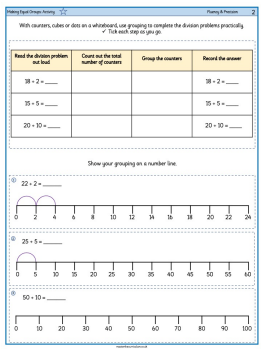
Making Equal Groups: Activity

NC Objective:	Resources needed:	Vocabulary:
Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	Counters/Cubes/Whiteboards and pens Structured/unstructured number lines Differentiated Sheets Teaching Slides	Sharing, share, grouping, group, equal, how many, answer, solve, number line, count, jump, multiples, calculation

Children in previous lessons have been dividing using the methods of sharing and grouping. This small step activity is focused on making equal groups by grouping. Children will reinforce learning practically and will then be introduced to grouping on a number line to solve division problems.

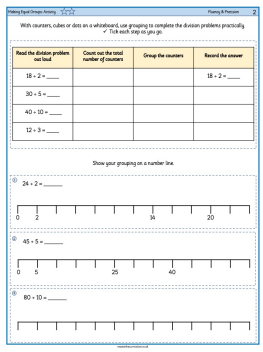
Key Questions:
What is different between sharing and grouping? Can you complete 10 ÷ 2 = ___ by grouping?
How many do you have to begin with? How many are in each group?
Does sharing and grouping give the same answer?
How can I group on the number line?
How many groups can you make? How long should your number line be?
What will you count up in? _____ groups of _____ make _____
Zach can make 2 groups with 6 counters. What would his calculation be?

★ Working Towards



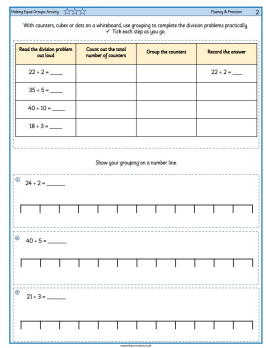
On this sheet, children experience grouping practically with practical resources. A tick list is provided for children to follow and tick each step as they go. Multiples are kept within the 2s, 5s and 10s. Children are then given division problems and will complete grouping on a structured number line.

★★ Working Within



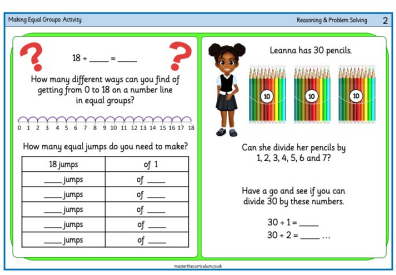
On this sheet, children experience grouping practically with practical resources. A tick list is provided for children to follow and tick each step as they go. Multiples are kept within the 2s, 5s, 10s and includes one from the 3s. Children are then given division problems and will complete grouping on a number line. They will need to fill in the missing multiples on the number line before grouping to find the answer to the division problem.

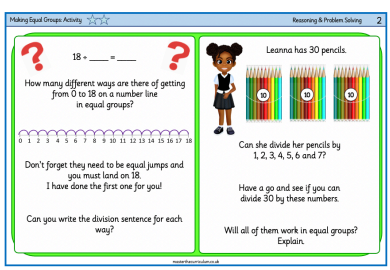
★★★ Greater Depth

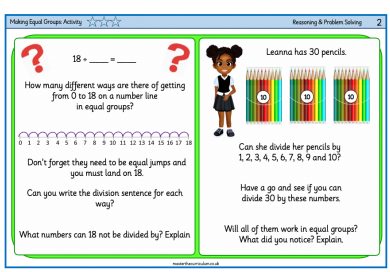


On this sheet, children experience grouping practically with practical resources. A tick list is provided for children to follow and tick each step as they go. Multiples are kept within the 2s, 5s, 10s and includes one from the 3s. Children are then given division problems and will complete grouping on a unstructured number line. They will need to fill in their number line in the appropriate number pattern in order to group and find the answer to the division problem.

Reasoning & Problem Solving







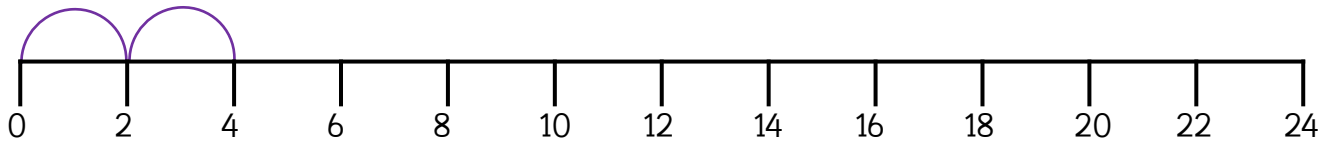
With counters, cubes or dots on a whiteboard, use grouping to complete the division problems practically.

✓ Tick each step as you go.

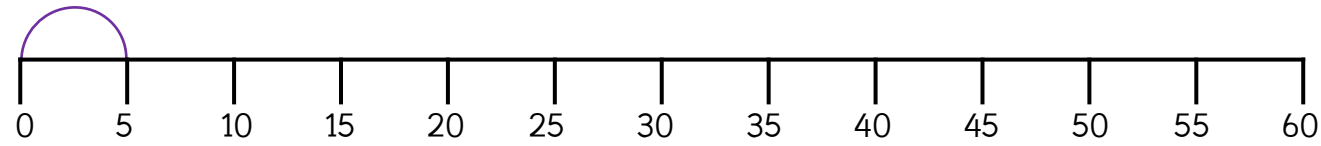
Read the division problem out loud	Count out the total number of counters	Group the counters	Record the answer
18 ÷ 2 = _____			18 ÷ 2 = _____
15 ÷ 5 = _____			15 ÷ 5 = _____
20 ÷ 10 = _____			20 ÷ 10 = _____

Show your grouping on a number line.

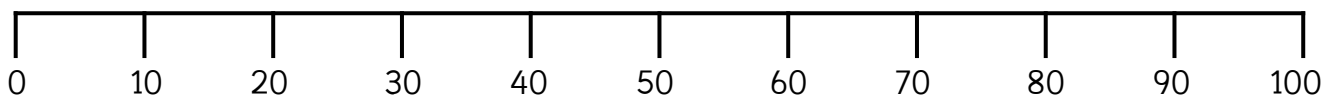
① 22 ÷ 2 = _____



② 25 ÷ 5 = _____



③ 50 ÷ 10 = _____

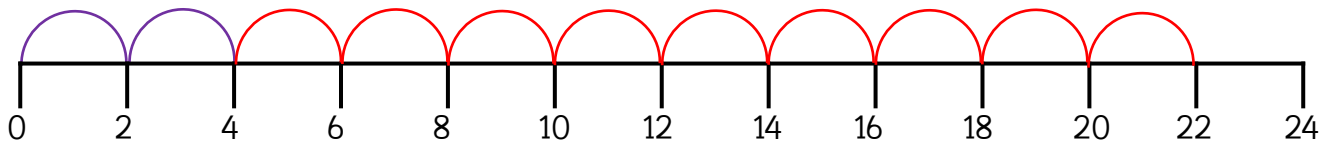


With counters, cubes or dots on a whiteboard, use grouping to complete the division problems practically.
✓ Tick each step as you go.

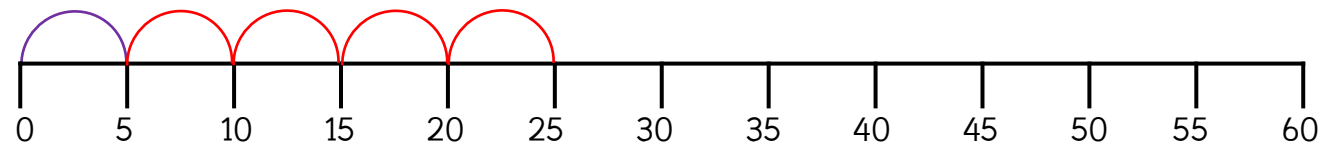
Read the division problem out loud	Count out the total number of counters	Group the counters	Record the answer
18 ÷ 2 = _____	✔	✔	18 ÷ 2 = 9
15 ÷ 5 = _____	✔	✔	15 ÷ 5 = 3
20 ÷ 10 = _____	✔	✔	20 ÷ 10 = 2

Show your grouping on a number line.

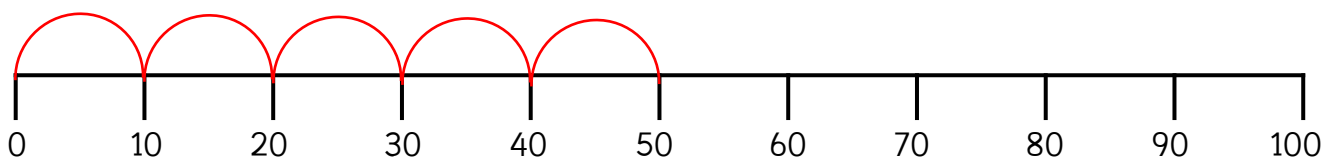
① 22 ÷ 2 = 11



② 25 ÷ 5 = 5



③ 50 ÷ 10 = 5

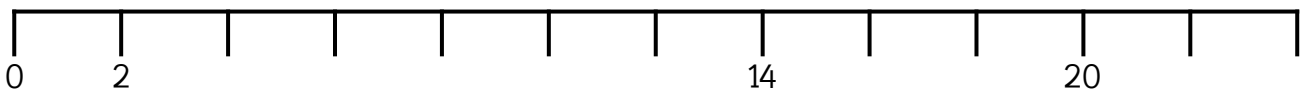


With counters, cubes or dots on a whiteboard, use grouping to complete the division problems practically.
✓ Tick each step as you go.

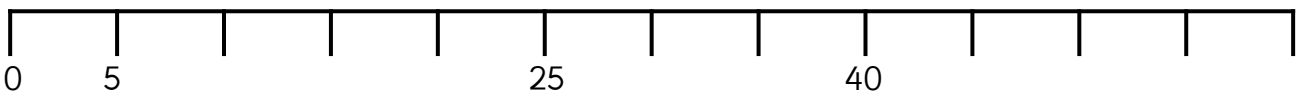
Read the division problem out loud	Count out the total number of counters	Group the counters	Record the answer
18 ÷ 2 = _____			18 ÷ 2 = _____
30 ÷ 5 = _____			
40 ÷ 10 = _____			
12 ÷ 3 = _____			

Show your grouping on a number line.

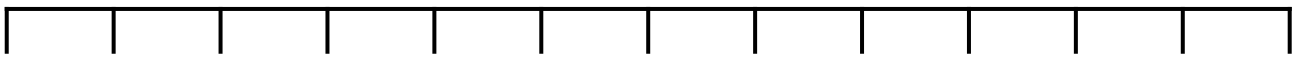
① 24 ÷ 2 = _____



② 45 ÷ 5 = _____



③ 80 ÷ 10 = _____

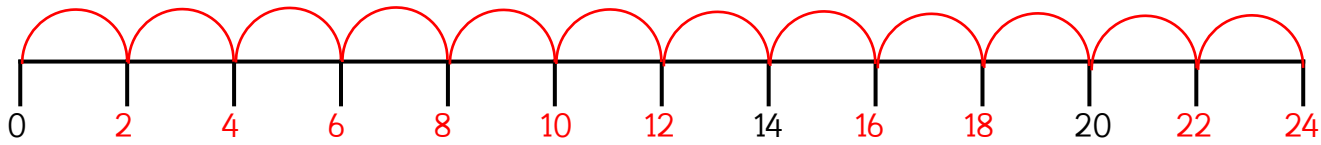


With counters, cubes or dots on a whiteboard, use grouping to complete the division problems practically.
✓ Tick each step as you go.

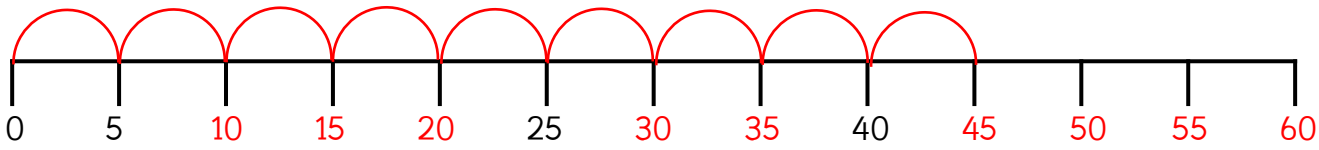
Read the division problem out loud	Count out the total number of counters	Group the counters	Record the answer
18 ÷ 2 = _____	✔	✔	18 ÷ 2 = 9
30 ÷ 5 = _____	✔	✔	30 ÷ 5 = 6
40 ÷ 10 = _____	✔	✔	40 ÷ 10 = 4
12 ÷ 3 = _____	✔	✔	12 ÷ 3 = 4

Show your grouping on a number line.

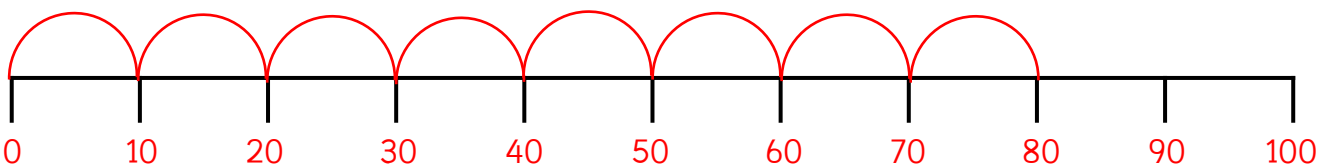
① 24 ÷ 2 = 12



② 45 ÷ 5 = 9



③ 80 ÷ 10 = 8



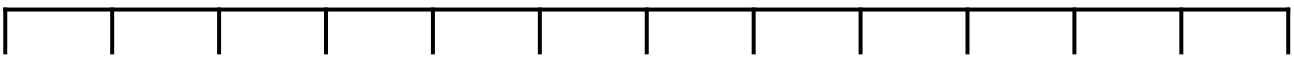
With counters, cubes or dots on a whiteboard, use grouping to complete the division problems practically.

✓ Tick each step as you go.

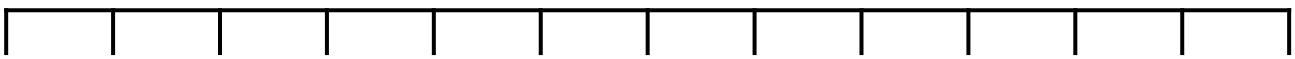
Read the division problem out loud	Count out the total number of counters	Group the counters	Record the answer
22 ÷ 2 = _____			22 ÷ 2 = ___
35 ÷ 5 = _____			
40 ÷ 10 = _____			
18 ÷ 3 = _____			

Show your grouping on a number line.

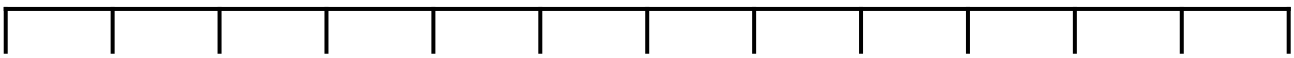
① 24 ÷ 2 = _____



② 40 ÷ 5 = _____



③ 21 ÷ 3 = _____

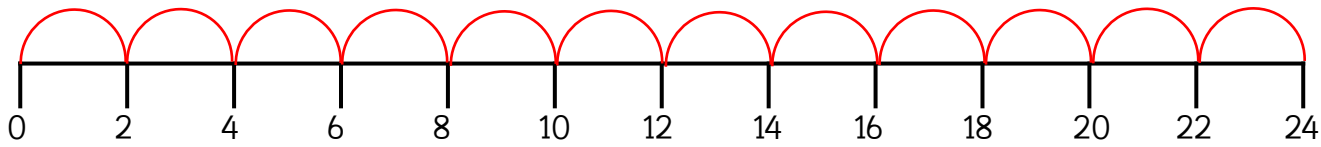


With counters, cubes or dots on a whiteboard, use grouping to complete the division problems practically.
✓ Tick each step as you go.

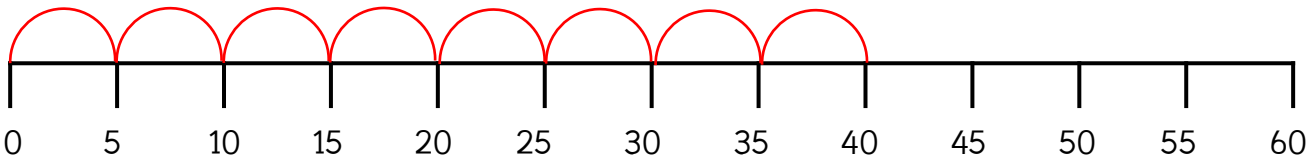
Read the division problem out loud	Count out the total number of counters	Group the counters	Record the answer
22 ÷ 2 = ____	✔	✔	22 ÷ 2 = 11
35 ÷ 5 = ____	✔	✔	35 ÷ 5 = 7
40 ÷ 10 = ____	✔	✔	40 ÷ 10 = 4
18 ÷ 3 = ____	✔	✔	18 ÷ 3 = 6

Show your grouping on a number line.

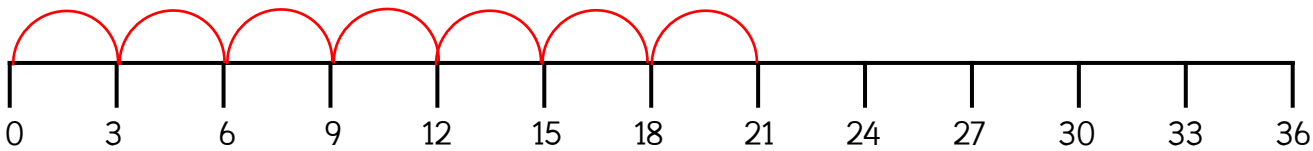
① 24 ÷ 2 = 12



② 40 ÷ 5 = 8

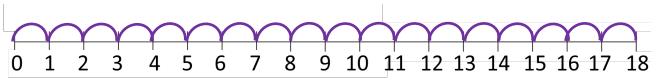


③ 21 ÷ 3 = 7



18 ÷ _____ = _____

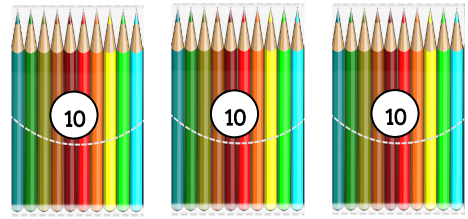
How many different ways can you find of getting from 0 to 18 on a number line in equal groups?



How many equal jumps do you need to make?

18 jumps	of 1
_____ jumps	of _____
_____ jumps	of _____
_____ jumps	of _____
_____ jumps	of _____
_____ jumps	of _____

Leanna has 30 pencils.



Can she divide her pencils by 1, 2, 3, 4, 5, 6 and 7?

Have a go and see if you can divide 30 by these numbers.

30 ÷ 1 = _____

30 ÷ 2 = _____ …

Making Equal Groups: Activity ☆ Reasoning & Problem Solving 2

18 ÷ _____ = _____

How many different ways can you find of getting from 0 to 18 on a number line in equal groups?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

How many equal jumps do you need to make?

18 jumps	of 1
_____ jumps	of _____
_____ jumps	of _____
_____ jumps	of _____
_____ jumps	of _____
_____ jumps	of _____

Leanna has 30 pencils.

10 10 10

Can she divide her pencils by 1, 2, 3, 4, 5, 6 and 7?

Have a go and see if you can divide 30 by these numbers.

30 ÷ 1 = _____

30 ÷ 2 = _____ …

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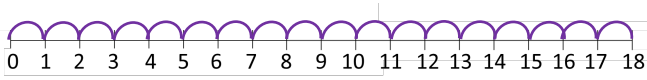
18 ÷ _____ = _____

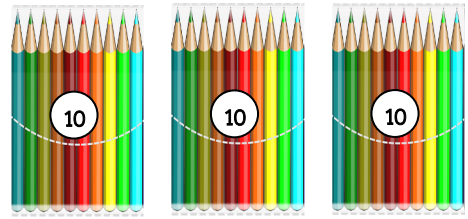
How many different ways can you find of getting from 0 to 18 on a number line in equal groups?



How many equal jumps do you need to make?

18 jumps	of 1
9 jumps	of 2
6 jumps	of 3
3 jumps	of 6
2 jumps	of 9
1 jump	of 18

Leanna has 30 pencils.



Can she divide her pencils by 1, 2, 3, 4, 5, 6 and 7?

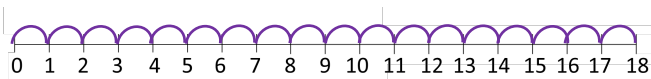
Have a go and see if you can divide 30 by these numbers.

30 ÷ 1 = 30
30 ÷ 2 = 15
30 ÷ 3 = 10
30 ÷ 4 = X
30 ÷ 5 = 6
30 ÷ 6 = 5
30 ÷ 7 = X

Making Equal Groups: Activity ☆ Reasoning & Problem Solving 2

18 ÷ _____ = _____

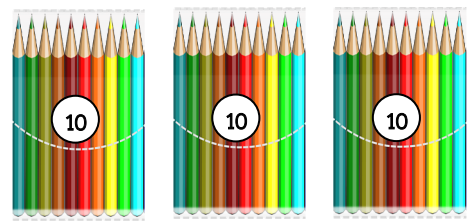
How many different ways can you find of getting from 0 to 18 on a number line in equal groups?



How many equal jumps do you need to make?

18 jumps	of 1
9 jumps	of 2
6 jumps	of 3
3 jumps	of 6
2 jumps	of 9
1 jump	of 18

Leanna has 30 pencils.



Can she divide her pencils by 1, 2, 3, 4, 5, 6 and 7?

Have a go and see if you can divide 30 by these numbers.

30 ÷ 1 = 30
30 ÷ 2 = 15
30 ÷ 3 = 10
30 ÷ 4 = X
30 ÷ 5 = 6
30 ÷ 6 = 5
30 ÷ 7 = X

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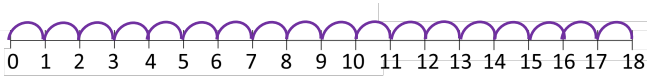
18 ÷ _____ = _____

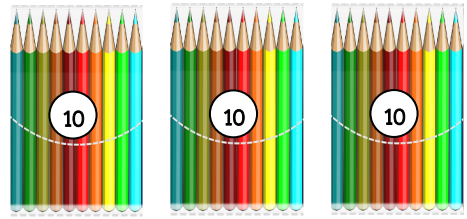
How many different ways are there of getting from 0 to 18 on a number line in equal groups?



Don't forget they need to be equal jumps and you must land on 18.
I have done the first one for you!

Can you write the division sentence for each way?

Leanna has 30 pencils.



Can she divide her pencils by 1, 2, 3, 4, 5, 6 and 7?

Have a go and see if you can divide 30 by these numbers.

Will all of them work in equal groups? Explain.

Making Equal Groups: Activity ☆☆ Reasoning & Problem Solving 2

18 ÷ _____ = _____

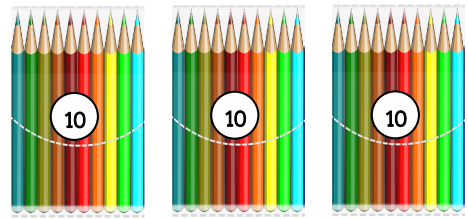
How many different ways are there of getting from 0 to 18 on a number line in equal groups?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Don't forget they need to be equal jumps and you must land on 18.
I have done the first one for you!

Can you write the division sentence for each way?

Leanna has 30 pencils.



Can she divide her pencils by 1, 2, 3, 4, 5, 6 and 7?

Have a go and see if you can divide 30 by these numbers.

Will all of them work in equal groups? Explain.

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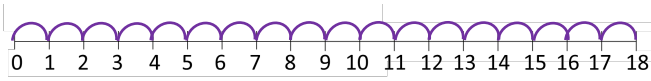
18 ÷ _____ = _____

How many different ways are there of getting from 0 to 18 on a number line in equal groups?

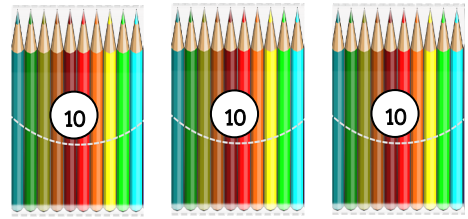


Don't forget they need to be equal jumps and you must land on 18.

Can you write the division sentence for each way?

18 jumps of 1	18 ÷ 1 = 18
9 jumps of 2	18 ÷ 2 = 9
6 jumps of 3	18 ÷ 3 = 6
3 jumps of 6	18 ÷ 6 = 3
2 jumps of 9	18 ÷ 9 = 2
1 jump of 18	18 ÷ 18 = 1

Leanna has 30 pencils.



Can she divide her pencils by 1, 2, 3, 4, 5, 6 and 7?

Have a go and see if you can divide 30 by these numbers.

30 ÷ 1 = 30
30 ÷ 2 = 15
30 ÷ 3 = 10
30 ÷ 4 = X
30 ÷ 5 = 6
30 ÷ 6 = 5
30 ÷ 7 = X

Will all of them work in equal groups? No

Explain. Not all of the groups would be equal. This is because 4 and 7 are not multiples of 30.

Making Equal Groups: Activity ☆☆ Reasoning & Problem Solving 2

18 ÷ _____ = _____

How many different ways are there of getting from 0 to 18 on a number line in equal groups?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Don't forget they need to be equal jumps and you must land on 18.

Can you write the division sentence for each way?

18 jumps of 1	18 ÷ 1 = 18
9 jumps of 2	18 ÷ 2 = 9
6 jumps of 3	18 ÷ 3 = 6
3 jumps of 6	18 ÷ 6 = 3
2 jumps of 9	18 ÷ 9 = 2
1 jump of 18	18 ÷ 18 = 1

Leanna has 30 pencils.

10 10 10

Can she divide her pencils by 1, 2, 3, 4, 5, 6 and 7?

Have a go and see if you can divide 30 by these numbers.

30 ÷ 1 = 30
30 ÷ 2 = 15
30 ÷ 3 = 10
30 ÷ 4 = X
30 ÷ 5 = 6
30 ÷ 6 = 5
30 ÷ 7 = X

Will all of them work in equal groups? No

Explain. Not all of the groups would be equal. This is because 4 and 7 are not multiples of 30.

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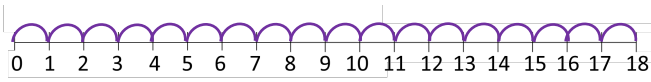
18 ÷ _____ = _____

How many different ways are there of getting from 0 to 18 on a number line in equal groups?

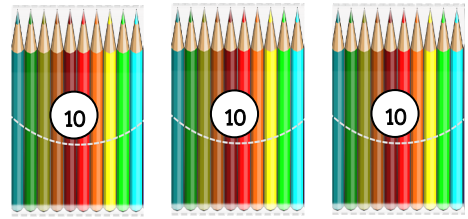


Don't forget they need to be equal jumps and you must land on 18.

Can you write the division sentence for each way?

What numbers can 18 not be divided by? Explain

Leanna has 30 pencils.



Can she divide her pencils by 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10?

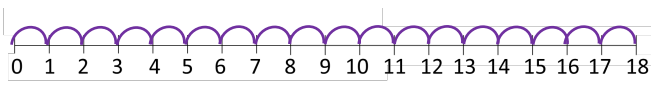
Have a go and see if you can divide 30 by these numbers.

Will all of them work in equal groups? What did you notice? Explain.

Making Equal Groups: Activity ☆☆☆ Reasoning & Problem Solving 2

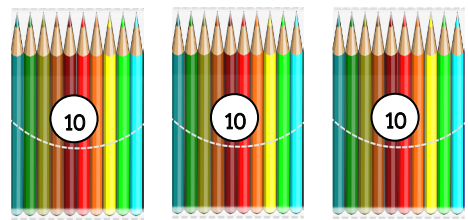
18 ÷ _____ = _____

How many different ways are there of getting from 0 to 18 on a number line in equal groups?



Don't forget they need to be equal jumps and you must land on 18.

Leanna has 30 pencils.



Can she divide her pencils by 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10?

Have a go and see if you can divide 30 by these numbers.

Will all of them work in equal groups? What did you notice? Explain.

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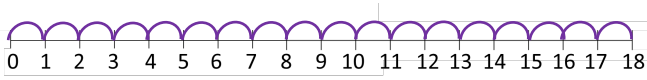


Don't forget they need to be equal jumps and you must land on 18.

Can you write the division sentence for each way?

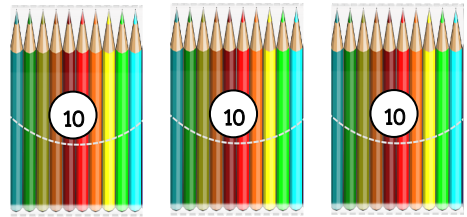
18 jumps of 1	18 ÷ 1 = 18
9 jumps of 2	18 ÷ 2 = 9
6 jumps of 3	18 ÷ 3 = 6
3 jumps of 6	18 ÷ 6 = 3
2 jumps of 9	18 ÷ 9 = 2
1 jump of 18	18 ÷ 18 = 1

What numbers can 18 not be divided by? Explain

4, 5, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17.

Not all of the groups would be equal. This is because these numbers are not multiples of 30

Leanna has 30 pencils.



Can she divide her pencils by 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10?

Have a go and see if you can divide 30 by these numbers.

30 ÷ 1 = 30	30 ÷ 5 = 6	30 ÷ 9 = X
30 ÷ 2 = 15	30 ÷ 6 = 5	30 ÷ 10 = 3
30 ÷ 3 = 10	30 ÷ 7 = X	
30 ÷ 4 = X	30 ÷ 8 = X	

Will all of them work in equal groups? No

What did you notice? Explain.

Not all of the groups would be equal. This is because 4, 7, 8 and 9 are not multiples of 30. There is a pattern, when dividing 30 by 1 the answer is the biggest it can be. As the dividing number gets bigger the answer gets smaller. Also, the dividing numbers and answers swap places in the calculations 30÷10=3, 30÷3=10 and 30÷5=6, 30÷6=5.

Making Equal Groups: Activity ☆☆☆ Reasoning & Problem Solving 2

18 ÷ _____ = _____

How many different ways are there of getting from 0 to 18 on a number line in equal groups?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Don't forget they need to be equal jumps and you must land on 18.

Can you write the division sentence for each way?

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10 10 10

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