

## Lesson 15 – Multiplication & Division – Divide by 4

**NC Objective:**  
Count from 0 in multiples of 4, 8, 50 and 100  
Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables

**Resources needed:**  
Differentiated Sheets  
Teaching Slides  
Objects to group and share

**Vocabulary:**  
Dividing, sharing, grouping, inverse

Children explore dividing by 4 through sharing into four equal groups and grouping in fours. They use concrete and pictorial representations and their knowledge of the inverse to check their answers.

**Key Questions:**  
Can you put the \_\_\_\_\_ into groups of fours?  
Can you share the number into four groups?  
What is the difference between sharing and grouping?

### ★ Working Towards

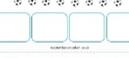
### ★★ Working Within

### ★★★ Greater Depth

**Divide by 4** Fluency & Precision 3

Show the number sentence you have used to solve each problem. Use the circles to show your working out.

- Circle the footballs in groups of 4. What division number sentence does this represent?  

- Split 16 footballs into 4 equal groups. What division number sentence does this represent?  

- 20 fish are put equally into 4 fish bowls. How many fish are there in each bowl?  

- One car fits 4 people. 16 people need to hire a car. How many cars will they need?  

- Solve the calculation using the bar.  
 $20 \div 4 = \square$
- Solve the calculation using the bar.  
 $40 \div 4 = \square$

**Divide by 4** Fluency & Precision 3

Show the number sentence you have used to solve each problem. Use the circles to show your working out.

- Circle the footballs in groups of 4. What division number sentence does this represent?  

- Split 24 footballs into 4 equal groups. What division number sentence does this represent?  

- There are some fish tanks in an aquarium. Each tank has 4 fish. In the aquarium there are 44 fish altogether. How many tanks are there?  

- There are some cars in a car park. Each car has 4 wheels. In the carpark, there are 40 wheels altogether. How many cars are there?  

- Solve the calculation using the bar.  
 $36 \div 4 = \square$
- Solve the calculation using the bar.  
 $24 \div 4 = \square$

**Divide by 4** Fluency & Precision 3

Show the number sentence you have used to work out the answer.

- There are 36 cars parked in an aquarium. Each tank has 4 fish. In the aquarium there are 44 fish altogether. How many tanks are there?  

- There are 75 children waiting to go on a rollercoaster. Each carriage fits 4 children. How many carriages will they need?  

- There are some cars in a car park. Each car has 4 wheels. In the carpark, there are 800 wheels altogether. How many cars are there?  

- I have eighty-four marbles and four jars. I want equal amounts of marbles in each jar. How many marbles will be in each jar?  

- You have 4100 and want to buy some cinema. They are 4 each. How many cinema can you buy? Do you have any money left over?  

- A farmer has 240 carrots. She packs them in bags of 4. How many bags will she need? Can she pack all of the carrots?  


Children have word problems to solve which involve dividing by 4. Word problems are a mixture of sharing and grouping. Children also have division calculations using a bar to show their working out. Children on this sheet may need equipment to help them solve the calculations.

Children have slightly more complex word problems to solve which involve dividing by 4. Word problems are a mixture of sharing and grouping. Beside their word problem, children can explain if they are grouping or sharing. Children also have division calculations using a bar to show their working out. Children on this sheet may need equipment to help them solve the calculations.

Children on this sheet are fluent in dividing by 4. They use known facts to solve the division questions. Children also work outside the multiplication facts to 12. Children use reasoning to answer the questions- such as having a number as 399 and deciding if it is visible by 4. Children should see the connection of the number 400 and understand that 400 is divisible by 4 one hundred times, therefore, 4 will fit into 399, ninety-nine times with 3 left over.

## Reasoning & Problem Solving

**Divide by 4** Reasoning & Problem Solving 3

Which of the word problems can be solved using  $24 \div 4$ ?

Three children are playing a game. They score 4 points for every cup they knock down.

Meloch	30
Zack	28
Tia	16

How many cups did the children each knock down?

A car holds 4 people. How many cars are needed for 12 people?

Explain your reasoning for each.

**Divide by 4** Reasoning & Problem Solving 3

Which of the word problems can be solved using  $24 \div 4$ ?

There are 24 bags of sweets with 4 sweets in each bag. How many sweets are there altogether?

A rollercoaster carriage holds 4 people. How many carriages are needed for 24 people?

I have 24 crayons and share them equally between 4 people. How many crayons does each person receive?

Five children are playing a game. They score 4 points for every cup they knock down.

Meloch	28
Zack	12
Tia	32
Leanna	16

How many cups did they each knock down? How many cups did they knock down altogether?

Explain your reasoning for each.

**Divide by 4** Reasoning & Problem Solving 3

Which of the word problems can be solved using things you've divided by 4?

There are 32 bags of sweets with 4 sweets in each bag. How many sweets are there altogether?

A rollercoaster carriage holds 4 people. How many carriages are needed for 32 people?

I have 32 crayons and share them equally between 4 people. How many crayons does each person receive?

I have 32 hats and I give 4 to my brother. How many did I have left?

Explain your reasoning for each.

Four children are playing a game. They score 4 points for every bucket they knock down.

Meloch	30	and 31
Zack	50	and 31
Tia	4	$4 \times 70$
Leanna	50	and 33

How many cups did they knock down each? How many cups did they knock down altogether? How many more cars did Zack knock down than Leanna?



Show the number sentence you have used to solve each problem.  
Show your working out.

Circle the footballs in groups of 4.  
What division number sentence does this represent?

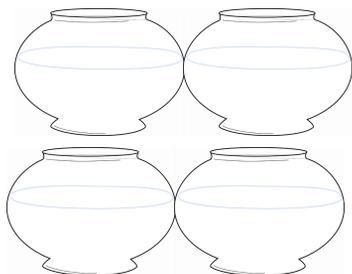


Split 16 footballs into 4 equal groups.  
What division number sentence does this represent?



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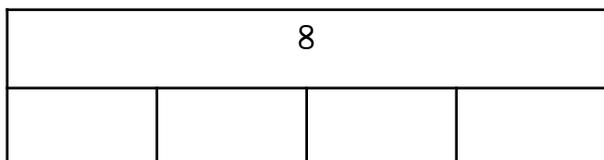
20 fish are put equally into 4 fish bowls.  
How many fish are there in each bowl?



One car fits 4 people.  
16 people need to hire a car.  
How many cars will they need?

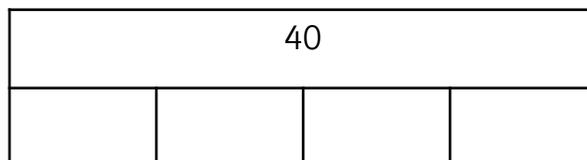


Solve the calculation using the bar.



$$8 \div 4 = \underline{\quad}$$

Solve the calculation using the bar.



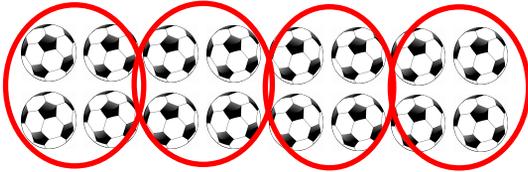
$$40 \div 4 = \underline{\quad}$$



Show the number sentence you have used to solve each problem.  
Show your working out.

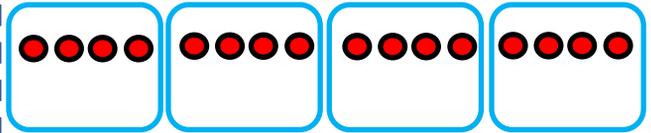
Circle the footballs in groups of 4.  
What division number sentence does this represent?

$$16 \div 4 = 4$$



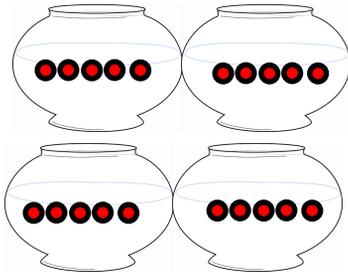
Split 16 footballs into 4 equal groups.  
What division number sentence does this represent?

$$16 \div 4 = 4$$



20 fish are put equally into 4 fish bowls.  
How many fish are there in each bowl?

$$20 \div 4 = 5$$

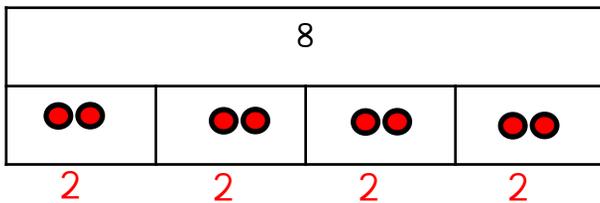


One car fits 4 people.  
16 people need to hire a car.  
How many cars will they need?

$$16 \div 4 = 4$$

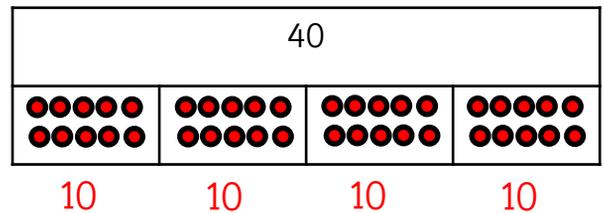


Solve the calculation using the bar.



$$8 \div 4 = \underline{2}$$

Solve the calculation using the bar.



$$40 \div 4 = \underline{10}$$



Show the number sentence you have used to solve each problem.  
Show your working out.

Circle the footballs in groups of 4.  
What division number sentence does this represent? Are you grouping or sharing?



Split 24 footballs into 4 equal groups.  
What division number sentence does this represent? Are you grouping or sharing?



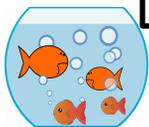
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There are some fish tanks in an aquarium.

Each tank has 4 fish.

In the aquarium there are 44 fish altogether.

How many tanks are there?



There are some cars in a car park.

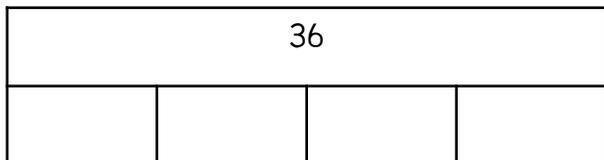
Each car has 4 wheels.

In the carpark, there are 40 wheels altogether.

How many cars are there?

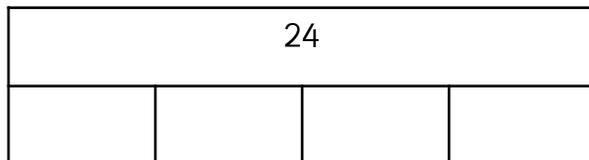


Solve the calculation using the bar.



$$36 \div 4 = \underline{\quad}$$

Solve the calculation using the bar.



$$24 \div 4 = \underline{\quad}$$



Show the number sentence you have used to solve each problem.  
Show your working out.

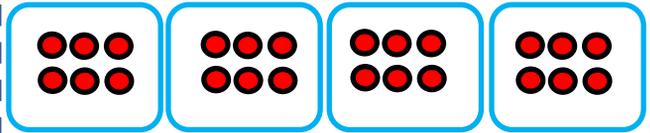
Circle the footballs in groups of 4.  
What division number sentence does this represent? Are you grouping or sharing?

$$24 \div 4 = 6$$



Split 24 footballs into 4 equal groups.  
What division number sentence does this represent? Are you grouping or sharing?

$$24 \div 4 = 6$$



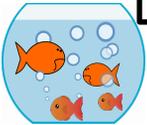
There are some fish tanks in an aquarium.

Each tank has 4 fish.

In the aquarium there are 44 fish altogether.

How many tanks are there?

$$44 \div 4 = 11$$



There are some cars in a car park.

Each car has 4 wheels.

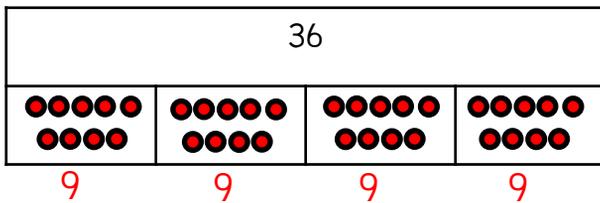
In the carpark, there are 40 wheels altogether.

How many cars are there?

$$40 \div 4 = 10$$

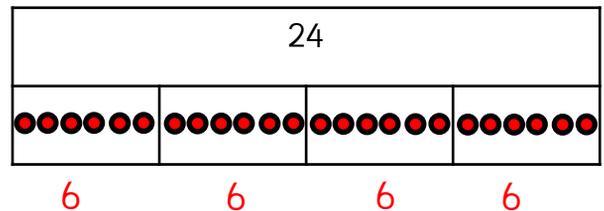


Solve the calculation using the bar.



$$36 \div 4 = \underline{9}$$

Solve the calculation using the bar.



$$24 \div 4 = \underline{6}$$



Show the number sentence you have used to work out the answer.

There are some fish tanks in an aquarium.  
Each tank has 4 fish.  
In the aquarium there are 440 fish altogether.

How many tanks are there?



There are 76 children waiting to go on a rollercoaster.  
Each carriage fits 4 children.

How many carriages will they need?




There are some cars in a car park.  
Each car has 4 wheels.  
In the carpark, there are 800 wheels altogether.

How many cars are there?



I have eighty-four marbles and four jars.  
I want equal amounts of marbles in each jar.  
How many marbles will be in each jar?



You have £100 and want to buy some comics. They  
are £4 each.  
How many comics can you buy?  
Do you have any money left over?



A farmer has 399 carrots.  
She packs them in bags of 4.  
How many bags will she need?  
Can she pack all of the carrots?



Show the number sentence you have used to work out the answer.

There are some fish tanks in an aquarium.  
Each tank has 4 fish.  
In the aquarium there are 440 fish altogether.

How many tanks are there?



There are 76 children waiting to go on a rollercoaster.  
Each carriage fits 4 children.

How many carriages will they need?




There are some cars in a car park.  
Each car has 4 wheels.  
In the carpark, there are 800 wheels altogether.

How many cars are there?



I have eighty-four marbles and four jars.  
I want equal amounts of marbles in each jar.  
How many marbles will be in each jar?



You have £100 and want to buy some comics. They  
are £4 each.  
How many comics can you buy?  
Do you have any money left over?



A farmer has 399 carrots. She packs them in bags of  
4. How many bags will she need?  
Can she pack all of the carrots?



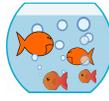


Show the number sentence you have used to work out the answer.

There are some fish tanks in an aquarium.  
Each tank has 4 fish.  
In the aquarium there are 440 fish altogether.

How many tanks are there?

110



There are 76 children waiting to go on a rollercoaster.  
Each carriage fits 4 children.

How many carriages will they need?

19



80 children would be 20 carriages, so 76 will be 19.

There are some cars in a car park.  
Each car has 4 wheels.  
In the carpark, there are 800 wheels altogether.

How many cars are there?

200



I have eighty-four marbles and four jars.  
I want equal amounts of marbles in each jar.  
How many marbles will be in each jar?

21



80 marbles would be 20 in each jar, so 84 will be 21.

You have £100 and want to buy some comics. They are £4 each.  
How many comics can you buy?  
Do you have any money left over?

No money left over

25



A farmer has 399 carrots.  
She packs them in bags of 4.  
How many bags will she need?  
Can she pack all of the carrots?

99



No, 3 carrots will be left over.

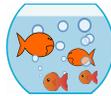


Show the number sentence you have used to work out the answer.

There are some fish tanks in an aquarium.  
Each tank has 4 fish.  
In the aquarium there are 440 fish altogether.

How many tanks are there?

110



There are 76 children waiting to go on a rollercoaster.  
Each carriage fits 4 children.

How many carriages will they need?

19



80 children would be 20 carriages, so 76 will be 19.

There are some cars in a car park.  
Each car has 4 wheels.  
In the carpark, there are 800 wheels altogether.

How many cars are there?

200



I have eighty-four marbles and four jars.  
I want equal amounts of marbles in each jar.  
How many marbles will be in each jar?

21



80 marbles would be 20 in each jar, so 84 will be 21.

You have £100 and want to buy some comics. They are £4 each.  
How many comics can you buy?  
Do you have any money left over?

No money left over

25



A farmer has 399 carrots. She packs them in bags of 4. How many bags will she need?  
Can she pack all of the carrots?

99



No, 3 carrots will be left over.



Which of the word problems can be solved using  $12 \div 4$ ?

There are 12 bags of sweets with 4 sweets in each bag.  
How many sweets are there altogether?

A car holds 4 people.  
How many cars are needed for 12 people?

Explain your reasoning for each.

Three children are playing a game.

They score 4 points for every cup they knock down.



 Malachi	20
 Zach	28
 Tia	16

How many cups did the children each knock down?



Which of the word problems can be solved using  $12 \div 4$ ?

There are 12 bags of sweets with 4 sweets in each bag.  
How many sweets are there altogether?

A car holds 4 people.  
How many cars are needed for 12 people?

Explain your reasoning for each.

Three children are playing a game.

They score 4 points for every cup they knock down.



 Malachi	20
 Zach	28
 Tia	16

How many cups did the children each knock down?



Which of the word problems can be solved using  $12 \div 4$ ?

There are 12 bags of sweets with 4 sweets in each bag.  
How many sweets are there altogether?

No, the calculation is  $12 \times 4 = 48$  sweets.

A car holds 4 people.  
How many cars are needed for 12 people?

Yes, 12 is being grouped into 4s.

Explain your reasoning for each.

Three children are playing a game.

They score 4 points for every cup they knock down.



Malachi	20
Zach	28
Tia	16

How many cups did the children each knock down?

Malachi = 5 cups.  
Zach = 7 cups.  
Tia = 4 cups.



Which of the word problems can be solved using  $12 \div 4$ ?

There are 12 bags of sweets with 4 sweets in each bag.  
How many sweets are there altogether?

No, the calculation is  $12 \times 4 = 48$  sweets.

A car holds 4 people.  
How many cars are needed for 12 people?

Yes, 12 is being grouped into 4s.

Explain your reasoning for each.

Three children are playing a game.

They score 4 points for every cup they knock down.



Malachi	20
Zach	28
Tia	16

How many cups did the children each knock down?

Malachi = 5 cups.  
Zach = 7 cups.  
Tia = 4 cups.



Which of the word problems can be solved using  $24 \div 4$ ?

There are 24 bags of sweets with 4 sweets in each bag.  
How many sweets are there altogether?

A rollercoaster carriage holds 4 people.  
How many carriages are needed for 24 people?

I have 24 crayons and share them equally between 4 people.  
How many crayons does each person receive?

Explain your reasoning for each.

Five children are playing a game.  
They score 4 points for every cup they knock down.



	Malachi	28
	Zach	12
	Tia	32
	Leanna	16

How many cups did they each knock down?

How many cups did they knock down altogether?



Which of the word problems can be solved using  $24 \div 4$ ?

There are 24 bags of sweets with 4 sweets in each bag.  
How many sweets are there altogether?

A rollercoaster carriage holds 4 people.  
How many carriages are needed for 24 people?

I have 24 crayons and share them equally between 4 people.  
How many crayons does each person receive?

Explain your reasoning for each.

Five children are playing a game.  
They score 4 points for every cup they knock down.



	Malachi	28
	Zach	12
	Tia	32
	Leanna	16

How many cups did they each knock down?

How many cups did they knock down altogether?



Which of the word problems can be solved using  $24 \div 4$ ?

There are 24 bags of sweets with 4 sweets in each bag.  
How many sweets are there altogether?

No, the calculation is  $24 \times 4 = 96$  sweets.

A rollercoaster carriage holds 4 people.  
How many carriages are needed for 24 people?

Yes, 24 is being grouped into 4s.

I have 24 crayons and share them equally between 4 people.  
How many crayons does each person receive?

Yes, 24 is being shared equally into 4 groups.

Explain your reasoning for each.

Five children are playing a game.  
They score 4 points for every cup they knock down.



Malachi	28
Zach	12
Tia	32
Leanna	16

How many cups did they knock down each?

How many cups did they knock down altogether?

Malachi = 7 cups. Zach = 3 cups.  
Tia = 8 cups. Leanna = 4 cups.  
They knocked down 22 cups altogether.



Which of the word problems can be solved using  $24 \div 4$ ?

There are 24 bags of sweets with 4 sweets in each bag.  
How many sweets are there altogether?

No, the calculation is  $24 \times 4 = 96$  sweets.

A rollercoaster carriage holds 4 people.  
How many carriages are needed for 24 people?

Yes, 24 is being grouped into 4s.

I have 24 crayons and share them equally between 4 people.  
How many crayons does each person receive?

Yes, 24 is being shared equally into 4 groups.

Explain your reasoning for each.

Five children are playing a game.  
They score 4 points for every cup they knock down.



Malachi	28
Zach	12
Tia	32
Leanna	16

How many cups did they knock down each?

How many cups did they knock down altogether?

Malachi = 7 cups. Zach = 3 cups.  
Tia = 8 cups. Leanna = 4 cups.  
They knocked down 22 cups altogether.



Which of the word problems can be solved using thirty-two divided by four?

There are 32 bags of sweets with 4 sweets in each bag.  
How many sweets are there altogether?

A rollercoaster carriage holds 4 people.  
How many carriages are needed for 32 people?

I have 32 crayons and share them equally between 4 people.  
How many crayons does each person receive?

I have 32 buns and I give 4 to my brother.  
How many do I have left?

Explain your reasoning for each.

Four children are playing a game.  
They score 4 points for every bucket they knock down.

 Malachi	30 tens and 20 ones
 Zach	50 ones and 31 tens
 Tia	$4 \times 4 \times 10$
 Leanna	50 tens – 30 tens



How many cups did they knock down each?

How many cups did they knock down altogether?

How many more cups did Zach knock down than Leanna?



Which of the word problems can be solved using thirty-two divided by four?

There are 32 bags of sweets with 4 sweets in each bag.  
How many sweets are there altogether?

A rollercoaster carriage holds 4 people.  
How many carriages are needed for 32 people?

I have 32 crayons and share them equally between 4 people.  
How many crayons does each person receive?

I have 32 buns and I give 4 to my brother.  
How many do I have left?

Explain your reasoning for each.

Four children are playing a game.  
They score 4 points for every bucket they knock down.

 Malachi	30 tens and 20 ones
 Zach	50 ones and 31 tens
 Tia	$4 \times 4 \times 10$
 Leanna	50 tens – 30 tens



How many cups did they knock down each?

How many cups did they knock down altogether?

How many more cups did Zach knock down than Leanna?



Which of the word problems can be solved using thirty-two divided by four?

There are 32 bags of sweets with 4 sweets in each bag.

How many sweets are there altogether?

No, the calculation is  $32 \times 4 = 128$  sweets.

A rollercoaster carriage holds 4 people.

How many carriages are needed for 32 people?

Yes, 3 is being grouped into 4s.

I have 32 crayons and share them equally between 4 people.

How many crayons does each person receive?

Yes, 32 is being shared equally into 4 groups.

I have 32 buns and I give 4 to my brother. How many do I have left?

No, the calculation is  $32 - 4 = 28$  buns.

Explain your reasoning for each.

Four children are playing a game. They score 4 points for every bucket they knock down.

 Malachi	30 tens and 20 ones	320
 Zach	50 ones and 31 tens	360
 Tia	$4 \times 4 \times 10$	160
 Leanna	50 tens – 30 tens	200



Malachi = 80 cups. Zach = 90 cups.

Tia = 40 cups. Leanna = 50 cups.

They knocked down 260 cups altogether. Zach knocked 40 more cups down than Leanna.



Which of the word problems can be solved using thirty-two divided by four?

There are 32 bags of sweets with 4 sweets in each bag.

How many sweets are there altogether?

No, the calculation is  $32 \times 4 = 128$  sweets.

A rollercoaster carriage holds 4 people.

How many carriages are needed for 32 people?

Yes, 3 is being grouped into 4s.

I have 32 crayons and share them equally between 4 people.

How many crayons does each person receive?

Yes, 32 is being shared equally into 4 groups.

I have 32 buns and I give 4 to my brother. How many do I have left?

No, the calculation is  $32 - 4 = 28$  buns.

Explain your reasoning for each.

Four children are playing a game. They score 4 points for every bucket they knock down.

 Malachi	30 tens and 20 ones	320
 Zach	50 ones and 31 tens	360
 Tia	$4 \times 4 \times 10$	160
 Leanna	50 tens – 30 tens	200



Malachi = 80 cups. Zach = 90 cups.

Tia = 40 cups. Leanna = 50 cups.

They knocked down 260 cups altogether. Zach knocked 40 more cups down than Leanna.