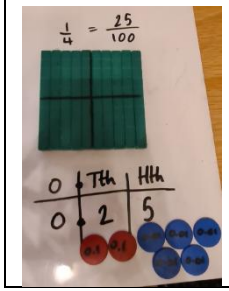
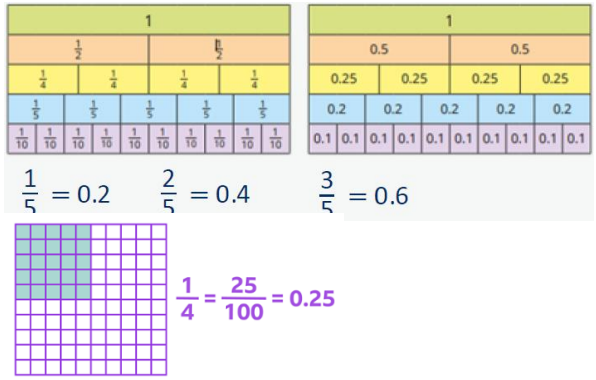

</td>
<td>(6 + 4) ÷ 2 =

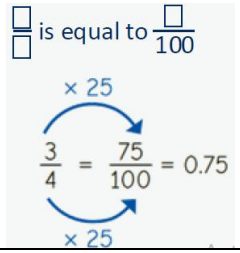
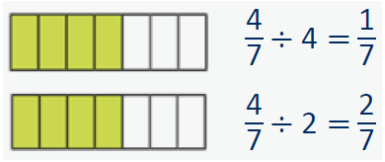
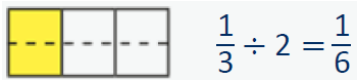
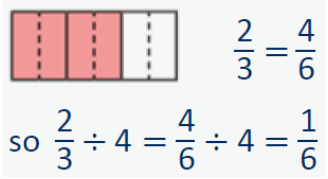
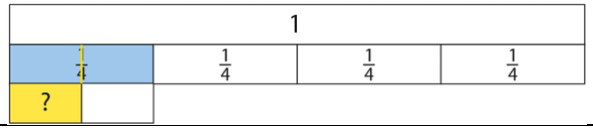
6 + 4 ÷ 2 =</td>
</tr>
<tr>
<td>Divide by 10, 100 and 1000

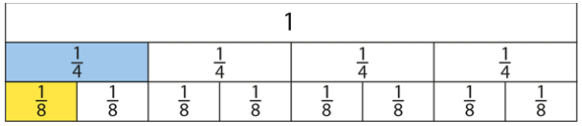
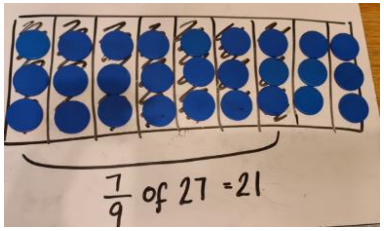
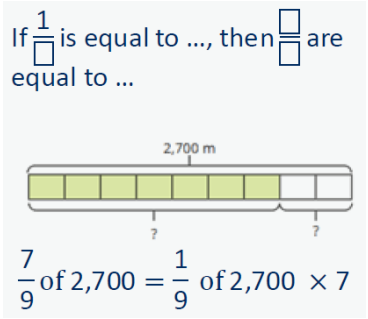
Encourage children to notice that dividing by 100 is the same as dividing by 10 twice, and that dividing by 1000 is the same as dividing by 10 three times.
 
 
120 ÷ 10 = 12
 
120 ÷ 100 = 1.2
 
120 ÷ 1000 = 0.12</td>
<td>To divide by ___, I move the digits ___ places to the right.
 
</td>
<td>312 ÷ 10 = 31.2
312 ÷ 100 = 3.12
312 ÷ 1,000 = 0.312

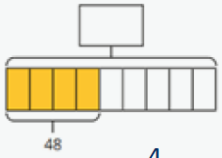
906 ÷ 10 = 90.6
906 ÷ 100 = 9.06
906 ÷ 1,000 = 0.906</td>
</tr>
</table>

Division

Divide decimals by integers This is the first time children divide decimals by numbers other that 10, 100 or 1000. 5.32 ÷ 4 = 1.33 	I know that ___ ÷ ___ = ___, so I also know that ___ ÷ ___ = ___  I need to exchange 1 ___ for 10 ___. 	Choose strategies to support their working out of abstract number and word problems such as: 39 ÷ 3 = 3.9 ÷ 3 = 0.39 ÷ 3 = 5.32 ÷ 4 = 
Decimal and fraction equivalents Encourage children to use their knowledge of tenths and hundredths to help convert between. Use of hundred square will be helpful along with using a place value chart. 	The fraction ___ is equivalent to the decimal ___. 	To be able to recall decimal and fraction equivalents: $\frac{1}{5}$ = ___ – = 0.4 To use knowledge of tenths and hundredths to find equivalents.

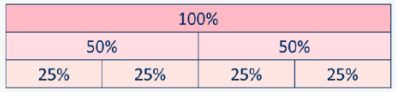
		
Divide a fraction by an integer This is the first time children divide fractions by an integer. When a fraction is divided by a whole number, it makes it smaller. Folding paper can be a great resource to 'show' what this looks like. (This will not work for odd divisors.) 	___ ones divided by 2 is ___ ones so __ sevenths divided by 2 is ___ sevenths.  I am dividing by ___ , so I can split each part into ___ equal parts.  ___ is equivalent to ___ so ___ ÷ ___ = __ ÷ _  $\frac{1}{4} \div 2 = \frac{1}{8}$ 	Are there strategies to solve these problems mentally? Can children build on their concrete/pictorial learning to answer abstract questions? $\frac{4}{7} \div 4 =$ ____ $\frac{1}{3} \div 2 =$ ___ Use their preferred method from your teaching to solve these kinds of questions.

	What fraction of the whole is shaded yellow? Children need to identify how many of the yellow part will fit in the whole (8). Therefore the yellow section is $\frac{1}{8}$.  Children can be taught the KFC approach (Keep, Change, Flip). Using the above picture will help support this idea. $\frac{1}{4} \div 2 =$ Is the same as $\frac{1}{4} \times \frac{1}{2} =$	
Divide a fraction by an amount Children divide and multiply to find fractions of an amount. Bar models can still be used to support understanding where needed.  	To find $\frac{1}{?}$, I divide by ___ $\frac{1}{2}$ of 36 = 36 ÷ 2 $\frac{1}{12}$of 36 = 36 ÷ 12  	Solve abstract problems (number and word). $\frac{1}{12}$ of 48 = $\frac{7}{12}$ of 48 =

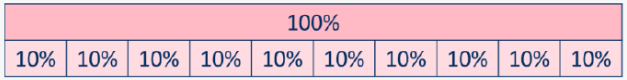
<table>
<tr>
<td></td>
<td>If $\frac{\square}{\square}$ is equal to ..., then the whole is equal to ...
 

$\frac{4}{9}$ of $\_\_ = 48$</td>
<td></td>
</tr>
<tr>
<td>Calculate Percentages

Children first learn how to find 1%, 10%, 20%, 25% and 50% before using multiples of these amounts to find any percentage.

Hundred dienes can help show this.</td>
<td>There are ... lots of ... % in 100%
To find ... %, I need to divide by ...
 

50% of ... = ...÷ 2
25% of ... = ...÷ 4

... % is made up of ... %, and ... %
 

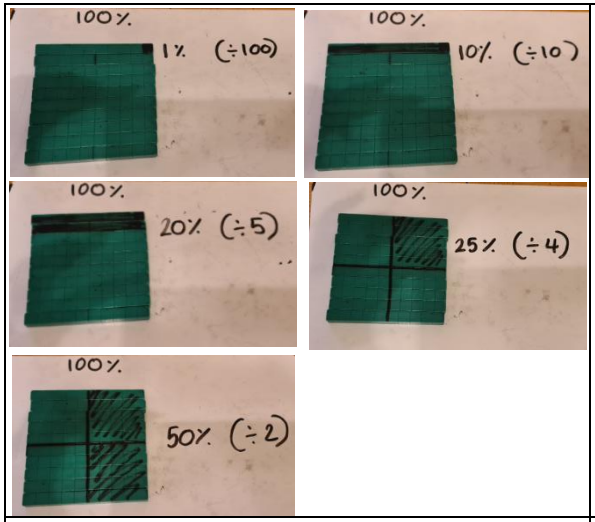
To find 30%, I can find 10% and then multiply it by 3
To find 23%, I can use 10% × 2 and 1% × 3
To find 99%, I can find 1%, then subtract from 100%</td>
<td>To use an appropriate method to work out percentage questions.

25% of ____ = ____

98% of ____ = ____

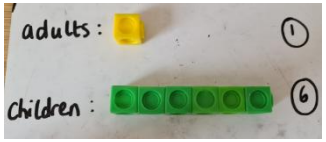
If 25% is ____, what is the whole?</td>
</tr>
</table>

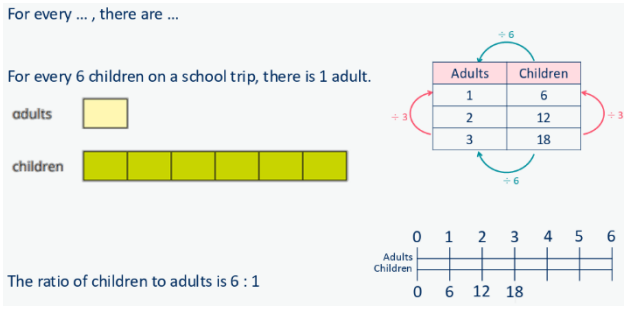
Division

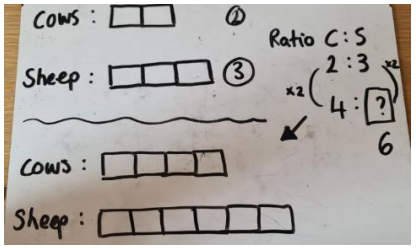


Calculations involving ratio

Encourage children to see the multiplicative relationship between ratios. They will need to multiply or divide each value by the same number to keep the ratio equivalent. Double number lines and ratio tables help children to see both horizontal and vertical multiplicative relationships.

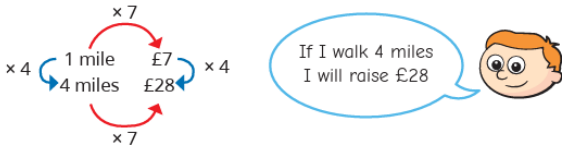






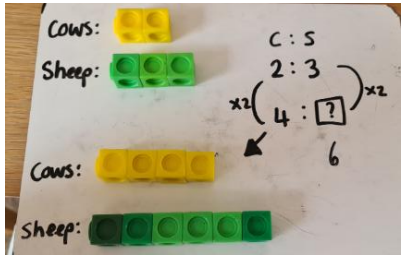
- Ron is doing a sponsored walk for charity.

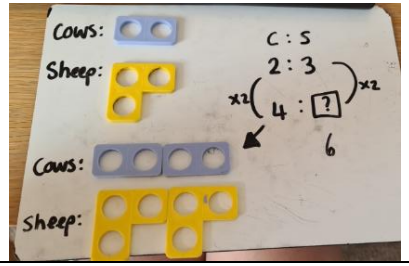
  For every mile he walks, he will raise £7



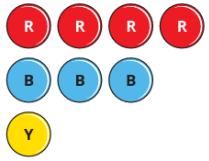
- How much will Ron raise if he walks 3 miles?
- How much will Ron raise if he walks 22 miles?
- How many miles will Ron need to walk to raise £42?

Division





The ratio of red to blue to yellow counters is 4 : 3 : 1



If there are 148 red counters, how many yellow counters are there?

If there are 50 more blue counters than yellow counters, how many red counters are there?

If there are 608 counters in total, how many of them are red?

How did you work this out?

Compare answers with a partner.