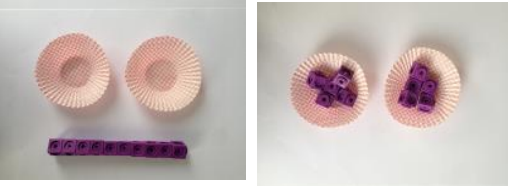
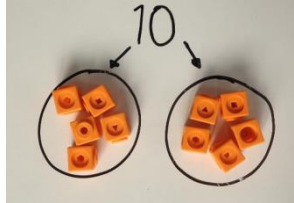
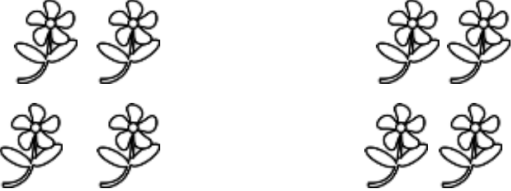
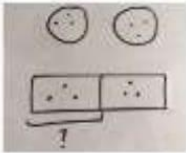


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Calculation procedure

Division

Key vocabulary: share, group, divide, divided by, half, dividend, divisor, quotient

Objective and strategy	Concrete	Pictorial	Abstract
<p>Division as sharing</p> <p>Suggested year group(s): Year 1, Year 2</p>	<p>Sharing using a range of objects</p>  <p>I have 10 cubes; can you share them equally in 2 groups?</p> 	<p>Children use pictures or shapes to share quantities.</p>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $8 \div 2 = 4$ </div> <p>Begin to use mathematical pictures.</p> 	<p>Share 9 buns between three people.</p> $9 \div 3 = 3$ <div style="border: 1px solid black; display: flex; justify-content: space-around; width: 200px; margin: 10px auto;"> 3 3 3 </div> <p>Children should be encouraged to use their times tables facts.</p>

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Calculation procedure

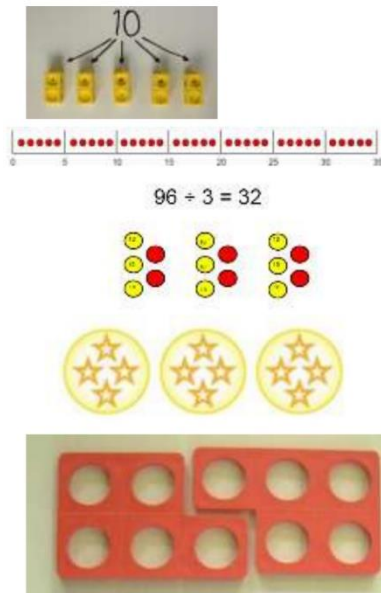
Division

Key vocabulary: share, group, divide, divided by, half, dividend, divisor, quotient

Division as grouping

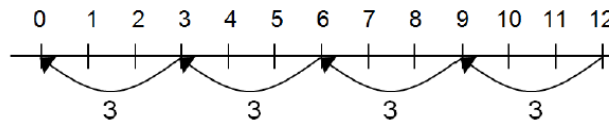
Suggested year group(s): Year 1, Year 2, Year 3

Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding.



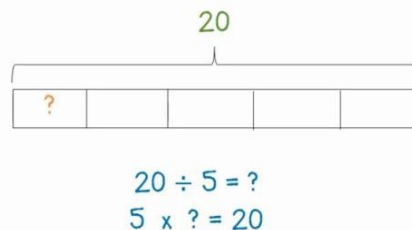
Ten divided into two groups.

Use a number line to show jumps in groups. The number of jumps equals the number of groups.



Think of the bar as a whole.

Split it into the number of groups you are dividing by and work out how many would be within each group.



$$28 \div 7 = 4$$

Divide 28 into 7 groups. How many are in each group?

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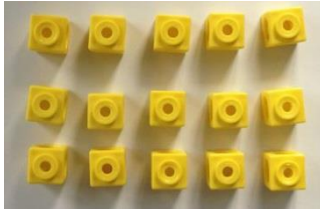
Calculation procedure

Division

Key vocabulary: share, group, divide, divided by, half, dividend, divisor, quotient

Division within
arrays

Suggested year
group(s): Year 2,
Year 3

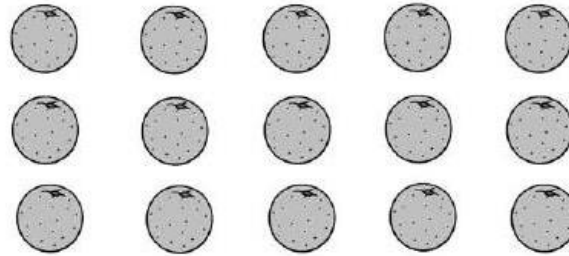


Link division to multiplication by creating an array and thinking about the number sentences that can be created.

E.g.

$$15 \div 3 = 5 \quad 5 \times 3 = 15$$

$$15 \div 5 = 3 \quad 3 \times 5 = 15$$



into groups to make multiplication and division sentences.

Draw an array and use lines to split the array

Find the inverse of multiplication and division sentences by creating four linking number sentences.

$$7 \times 4 = 28$$

$$4 \times 7 = 28$$

$$28 \div 7 = 4$$

$$28 \div 4 = 7$$

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Calculation procedure

Division

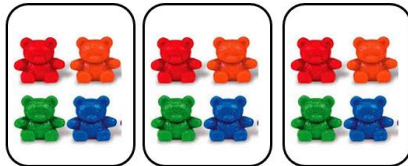
Key vocabulary: share, group, divide, divided by, half, dividend, divisor, quotient

Division with a remainder

Suggested year group(s): Year 3, Year 4

$$14 \div 3 =$$

Divide objects between groups and see how much is left over.



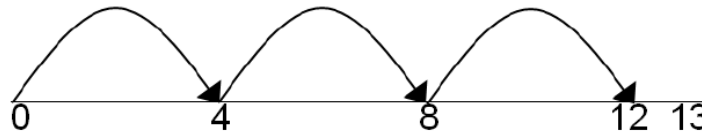
Use small sticks/lollipop sticks for 2-digit \div 1-digit with remainders.

Use lollipop sticks to form wholes. E.g. $13 \div 4$ squares are made because we are dividing by 4.



There are 3 whole squares, with 1 left over.

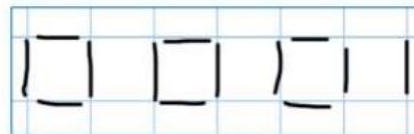
Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder.



Draw dots and group them to divide an amount and clearly show a remainder.



Represent lollipop sticks pictorially.



Complete written divisions and show the remainder using r.

$$29 \div 8 = 3 \text{ REMAINDER } 5$$

\uparrow \uparrow \uparrow \uparrow
 dividend divisor quotient remainder

$$13 \div 4 = 3 \text{ r}1$$

Children should be encouraged to use their times tables facts; they could also represent repeated addition on a number line.

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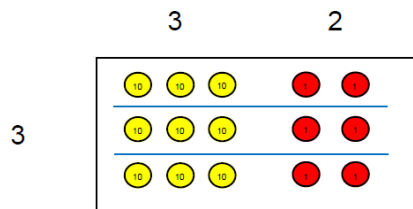
Calculation procedure

Division

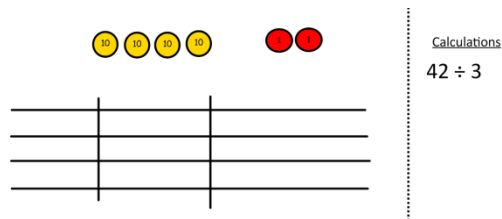
Key vocabulary: share, group, divide, divided by, half, dividend, divisor, quotient

Short division

Suggested year group(s): Year 4, Year 5, Year 6



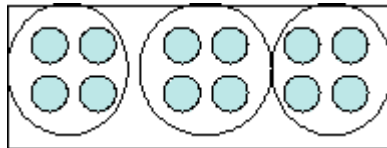
Use place value counters to divide using the bus stop method alongside an array/grid.



$$42 \div 3 =$$

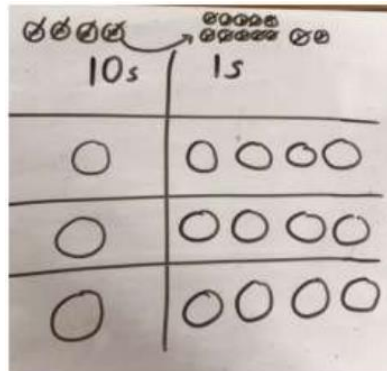
Start with the biggest place value, we are sharing 40 into three groups. We can put 1 ten in each group and we have 1 ten left over.

Students can continue to use drawn diagrams with dots or circles to help them divide numbers into equal groups.



Encourage them to move towards counting in multiples to divide more efficiently.

The use of place value grids with counters drawn in an array should also be used.



Begin with divisions that divide equally with no remainder.

$$\begin{array}{r} 218 \\ 3 \overline{) 872} \end{array}$$

Move onto divisions with a remainder.

$$\begin{array}{r} 86 \text{ r } 2 \\ 3 \overline{) 432} \end{array}$$

Finally move into decimal places to divide the total accurately.

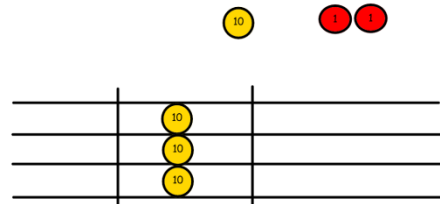
$$\begin{array}{r} 14.6 \\ 35 \overline{) 511.0} \end{array}$$

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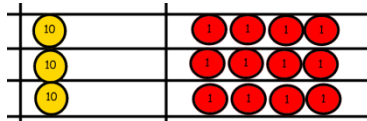
Calculation procedure

Division

Key vocabulary: share, group, divide, divided by, half, dividend, divisor, quotient



We exchange this ten for ten ones and then share the ones equally among the groups.



We look how much is in 1 group so the answer is 14.

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Calculation procedure

Division

Key vocabulary: share, group, divide, divided by, half, dividend, divisor, quotient

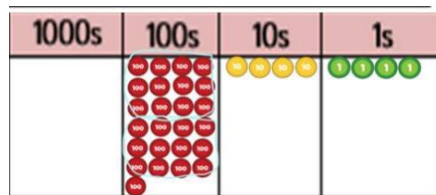
Long division

Suggested year
group(s): Year 6

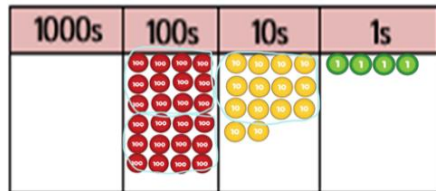
Using place value counters
 $2544 \div 12$



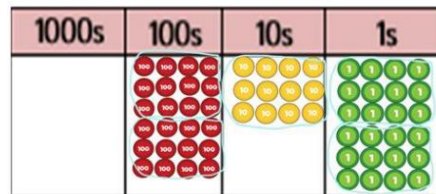
We can't group 2 thousands into groups of 12 so will exchange them



We can group 24 hundreds into groups of 12 which leaves with 1 hundred



After exchanging the hundred, we have 14 tens. We can group 12 tens into a group of 12, which leaves 2 tens.



After exchanging the 2 tens, we have 24 ones. We can group 24 ones into 2 groups of 12, which leaves no remainder.

$$\begin{array}{r} 02 \\ 12 \overline{) 2544} \\ \underline{24} \\ 1 \end{array}$$

$$\begin{array}{r} 021 \\ 12 \overline{) 2544} \\ \underline{24} \\ 14 \\ \underline{12} \\ 2 \end{array}$$

$$\begin{array}{r} 0212 \\ 12 \overline{) 2544} \\ \underline{24} \\ 14 \\ \underline{12} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

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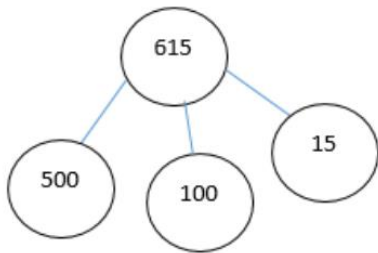
Calculation procedure

Division

Key vocabulary: share, group, divide, divided by, half, dividend, divisor, quotient

Conceptual variation; different ways to ask children to solve $615 \div 5$

Using the part whole model below, how can you divide 615 by 5 without using short division?



I have £615 and share it equally between 5 bank accounts. How much will be in each account?

615 pupils need to be put into 5 groups. How many will be in each group?

$$5 \overline{)615}$$

$$615 \div 5 =$$

$$\square = 615 \div 5$$

What is the calculation?
What is the answer?

