

Lesson 2 – Multiplication & Division – Make Equal Groups - Sharing

NC Objective:
Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers.

Resources needed:
Differentiated Sheets
Teaching Slides, counters

Vocabulary:
Multiplication, division, sharing, equal, groups

Children divide by sharing objects into equal groups using one-to-one correspondence. They need to do this using concrete manipulatives in different contexts, then move on to pictorial representations. Children will be introduced to the '÷' symbol. They will begin to see the link between division and multiplication.

Key Questions:

How many do you have to begin with? How many equal groups are you sharing between?
How many are in each group? How do you know that you have shared the objects equally?
___ has been shared equally into ___ equal groups.
I have ___ in each group. ___ groups of ___ make ___.

★ Working Towards ★★ Working Within ★★★ Greater Depth

Make Equal Groups - Sharing Reasoning & Problem Solving 2

Solve the calculations using the sharing method.

I share 15 cubes between 3 boxes.
 $15 \div 3 =$ _____

I share 30 apples between 10 boxes.
 $30 \div 10 =$ _____

I share 10 cubes between 2 boxes.
 $10 \div 2 =$ _____

I share 12 apples between 4 boxes.
 $12 \div 4 =$ _____

Make Equal Groups - Sharing Reasoning & Problem Solving 2

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 $15 \div 3 =$ _____

I share 10 cubes between 2 boxes.
 $10 \div 2 =$ _____

I share 30 apples between 10 boxes.
 $30 \div 10 =$ _____

I share 12 apples between 4 boxes.
 $12 \div 4 =$ _____

The bar model shows 6 divided between 3 equal groups.
The calculation is: $6 \div 3 = 2$

What other number sentences can you create from this?

The bar model shows 20 divided between 4 equal groups.
The calculation is: $20 \div 4 = 5$

What other number sentences can you create from this?

Make Equal Groups - Sharing Reasoning & Problem Solving 2

Write the calculation, sentence represented by the sentence and solve it.

I share 24 cubes between 8 boxes. I share 28 cubes between 7 boxes.

What multiplication and division number sentences can you create from the bar model?

What multiplication and division number sentences can you create from the bar model?

Write a multiplication and division word problem for the bar model shown.

Multiplication word problem: _____

Division word problem: _____

Children on this sheet concentrate on sharing with visuals and also use manipulatives alongside this.

Children on this sheet can share by drawing circles or use manipulatives alongside this. They use bar models to see the link between multiplication and division.

Children on this sheet are efficient in division by sharing. They answer questions outside of the 2, 5 and 10 times tables and division facts and move onto using the bar model to create their own multiplication and division word problems.

Reasoning & Problem Solving

Make Equal Groups - Sharing Reasoning & Problem Solving 2

Malachi says, "I can work out $20 \div 2$ easily because I know that 20 is the same as 2 tens.

This is what he does:

 $20 \div 2 = 10$

Is it possible to work out $30 \div 3$ in the same way? Prove it.
Is it possible to work out $30 \div 2$?
What is different about this calculation?

Make Equal Groups - Sharing Reasoning & Problem Solving 2

Malachi says, "I can work out $40 \div 2$ easily because I know that 40 is the same as 4 tens.

This is what he does:

 $40 \div 2 = 20$

Is it possible to work out $60 \div 3$ in the same way? Prove it.
Is it possible to work out $60 \div 4$?
What is different about this calculation?

Make Equal Groups - Sharing Reasoning & Problem Solving 2

Malachi says, "I can work out $40 \div 2$ easily because I know that 40 is the same as 4 tens.

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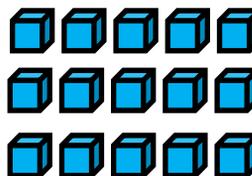
 $40 \div 2 = 20$

Is it possible to work out $100 \div 2$ in the same way? Prove it.
Is it possible to work out $100 \div 4$?
What is different about this calculation?

Solve the calculations using the sharing method.

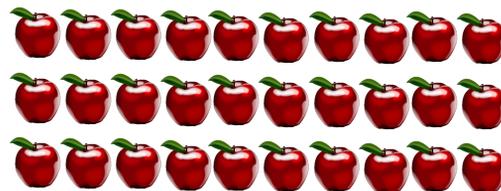
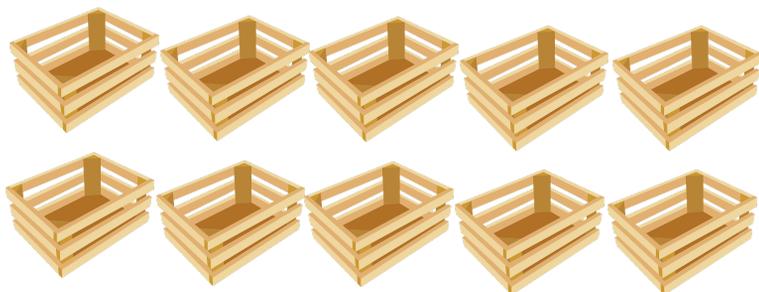
I share 15 cubes between 3 boxes.

$$15 \div 3 = \underline{\hspace{2cm}}$$



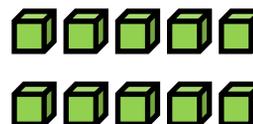
I share 30 apples between 10 boxes.

$$30 \div 10 = \underline{\hspace{2cm}}$$



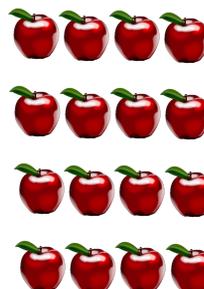
I share 10 cubes between 2 boxes.

$$10 \div 2 = \underline{\hspace{2cm}}$$



I share 12 apples between 4 boxes.

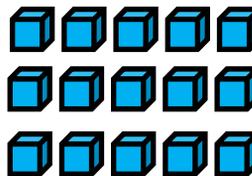
$$12 \div 4 = \underline{\hspace{2cm}}$$



Solve the calculations using the sharing method.

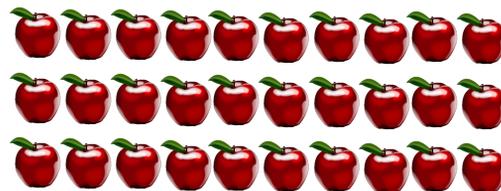
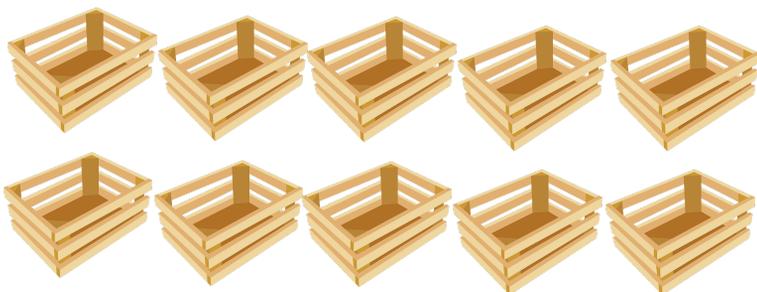
I share 15 cubes between 3 boxes.

$$15 \div 3 = \underline{5}$$



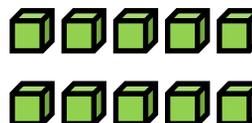
I share 30 apples between 10 boxes.

$$30 \div 10 = \underline{3}$$



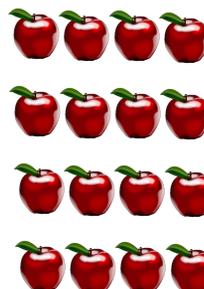
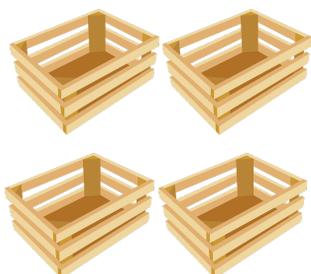
I share 10 cubes between 2 boxes.

$$10 \div 2 = \underline{5}$$



I share 12 apples between 4 boxes.

$$12 \div 4 = \underline{3}$$



I share 15 cubes between 3 boxes.

$$15 \div 3 = \underline{\hspace{2cm}}$$



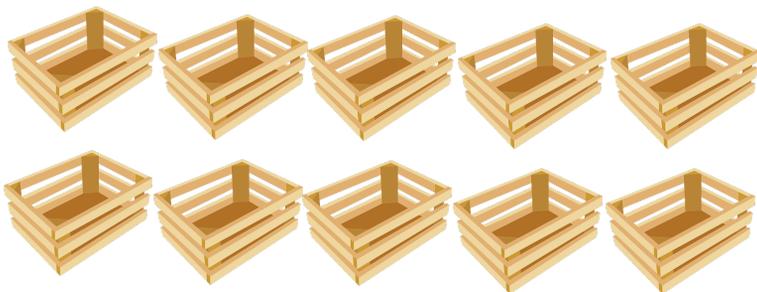
I share 10 cubes between 2 boxes.

$$10 \div 2 = \underline{\hspace{2cm}}$$



I share 30 apples between 10 boxes.

$$30 \div 10 = \underline{\hspace{2cm}}$$



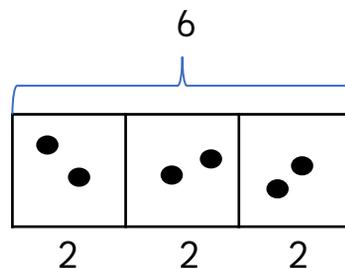
I share 12 apples between 4 boxes.

$$12 \div 4 = \underline{\hspace{2cm}}$$



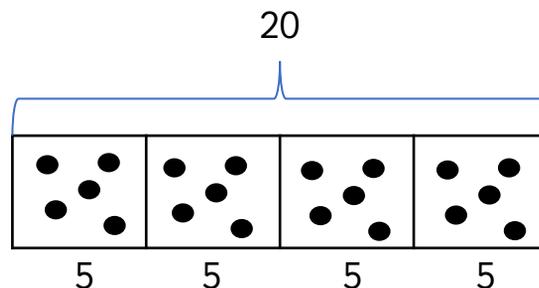
The bar model shows 6 divided between 3 equal groups.
The calculation is: $6 \div 3 = 2$.

What other number sentences can you create from this?



The bar model shows 20 divided between 4 equal groups.
The calculation is: $20 \div 4 = 5$.

What other number sentences can you create from this?





I share 15 cubes between 3 boxes.

$$15 \div 3 = \underline{5}$$



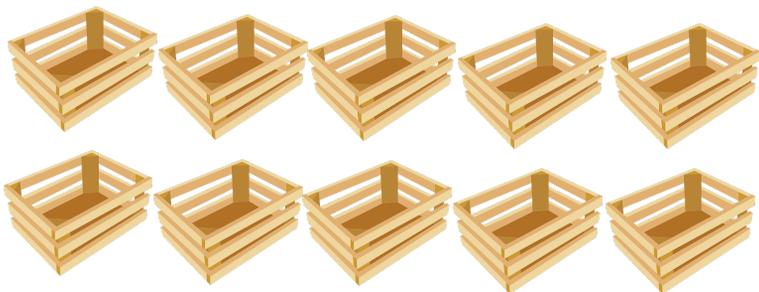
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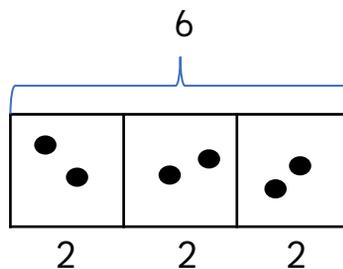


The bar model shows 6 divided between 3 equal groups.
The calculation is: $6 \div 3 = 2$.

What other number sentences can you create from this?

$$2 \times 3 = 6$$

$$3 \times 2 = 6$$

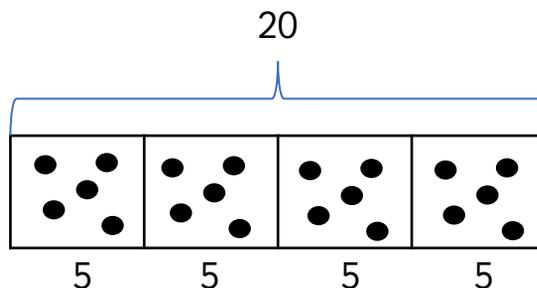


The bar model shows 20 divided between 4 equal groups.
The calculation is: $20 \div 4 = 5$.

What other number sentences can you create from this?

$$5 \times 4 = 20$$

$$4 \times 5 = 20$$

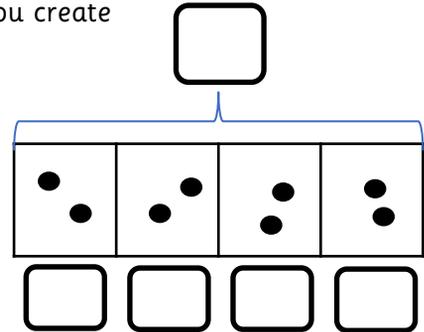


Write the calculation sentence represented by the sentence and solve it.

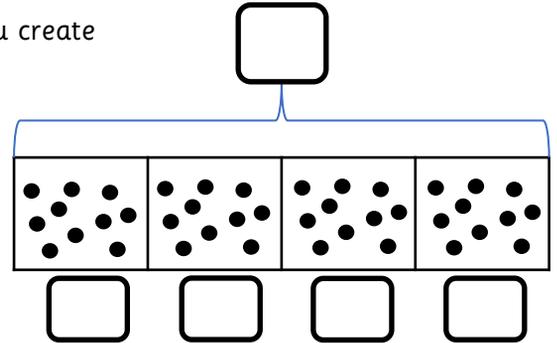
I share 24 cubes between 8 boxes.

I share 28 cubes between 7 boxes.

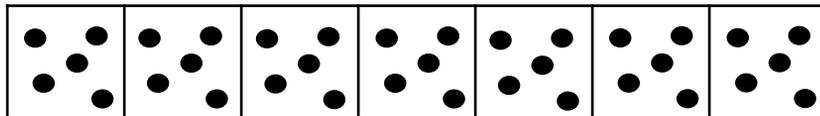
What multiplication and division number sentences can you create from the bar model?



What multiplication and division number sentences can you create from the bar model?



Write a multiplication and division word problem for the bar model shown.



Multiplication word problem:

Division word problem:



Write the calculation sentence represented by the sentence and solve it.

I share 24 cubes between 8 boxes.

$$24 \div 8 = 3$$

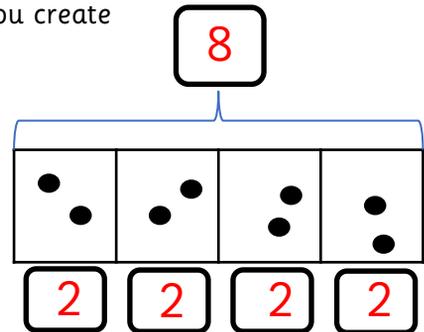
I share 28 cubes between 7 boxes.

$$28 \div 7 = 4$$

What multiplication and division number sentences can you create from the bar model?

$$2 \times 4 = 8$$

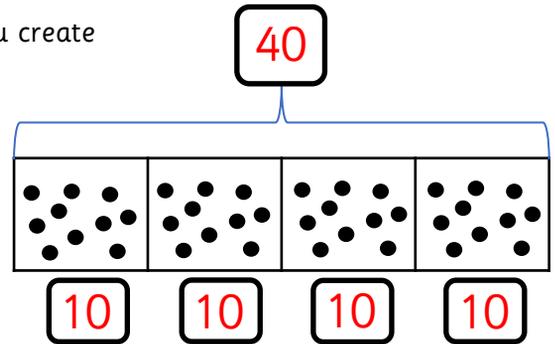
$$4 \times 2 = 8$$



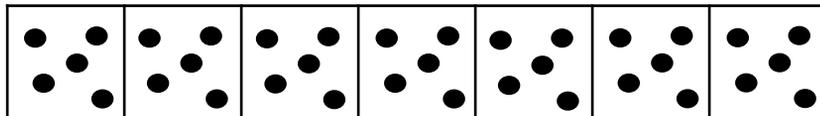
What multiplication and division number sentences can you create from the bar model?

$$10 \times 4 = 40$$

$$4 \times 10 = 40$$



Write a multiplication and division word problem for the bar model shown.



Examples:

Multiplication word problem:

One jar has 5 chocolate buttons. I bought 7 jars.
How many chocolate buttons do I have altogether?

Division word problem:

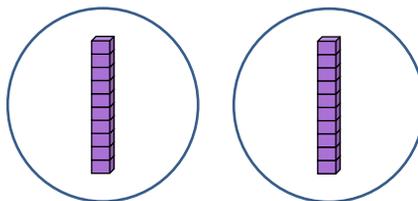
I have 35 marbles. I share them equally between 7 boxes.
How many marbles are in each box?

Malachi says,



I can work out $20 \div 2$ easily because I know that 20 is the same as 2 tens.

This is what he does:



$$20 \div 2 = 10$$

Is it possible to work out $30 \div 3$ in the same way? Prove it.

Is it possible to work out $30 \div 2$?

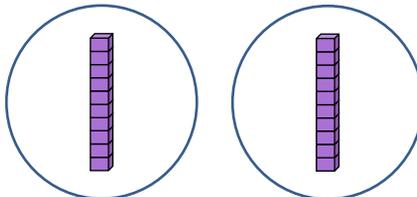
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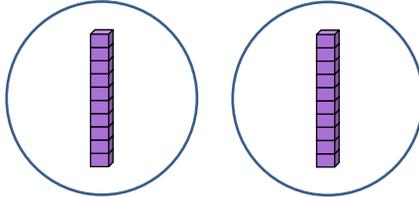
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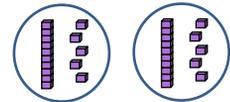


$$20 \div 2 = 10$$

Is it possible to work out $30 \div 3$ in the same way? Prove it.

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What is different about this calculation?



Possible answer:

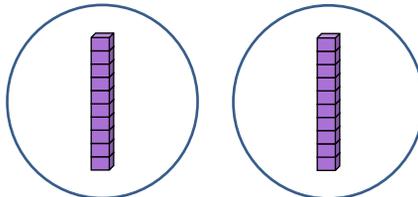
For $30 \div 2$ the children will need to exchange 1 ten for 10 ones so they can put one 10 and 5 ones into each group.

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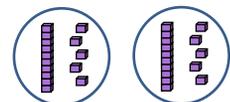
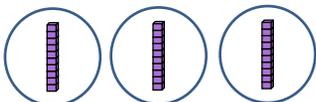


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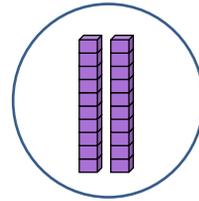
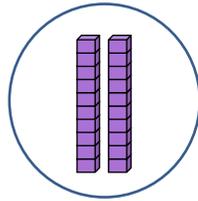


Malachi says,



I can work out $40 \div 2$ easily because I know that 40 is the same as 4 tens.

This is what he does:



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Is it possible to work out $60 \div 3$ in the same way? Prove it.

Is it possible to work out $60 \div 4$?
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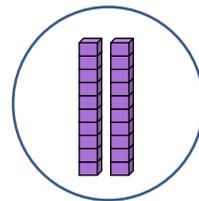
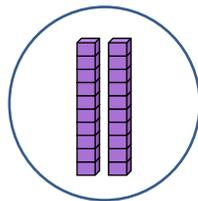


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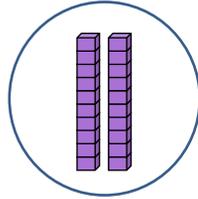


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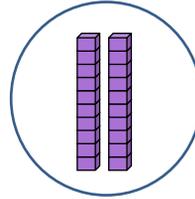


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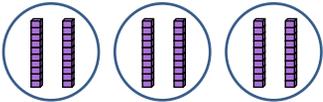
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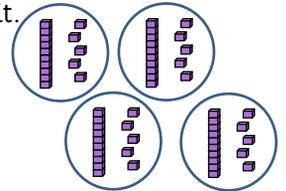
$$40 \div 2 = 20$$



Is it possible to work out $60 \div 3$ in the same way? Prove it.



Is it possible to work out $60 \div 4$?
What is different about this calculation?



Possible answer:

For $60 \div 4$ the children will need to exchange 2 tens for 20 ones so they can put one 10 and 5 ones into each group.

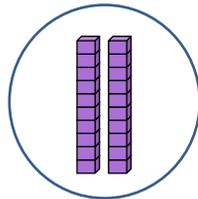


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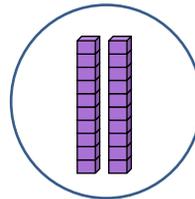


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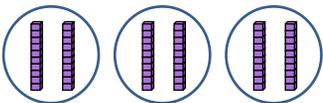
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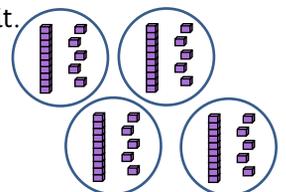
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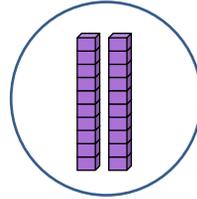
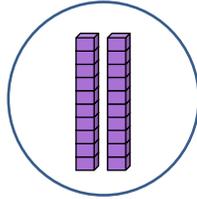


Malachi says,



I can work out $40 \div 2$ easily because I know that 40 is the same as 4 tens.

This is what he does:



$$40 \div 2 = 20$$

Is it possible to work out $100 \div 2$ in the same way? Prove it.

Is it possible to work out $100 \div 4$?
What is different about this calculation?

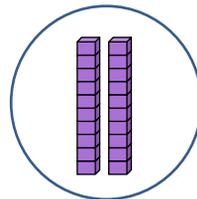
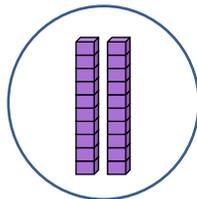


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Is it possible to work out $100 \div 4$?
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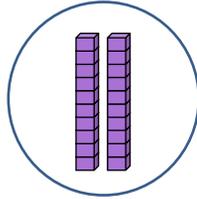


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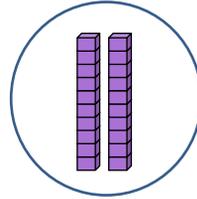


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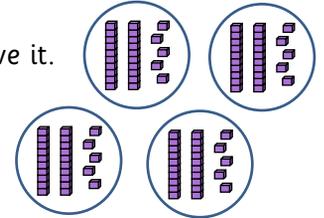
$$40 \div 2 = 20$$



Is it possible to work out $100 \div 2$ in the same way? Prove it.



Is it possible to work out $100 \div 4$?
What is different about this calculation?



Possible answer:

For $100 \div 4$ the children will need to exchange 2 tens for 20 ones so they can put one 20 and 5 ones into each group.

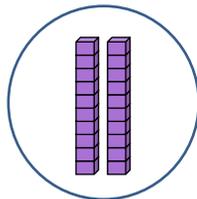


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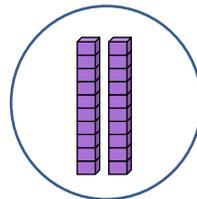


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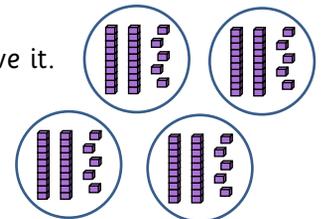
$$40 \div 2 = 20$$



Is it possible to work out $100 \div 2$ in the same way? Prove it.



Is it possible to work out $100 \div 4$?
What is different about this calculation?



Possible answer:

For $100 \div 4$ the children will need to exchange 2 tens for 20 ones so they can put one 20 and 5 ones into each group.