

2

Fluency Teaching Slides



Fluency Teaching Slides

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Make Equal Groups - Sharing

Share the 12 cubes equally into the two boxes.



There are ____ cubes altogether.

There are ____ boxes.

There are ____ cubes in each box.

Can you share the 12 cubes equally into 3 boxes?



How many equal groups are you sharing between?

Make Equal Groups - Sharing

Share the 12 cubes equally into the two boxes.



There are $\frac{12}{12}$ cubes altogether.

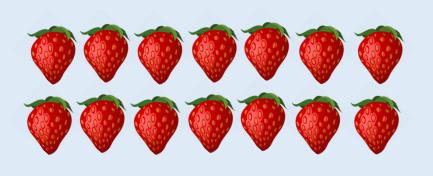
There are 2 boxes.

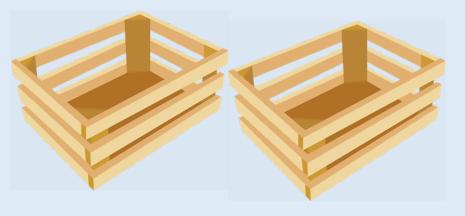
There are <u>6</u> cubes in each box.

Can you share the 12 cubes equally into 3 boxes? Yes, I can. $12 \div 3 = 4$, so there will be 4 cubes in each box.

Make Equal Groups - Sharing

Share the 14 strawberries equally into the two boxes.





There are _____ strawberries altogether.

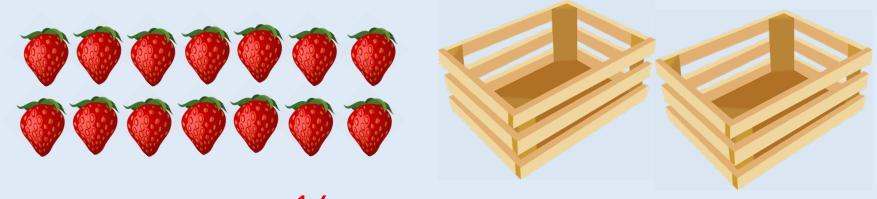
There are ____ boxes.

There are ____ strawberries in each box.

Can you share the 14 strawberries equally into 3 boxes?

Make Equal Groups - Sharing

Share the 14 strawberries equally into the two boxes.



There are 14 strawberries altogether.

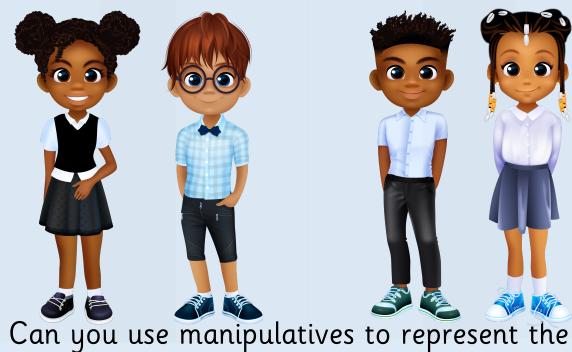
There are 2 boxes.

There are ______ strawberries in each box.

Can you share the 14 strawberries equally into 3 boxes? No, I can't. Because 14 is not divisible by 3.

Make Equal Groups - Sharing

24 children are put into 4 equal teams. How many children are in each team?



Can you use manipulatives to represent the children to show how you found your answer?



How many are in each group?

Make Equal Groups - Sharing

24 children are put into 4 equal teams. How many children are in each team?

Given:

24 children; 4 equal teams

Number of children in each team = ?

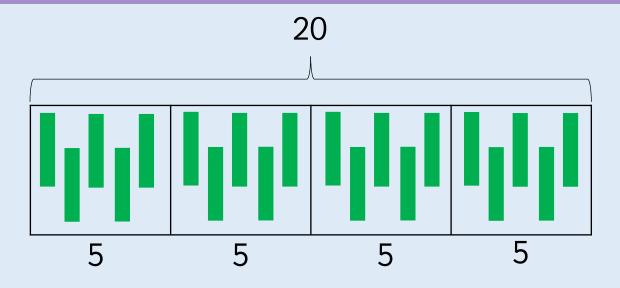
Solution:

 $24 \div 4 = 6$

There are 6 children in each team.

Make Equal Groups - Sharing

Zach draws this bar model to divide 20 into 4 equal groups. How does his model represent this? He writes $20 \div 4 = 5$



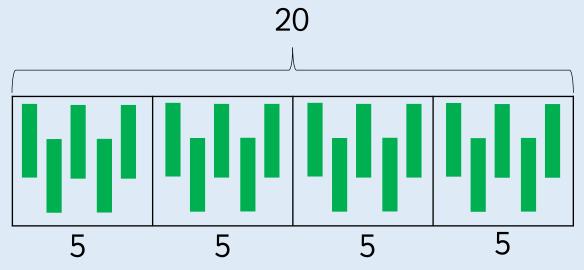
What other number sentences could Zach create using this model?



How do you know that you have shared the objects equally?

Make Equal Groups - Sharing

Zach draws this bar model to divide 20 into 4 equal groups. How does his model represent this? He writes $20 \div 4 = 5$



What other number sentences could Zach create using this model? Zach could also create number sentences as follows:

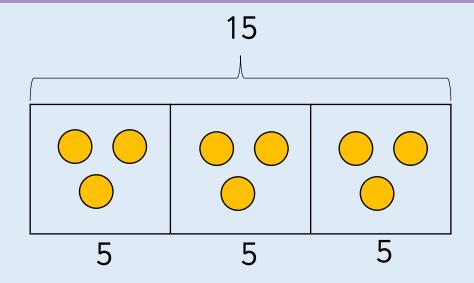
$$20 \div 5 = 4$$

$$4 \times 5 = 20$$

$$5 \times 4 = 20$$

Make Equal Groups - Sharing

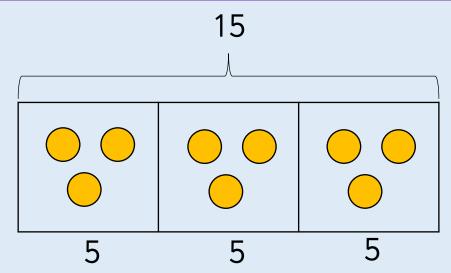
Esin draws this bar model to divide 15 into 3 equal groups. How does her model represent this? She writes $15 \div 3 = 5$



What other number sentences could Esin create using this model?

Make Equal Groups - Sharing

Esin draws this bar model to divide 15 into 3 equal groups. How does her model represent this? She writes $15 \div 3 = 5$



What other number sentences could Esin create using this model? Esin could also create number sentences as follows:

$$15 \div 5 = 3$$

$$3 \times 5 = 15$$

$$5 \times 3 = 15$$

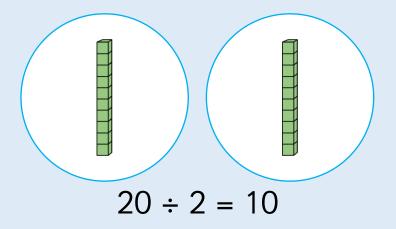
Make Equal Groups — Sharing



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

Malachi

This is what he does:



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?

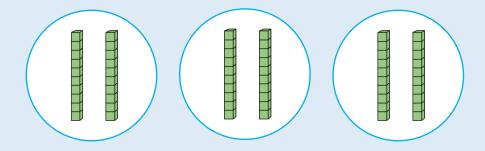
Make Equal Groups — Sharing



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

Malachi

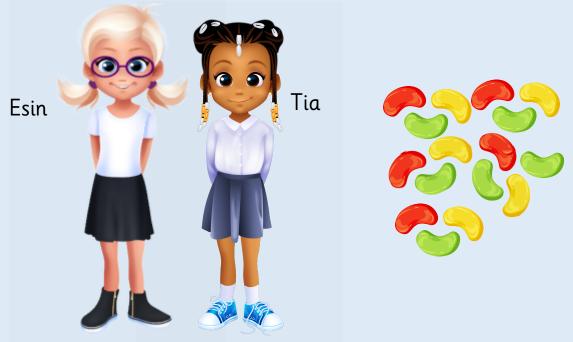
Possible answer:



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

Make Equal Groups — Sharing

Esin has 16 sweets and shares them between 4 friends. Tia has 16 sweets and shares them between 8 friends.



Whose friends will receive the most sweets?

How do you know?

Make Equal Groups - Sharing

Esin has 16 sweets and shares them between 4 friends. Tia has 16 sweets and shares them between 8 friends.



Esin's friends get more sweets because Tia is sharing with more people so they will get fewer sweets each.

Esin's friends will get 4 sweets each whereas Tia's friends will only get 2 sweets each.

Make Equal Groups - Sharing

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 ___.

Make Equal Groups - Grouping

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Make Equal Groups - Grouping

Pencils come in packs of 20. We need to put 5 in each pot. How many pots will we need?



There are _____ pencils altogether.
There are _____ pencils in each pot.
There are ____ pots.



How many are in each group?

Make Equal Groups - Grouping

Pencils come in packs of 20. We need to put 5 in each pot. How many pots will we need?



There are 20 pencils altogether.

There are 5 pencils in each pot.

There are 4 pots.

 $20 \div 5 = 4$ We will need 4 pots.

Make Equal Groups - Grouping

Sweets come in packs of 20. You need to put 4 in each jar. How many jars will you need?



There are _____ sweets altogether.

There are _____ sweets in each pot.

There are ____ jars.

Make Equal Groups — Grouping

Sweets come in packs of 20. You need to put 4 in each jar. How many jars will you need?





 $20 \div 4 = 5$ I will need 5 jars.

There are $\frac{20}{100}$ sweets altogether.

There are 4 sweets in each pot.

There are <u>5</u> jars.

Make Equal Groups - Grouping

Mrs. Blue has 18 sweets. She puts 3 sweets in each bag. How many bags can she fill?

18





How many groups can you make?

Make Equal Groups - Grouping

Mrs. Blue has 18 sweets. She puts 3 sweets in each bag. How many bags can she fill?

18



Mrs. Blue can fill up to 6 bags with 3 sweets in each bag.

Make Equal Groups - Grouping

Leanna has 21 toys. She puts 3 toys in each box. How many boxes can she fill?

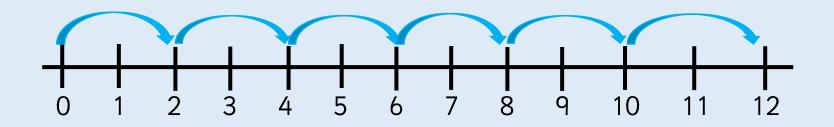
$$21 \div \boxed{3} = \boxed{3}$$
 $21 \div \boxed{3} = \boxed{3}$
 21
 $3 = \boxed{3}$
 $3 = \boxed{3}$

Make Equal Groups - Grouping

Leanna has 21 toys. She puts 3 toys in each box. How many boxes can she fill?

Make Equal Groups - Grouping

Malachi uses a number line to work out how many equal groups of 2 he can make from 12.



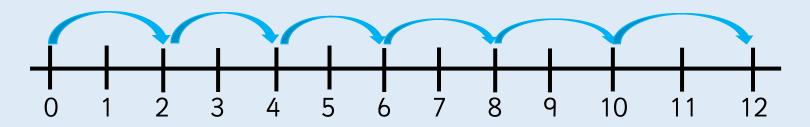
Use a number line to work out how many equal groups of 5 you can make from 30.



How long should your number line be?

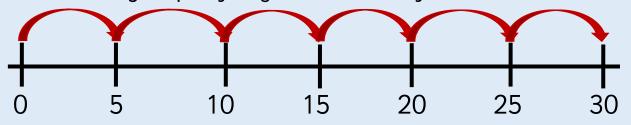
Make Equal Groups – Grouping

Malachi uses a number line to work out how many equal groups of 2 he can make from 12.



Malachi can make 6 equal groups of 2 from 12.

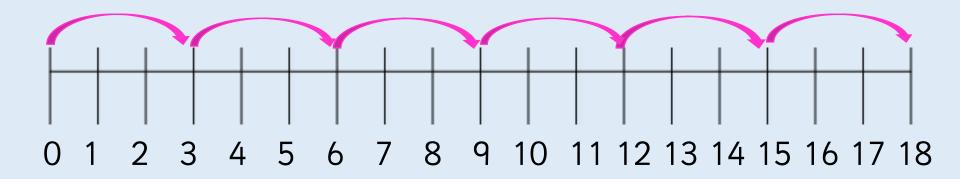
Use a number line to work out how many equal groups of 5 you can make from 30.



There will be 6 equal groups of 5 from 30.

Make Equal Groups - Grouping

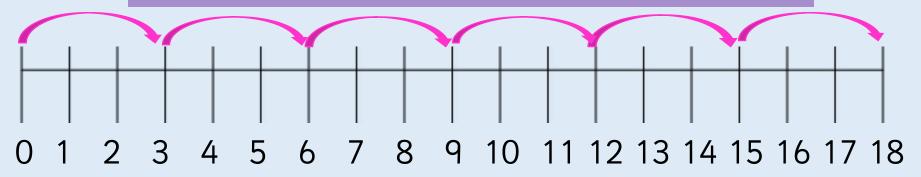
Rosie uses a number line to work out how many equal groups of 3 she can make from 18.



Use a number line to work out how many equal groups of 6 you can make from 30.

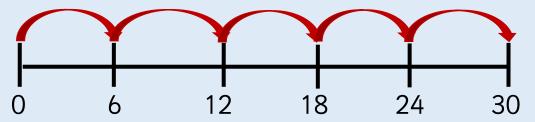
Make Equal Groups - Grouping

Rosie uses a number line to work out how many equal groups of 3 she can make from 18.



Rosie can make 6 equal groups of 3 from 18.

Use a number line to work out how many equal groups of 6 you can make from 30.

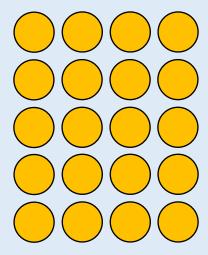


There will be 5 equal groups of 6 from 30.

Make Equal Groups - Grouping

You have 20 counters.

How many different ways can you put them into equal groups?



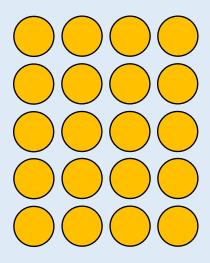
Write down all the possible ways.



Make Equal Groups - Grouping

You have 20 counters.

How many different ways can you put them into equal groups?



```
10 groups of 2
2 groups of 10
5 groups of 4
4 groups of 5
1 group of 20
20 groups of 1
```

Make Equal Groups - Grouping

Leanna has some counters. She makes 4 equal groups. The amount she started with is greater than 10 but less than 20.



How many counters could she have started with?

How many will be in each group?

Make Equal Groups - Grouping

Leanna has some counters. She makes 4 equal groups. The amount she started with is greater than 10 but less than 20.



She could have 16 counters in 4 groups of 4, 12 counters in 4 groups of 3.

Make Equal Groups - Grouping

How many do you have to begin with?

How many are in each group?

How many groups can you make?

How long should your number line be? What will you count up in?

___ groups of ___ make ___

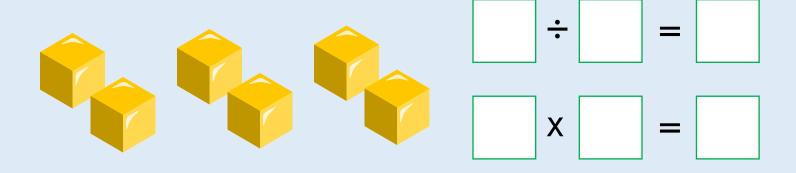


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Divide by 2

Complete the stem sentences.



I have ____ cubes altogether.

There are ____ in each group.

There are ____ groups.



Is there a link between dividing by 2 and halving?

Divide by 2

Complete the stem sentences.





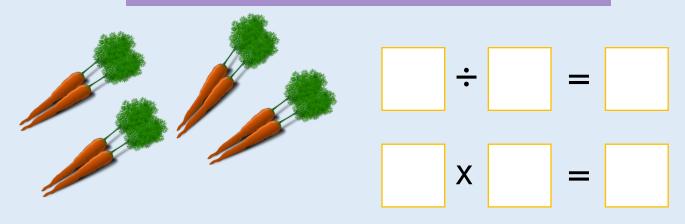
I have <u>6</u> cubes altogether.

There are 3 in each group.

There are <u>2</u> groups.

Divide by 2

Complete the stem sentences.



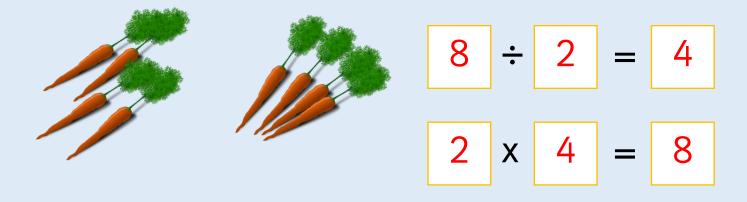
I have ____ carrots altogether.

There are ____ in each group.

There are ____ groups.

Divide by 2

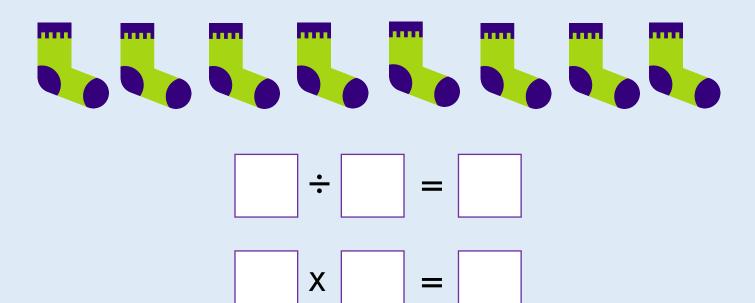
Complete the stem sentences.



I have <u>8</u> carrots altogether. There are <u>4</u> in each group. There are <u>2</u> groups.

Divide by 2

Group the socks into pairs.



Complete the number sentences.



What do you notice when you group these objects into twos?

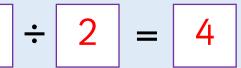
Divide by 2

Group the socks into pairs.









Complete the number sentences.

Divide by 2

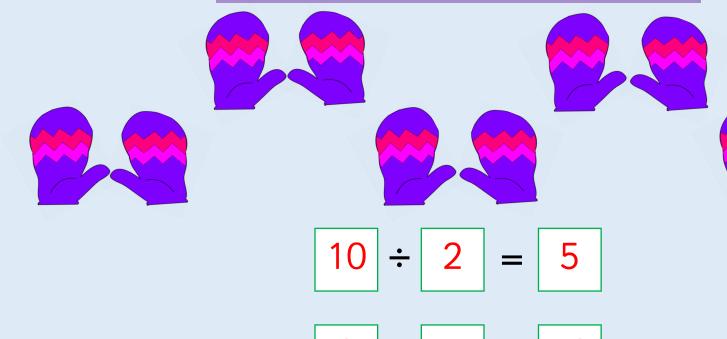
Group the gloves into pairs.



Complete the number sentences.

Divide by 2

Group the gloves into pairs.



2 x 5 = 10

Complete the number sentences.

Divide by 2

Malachi and Zach have 12 sweets between them.

They share them equally. How many sweets does each child get?

12

There are ____ sweets altogether.

There are ____ groups.

There are ____ in each group.



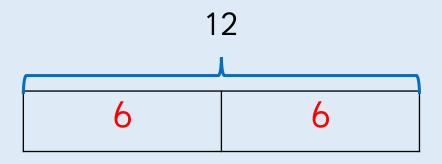
Complete the bar model and write a calculation to match.

What is different about sharing into two and grouping in

twos:

Divide by 2

Malachi and Zach have 12 sweets between them. They share them equally. How many sweets does each child get?



There are 12 sweets altogether.
There are 2 groups.
There are 6 in each group.

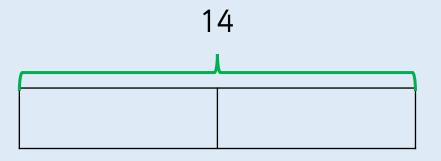
Complete the bar model and write a calculation to match.

$$12 \div 2 = 6$$

Divide by 2

Leanna and Tia 14 have lollipops between them.

They share them equally. How many lollipops does each child get?





There are _____ lollipops altogether.

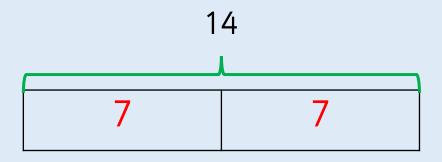
There are ____ groups.

There are ____ in each group.

Complete the bar model and write a calculation to match.

Divide by 2

Leanna and Tia 14 have lollipops between them. They share them equally. How many lollipops does each child get?



There are $\frac{14}{2}$ lollipops altogether. There are $\frac{2}{7}$ groups. There are $\frac{1}{7}$ in each group.

Complete the bar model and write a calculation to match.

$$14 \div 2 = 7$$

Divide by 2



Rosie

I have 20p. I divide it equally between 2 friends. How much will they get each?

I have 20p in 2p coins. How many 2p coins do I have?



Tia

Consider the two questions above. What is the same and what is different?

Divide by 2



Rosie

I have 20p. I divide it equally between 2 friends. How much will they get each?

I have 20p in 2p coins. How many 2p coins do I have?



Tia

The calculation is the same in both. In the first question we are sharing, whereas in the second questions we are grouping.

Divide by 2

Zach and Leanna have some counters.

Zach shares his counters into 2 equal groups.

He has 10 in each group. Leanna groups her counters in twos. She has 20 groups.



Who has more counters and by how many?
How did you work it out?

Divide by 2

Zach and Leanna have some counters.

Zach shares his counters into 2 equal groups.

He has 10 in each group. Leanna groups her counters in twos. She has 20 groups.

Zach has 20 counters. Leanna has 40 counters.

Leanna has 20 more.

Children could have compared 10 and 20 and realised they could have done 2 x 5

Divide by 2

Malachi has shared some sweets equally between two friends. Each friend receives fewer than 50 sweets.

Malachi's friends







Esin



Zach

Complete the sentences to describe the number of sweets Malachi started with.

He must have started with...
He could have started with...
He can't have started with...

Divide by 2

Malachi has shared some sweets equally between two friends. Each friend receives fewer than 50 sweets.

Possible answer: He must have started with an even number of sweets.

He could have started with 40 sweets.

He can't have started with 100 sweets.

Divide by 2

What do you notice when you group these objects into twos?

Is there a link between dividing by 2 and halving?

What is different about sharing into two groups and grouping in twos?

Can we write a multiplication sentence as well as a division sentence? What do you notice?

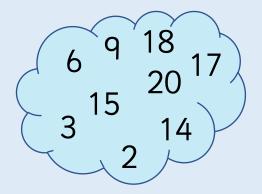


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Odd & Even Numbers

Use counters to make each number and share them into two equal groups. How does this help you decide whether a number is odd or even? Show this in the table.



Odd	Even		

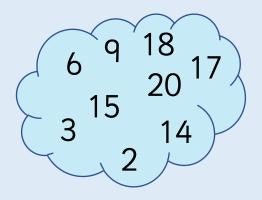
Can you see any patterns?



What makes these odd/even?

Odd & Even Numbers

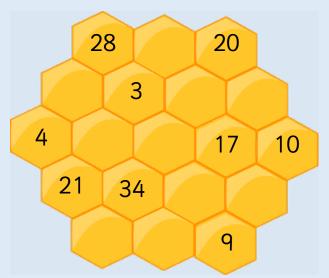
Use counters to make each number and share them into two equal groups. How does this help you decide whether a number is odd or even? Show this in the table.



Odd	Even	
3, 9, 15, 17	2, 6, 14, 18, 20	

Odd & Even Numbers

Use counters to make each number and share them into two equal groups. How does this help you decide whether a number is odd or even? Show this in the table.

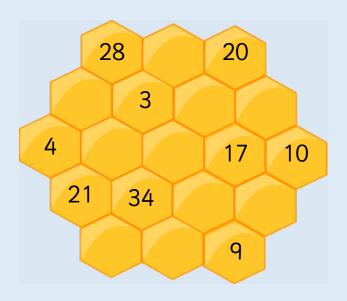


Odd	Even		

Can you see any patterns?

Odd & Even Numbers

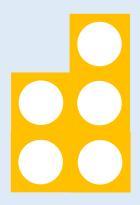
Use counters to make each number and share them into two equal groups. How does this help you decide whether a number is odd or even? Show this in the table.

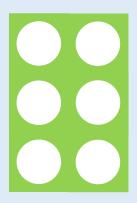


Odd	Even		
4, 10, 20, 28, 34	3, 9, 17, 21		

Odd & Even Numbers

Which number pieces are odd? Explain why. Find or draw other odd and even pieces. What do you notice?





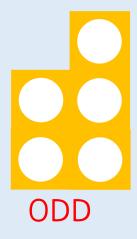




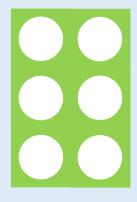
Can you sort these objects into an odd set and an even set?

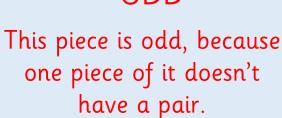
Odd & Even Numbers

Which number pieces are odd? Explain why. Find or draw other odd and even pieces. What do you notice?



This piece is odd, because one piece of it doesn't have a pair.

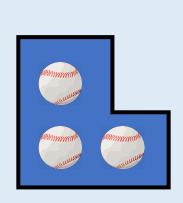




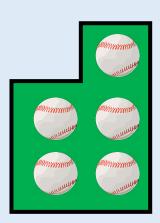


Odd & Even Numbers

Which number pieces are odd? Explain why. Find or draw other odd and even pieces. What do you notice?

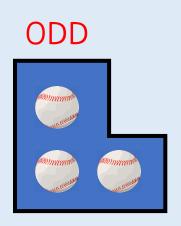






Odd & Even Numbers

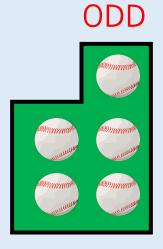
Which number pieces are odd? Explain why. Find or draw other odd and even pieces. What do you notice?



This piece is odd, because one piece of it doesn't have a pair.



This piece is odd, because one piece of it doesn't have a pair.



Odd & Even Numbers

Spot the mistakes.

	Odd	9dd Even			
6		3	eight		000000
	30		10	25	
nine		1			

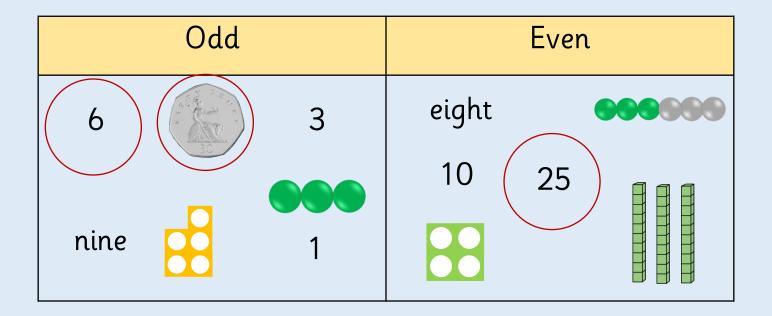
Can you make your own odd and even sets?



How do you find out if ____ is an odd or even number?

Odd & Even Numbers

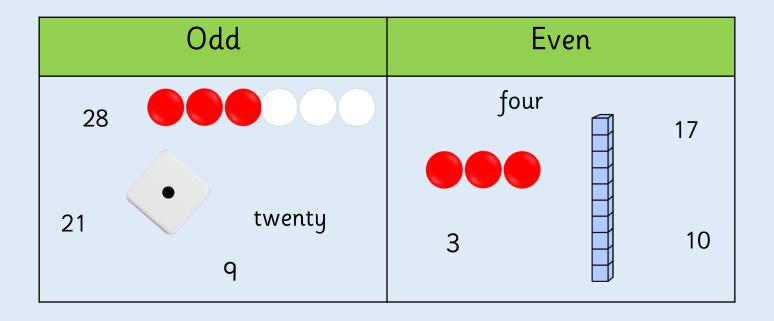
Spot the mistakes.



6, 50p and 25 are placed in the wrong table. 6 and 50p should in the even group and 25 should be in the odd group.

Odd & Even Numbers

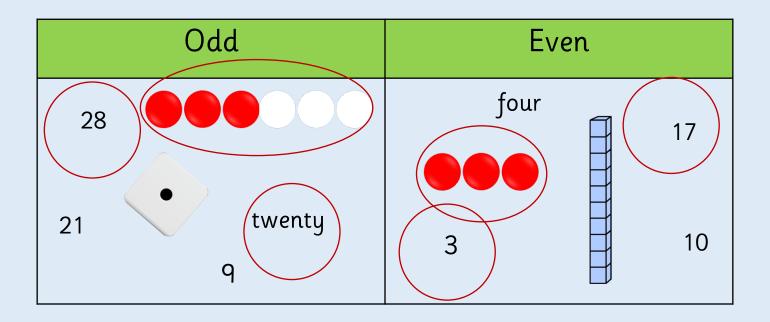
Spot the mistakes.



Can you make your own odd and even sets?

Odd & Even Numbers

Spot the mistakes.



The encircled objects and numbers are not placed in the correct group. 28, 6 beads, and twenty should be placed in the even group and 17, 3 beads, and 3 should be placed in the odd group.

True or False?

10 is an odd number.



Prove your answer using concrete, pictorial and abstract representations. Explain each approach.

Odd & Even Numbers

True or False?

10 is an odd number.

Children can use concrete or pictorial methods to show 10 is divisible by 2 and therefore it's false.

Odd & Even Numbers



When I adds two odd numbers together, the total will be odd.

Zach



Is he correct? Convince me. What else can you find out?

Odd & Even Numbers



When I adds two odd numbers together, the total will be odd.

Zach

Zach is incorrect because two odd numbers will always make an even total.

Children can use any manipulatives to show this.

Odd & Even Numbers



I have added two 1-digit numbers. My answer divides into 2 equal groups.

What could Leanna's numbers be?
Is this the only possible answer?
Which numbers would not be possible?
Explain your answers.

Odd & Even Numbers



I have added two 1-digit numbers. My answer divides into 2 equal groups.

Any two even one digit numbers or any two odd digit numbers will give an even total. E.q. 1+3=4, 2+4=6

However, an odd number added to an even number will give an odd total so Leanna could not have this combination.

Odd & Even Numbers

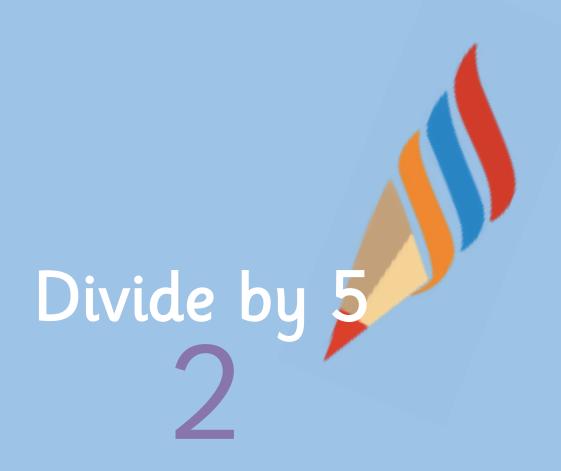
Can you sort these objects (number pieces, ten frames, cubes, pictures, etc.) into an odd set and an even set?

What makes these odd/even?

How do you find out if ____ is an odd or even number?

Can you find all the odd and even numbers on a 100 square?

What do you notice?

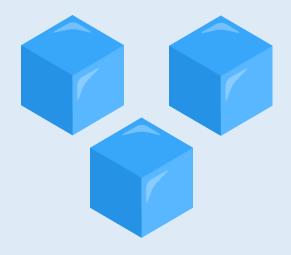


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Divide by 5

Take 30 cubes. How many towers of 5 can you make?



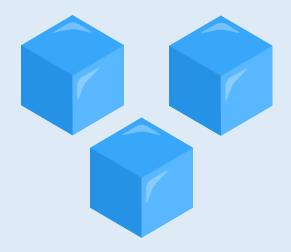
You can make _____ towers of 5. ____ towers of 5 is the same as 30. 30 is the same as ____ towers of 5.



How does knowing your 5 times table help when dividing by 5?

Divide by 5

Take 30 cubes. How many towers of 5 can you make?

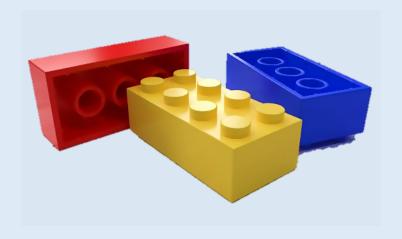


You can make <u>6</u> towers of 5. <u>6</u> towers of 5 is the same as 30. 30 is the same as <u>6</u> towers of 5.

$$30 \div 5 = 6$$

Divide by 5

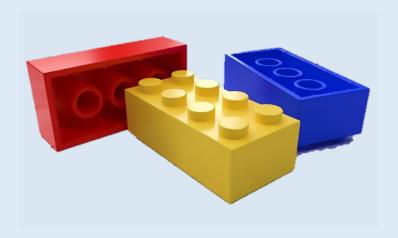
Take 25 Lego pieces. How many towers of 5 can you make?



You can make _____ towers of 5. ____ towers of 5 is the same as 25. 25 is the same as ____ towers of 5.

Divide by 5

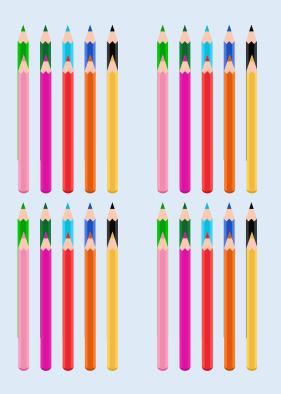
Take 25 Lego pieces. How many towers of 5 can you make?



You can make <u>5</u> towers of 5. <u>5</u> towers of 5 is the same as 25. 25 is the same as <u>5</u> towers of 5.

$$25 \div 5 = 5$$

40 pencils are shared between 5 children.

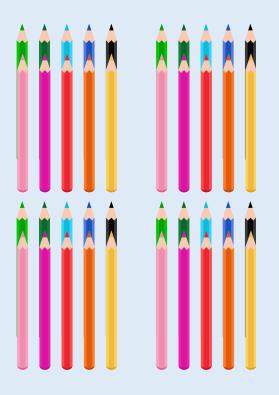


How many pencils does each child get?



When would we count in 5s?

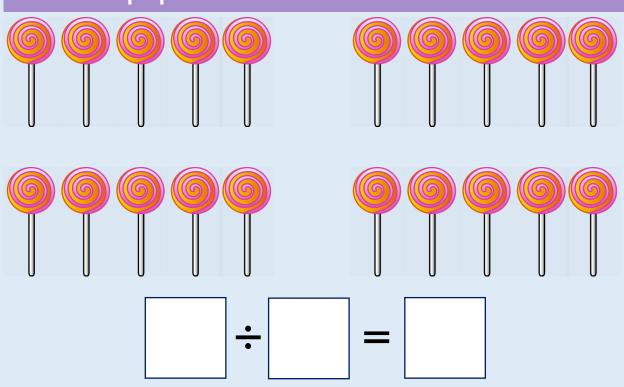
40 pencils are shared between 5 children.



How many pencils does each child get? Each child gets 8 pencils.

Divide by 5

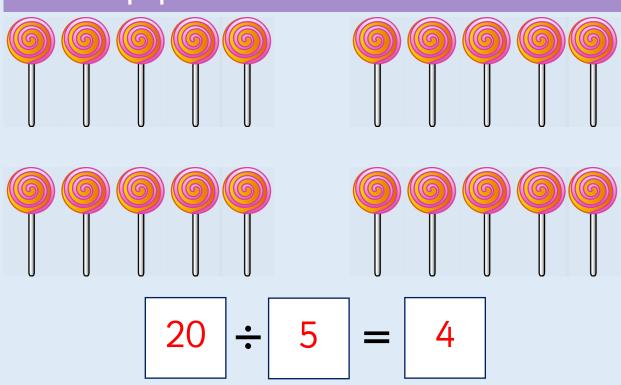
20 lollipops are shared between 5 children.



How many lollipops does each child get?

Divide by 5

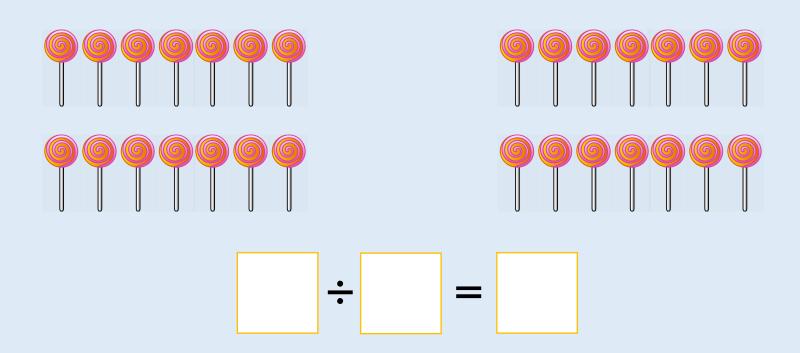
20 lollipops are shared between 5 children.



How many lollipops does each child get? Each child gets 4 lollipops.

Divide by 5

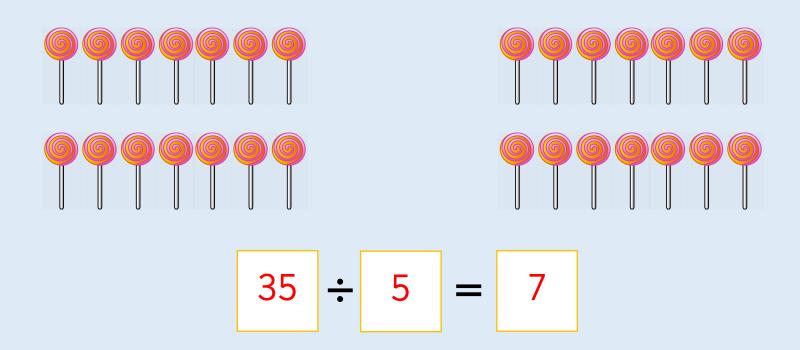
35 lollipops are shared between 5 children.



How many lollipops does each child get?

Divide by 5

35 lollipops are shared between 5 children.



How many lollipops does each child get? Each child gets 7 lollipops.

Group the 1p coins into 5s. How many 5p coins do we need to make the same amount of money?



Draw coins and complete the missing information.

- ____ lots of 5p = 20p one pence coins
- ____ lots of 5p = 20p
- $20p = _{x 5p}$
- $20p \div 5 =$ _____



How can we represent the problem using objects/images?

Divide by 5

Group the 1p coins into 5s. How many 5p coins do we need to make the same amount of money?











































We need four 5p coins to make the same amount of money.

Draw coins and complete the missing information.

- 4 lots of 5p = 20p one pence coins
- $_{4}$ lots of 5p = 20p
- $20p = 4 \times 5p$
- $20p \div 5 = 4p$

Divide by 5

A jar contains 5 sweets. A box contains 5 jars. Zach has 75 sweets.



How many jars will he need? How many boxes will he need?

Divide by 5

A jar contains 5 sweets. A box contains 5 jars. Zach has 75 sweets.



How many jars will he need? How many boxes will he need?

15 jars and 3 boxes.

Divide by 5

Use the number cards to make multiplication and division sentences.

4

2

10

20

5

How many can you make?

Use the number cards to make multiplication and division sentences.

$$4 \times 5 = 20$$
 $5 \times 4 = 20$
 $20 \div 4 = 5$
 $20 \div 5 = 4$
 $5 \times 2 = 10$
 $2 \times 5 = 10$
 $10 \div 2 = 5$
 $10 \div 5 = 2$
 $20 \div 2 = 10$
 $20 \div 10 = 2$
 $2 \times 10 = 20$
 $10 \times 2 = 20$

How can we represent the problem using objects/images?

How does knowing your 5 times table help when dividing by 5?

Circle all the multiples of 5 on a 100 square. What do you notice about the numbers? Can you explain the pattern? How does this help you to divide these numbers?

When would we count in 5s?

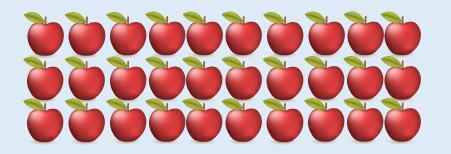


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Divide by 10

Apples can be sold in packs of 10. How many packs can be made below?





When 30 apples are sold in packs of 10,

____ packs of apples can be made.

Can you show this in a bar model?

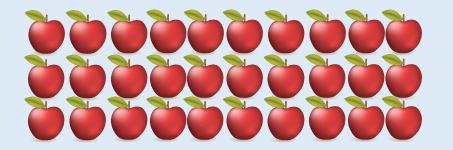
Label and explain what each part represents.



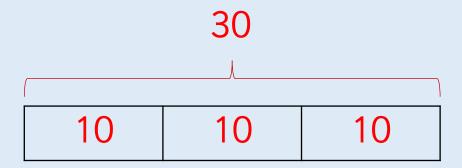
What can we use to represent the problem?

Divide by 10

Apples can be sold in packs of 10. How many packs can be made below?



When 30 apples are sold in packs of 10, 3 packs of apples can be made.



Divide by 10

Lemons can be sold in bags of 10. How many bags can be made below?



When 20 lemons are sold in bags of 10,
____ bags of lemons can be made.
Can you show this in a bar model?
Label and explain what each part represents.

Divide by 10

Lemons can be sold in bags of 10. How many bags can be made below?

When 20 lemons are sold in bags of 10, $\frac{2}{2}$ bags of lemons can be made.

Divide by 10

Lemons can be sold in bags of 10. How many bags can be made below?





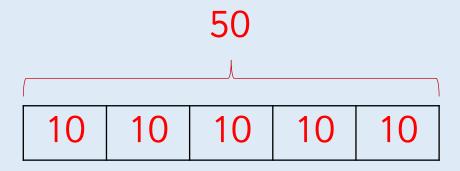
When 50 lemons are sold in bags of 10,
____ bags of lemons can be made.
Can you show this in a bar model?
Label and explain what each part represents.

Divide by 10

Lemons can be sold in bags of 10. How many bags can be made below?



When 50 lemons are sold in bags of 10, $\frac{5}{2}$ bags of lemons can be made.



Divide by 10

I have 70p in my pocket made up of 10p coins.

How many do I have?

Draw a picture to prove your answer.





How does knowing your 10 times table help you to divide by 10?

Divide by 10

I have 70p in my pocket made up of 10p coins.

How many do I have?

Draw a picture to prove your answer.



 $70p \div 10p = 7$ You have seven 10p coins.

Divide by 10

I have 90p in my pocket made up of 10p coins.

How many do I have?

Draw a picture to prove your answer.



Divide by 10

I have 90p in my pocket made up of 10p coins.

How many do I have?

Draw a picture to prove your answer.



 $90p \div 10p = 9$ I have nine 10p coins.

Fill in the missing numbers.

• There are _____ tens in 40.



How many groups of 10 are there in ____?

Fill in the missing numbers.

• 6 tens
$$\div$$
 1 ten = $\frac{6}{1}$ ones

•
$$5 = 50 \div 10$$

• There are <u>4</u> tens in 40.

Fill in the missing numbers.

•
$$6 = _{---} \div 1 \text{ ten}$$



• There are ____ tens in 80.

Fill in the missing numbers.

•
$$40 \div 10 = 4$$

• 7 tens ÷ 1 ten =
$$\frac{7 \text{ ones}}{1}$$

•
$$6 = 60 \div 1 \text{ ten}$$

• There are 8 tens in 80.

Divide by 10

Mrs. Smith has some cupcakes.

She shares them equally between 10 tables.



How many cupcakes could each table have?

Find as many ways as you can.

What do you notice about your answers?

Mrs. Smith has some cupcakes. She shares them equally between 10 tables.

They could have:

$$10 \div 10 = 1$$

 $20 \div 10 = 2$
 $30 \div 10 = 3$
 $40 \div 10 = 4$
 $50 \div 10 = 5$
Etc.

The tens digit is the same as the answer.

True or False?

Dividing by 10 is the same as dividing by 5 then dividing by 2.



True or False?

Dividing by 10 is the same as dividing by 5 then dividing by 2.

True

Divide by 10

Cakes are sold in boxes of 10. Zach and Rosie are trying to pack these cakes into boxes.





There are 5 groups of 10.

There are 4 groups of 10.



Rosie

Who is correct? Explain how you know.

Cakes are sold in boxes of 10. Zach and Rosie are trying to pack these cakes into boxes.



Rosie is correct because there are 40 cakes and 40 divided by 10 is 4.

Zach has incorrectly grouped the cakes, he might have counted the rows wrong.

What can we use to represent the problem?

How does knowing your 10 times table help you to divide by 10?

Circle all the multiples of 10 on a hundred square. What do you notice? Can you explain the pattern?

How many groups of 10 are there in ____?