Multiplication & Division

Master The Curriculum

3

Fluency & Reasoning Teaching Slides

Comparing Statements

3

Fluency Teaching Slides

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Activity 1 Comparing Statements

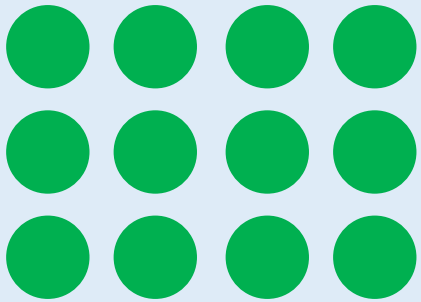
Use the array to complete the number sentences.

$3 \times 4 = \square$

$4 \times 3 = \square$

$\square \div 3 = \square$

$\square \div 4 = \square$



?

What other number sentences does the array show?

Activity 1 Comparing Statements

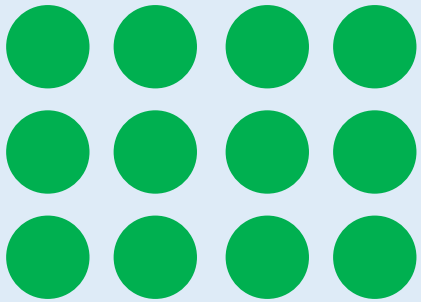
Use the array to complete the number sentences.

$3 \times 4 =$ 12

$4 \times 3 =$ 12

12 $\div 3 =$ 4

12 $\div 4 =$ 3



Activity 1 Comparing Statements

Use the array to complete the number sentences.

$3 \times 5 = \square$

$5 \times 3 = \square$

$\square \div 5 = \square$

$\square \div 3 = \square$

Activity 1 Comparing Statements

Use the array to complete the number sentences.

$3 \times 5 = 15$

$5 \times 3 = 15$

$15 \div 5 = 3$

$15 \div 3 = 5$

Activity 2 Comparing Statements

Use <, > or = to compare.

☐ x ☐ = ☐

☐ x ☐ = ☐

8 x 3 ◯ 7 x 4

36 ÷ 6 ◯ 36 ÷ 4

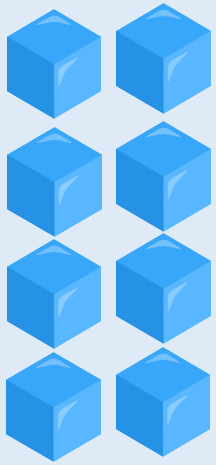
?

What's the same and what's different about 8 x 3 and 7 x 4?

Activity 2 Comparing Statements

Use <, > or = to compare.

3 x 3 = 9



2 x 4 = 8

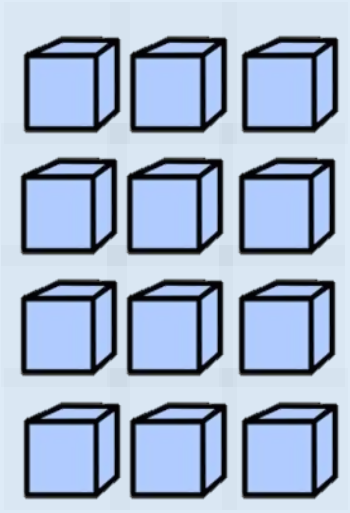
8 x 3 < 7 x 4

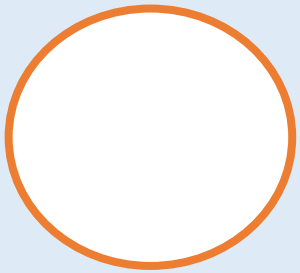
36 ÷ 6 < 36 ÷ 4

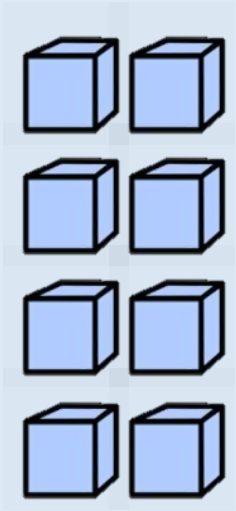
Activity 2

Comparing Statements

Use <, > or = to compare.







☐ x ☐ = ☐

☐ x ☐ = ☐

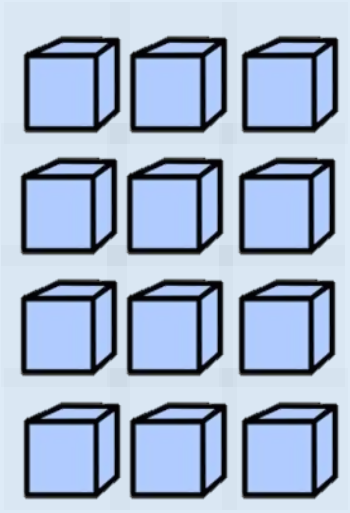
6 x 5 ◯ 4 x 7

28 ÷ 7 ◯ 28 ÷ 4

Activity 2

Comparing Statements

Use <, > or = to compare.



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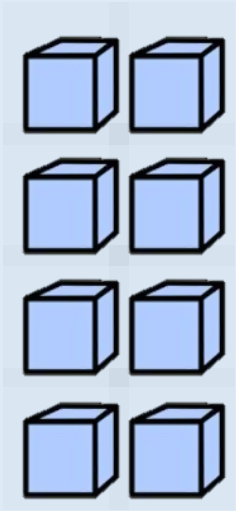


3 x 4 = 12

2 x 4 = 8

6 x 5 > 4 x 7

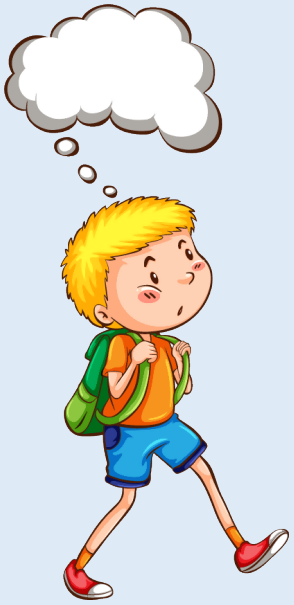
28 ÷ 7 < 28 ÷ 4

Activity 3 Comparing Statements

Complete the number sentences.

$5 \times 1 < \_\_\_\_ \times \_\_\_\_$

$4 \times 3 = \_\_\_\_ \div 3$



Activity 3 Comparing Statements

Complete the number sentences.

$5 \times 1 < \underline{6} \times \underline{2}$

$4 \times 3 = \underline{36} \div 3$

Activity 3 Comparing Statements

Complete the number sentences.

$1 \times 6 < \_\_\_\_ \times \_\_\_\_$

$6 \times 3 = \_\_\_\_ \div 3$

$2 \times 7 < \_\_\_\_ \times \_\_\_\_$

Activity 3 Comparing Statements

Complete the number sentences.

$1 \times 6 < \underline{2} \times \underline{7}$

$6 \times 3 = \underline{54} \div 3$

$2 \times 7 < \underline{3} \times \underline{8}$

Reasoning 1 Comparing Statements

Tia

6 x 6 is greater than two lots of 3 x 6.

Do you agree?
Can you prove your answer?

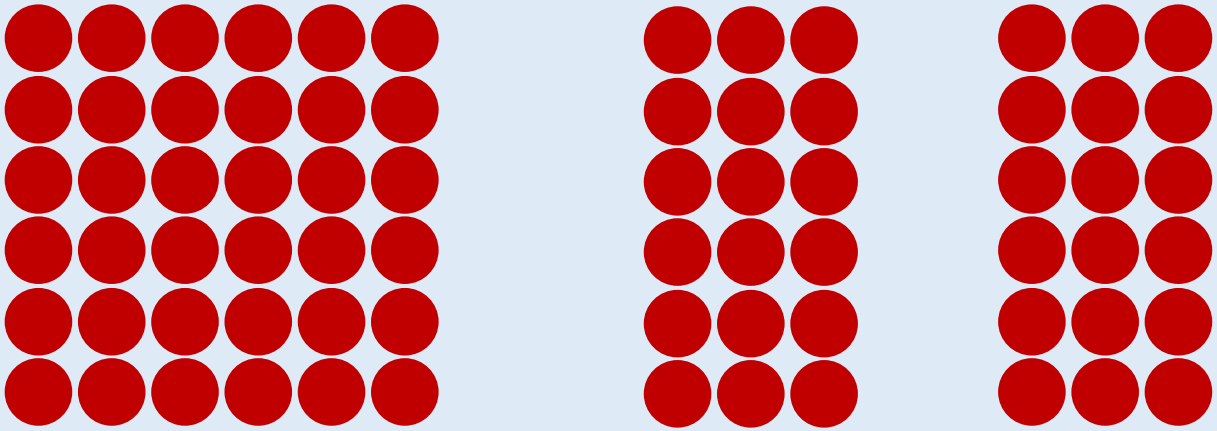
Reasoning 1 Comparing Statements

6 x 6 is greater than two lots of 3 x 6.

Tia

Possible answer:

She is wrong because they are equal.



Reasoning 2 Comparing Statements

True or False?

$5 \times 6 < 5 + 5 + 5 + 5 + 5 + 5$

$6 \times 7 = 3 \times 7 + 3 \times 7$

$3 \times 4 + 4 > 6 \times 4$

Reasoning 2 Comparing Statements

True or False?

$5 \times 6 < 5 + 5 + 5 + 5 + 5 + 5$ False

$6 \times 7 = 3 \times 7 + 3 \times 7$ True

$3 \times 4 + 4 > 6 \times 4$ False

Reasoning 3 Comparing Statements

Can you find different ways to complete each number sentence?

___ x 2 + ___ x 2 < ___ ÷ 2

___ ÷ 3 < ___ x 3 < ___ x 3

___ x 8 > ___ ÷ 8 > ___ x 8

Reasoning 3 Comparing Statements

Can you find different ways to complete each number sentence?

Possible answers include:

$1 \times 2 + 1 \times 2 < 20 \div 2$
$1 \times 2 + 1 \times 2 < 22 \div 2$
$1 \times 2 + 1 \times 2 < 24 \div 2$

$21 \div 3 < 8 \times 3 < 12 \times 3$
$15 \div 3 < 7 \times 3 < 9 \times 3$
$9 \div 3 < 4 \times 3 < 6 \times 3$

$4 \times 8 > 88 \div 8 > 1 \times 8$
$2 \times 8 > 80 \div 8 > 1 \times 8$
$6 \times 8 > 96 \div 8 > 1 \times 8$

Discussion

Comparing Statements

What other number sentences does the array show?

If you know your 4 times table,
how can you use this to work out your 8 times table?

What's the same and what's different about 8 x 3 and 7 x 4?

Related Calculations

3

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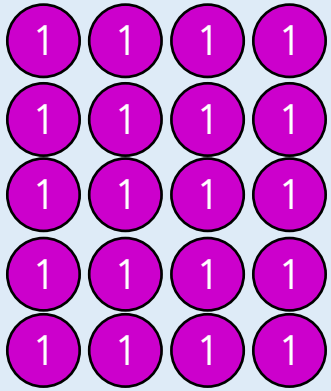
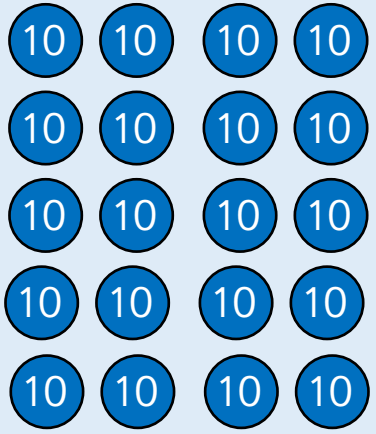
Activity 1 Related Calculations

Complete the multiplication facts.





_____ x _____ = _____ _____ x _____ = _____

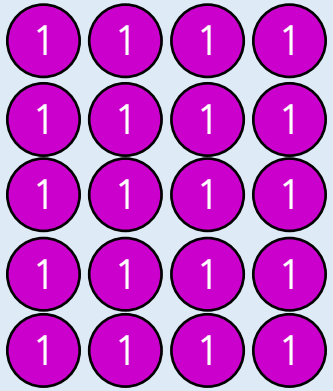
?

What is the same and what is different about the place value counters?

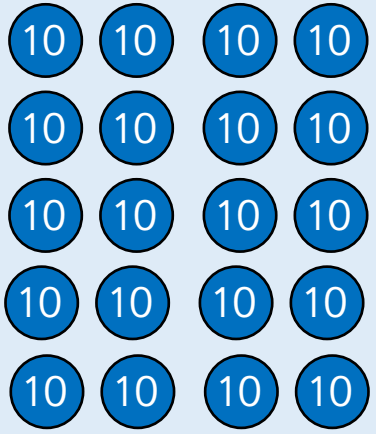
Activity 1 Related Calculations

Complete the multiplication facts.

4 x 5 = 20

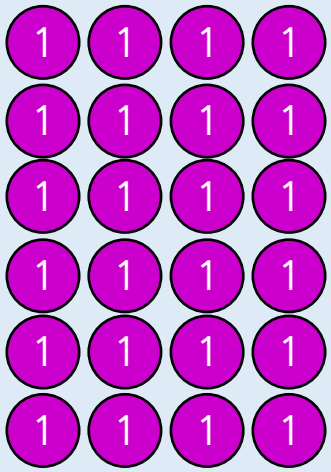


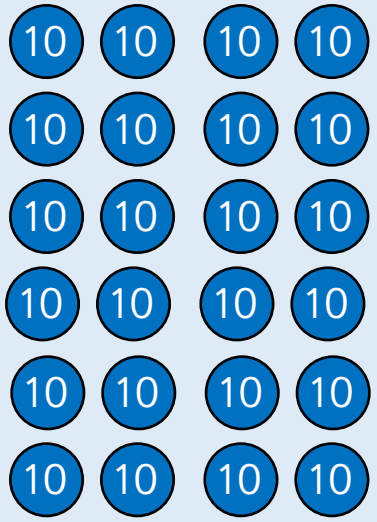
4 x 50 = 200



Activity 1 Related Calculations

Complete the multiplication facts.



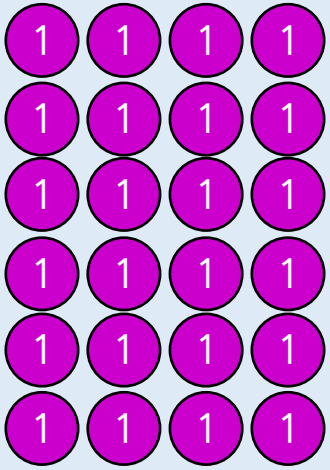


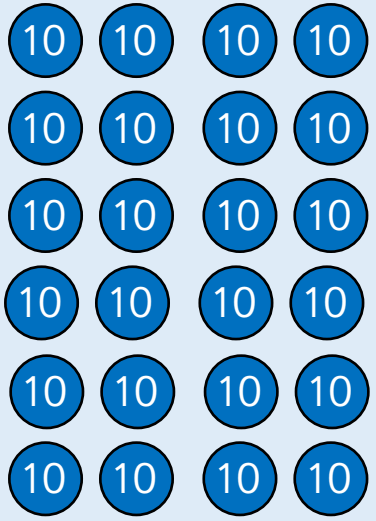
_____ x _____ = _____

_____ x _____ = _____

Activity 1 Related Calculations

Complete the multiplication facts.



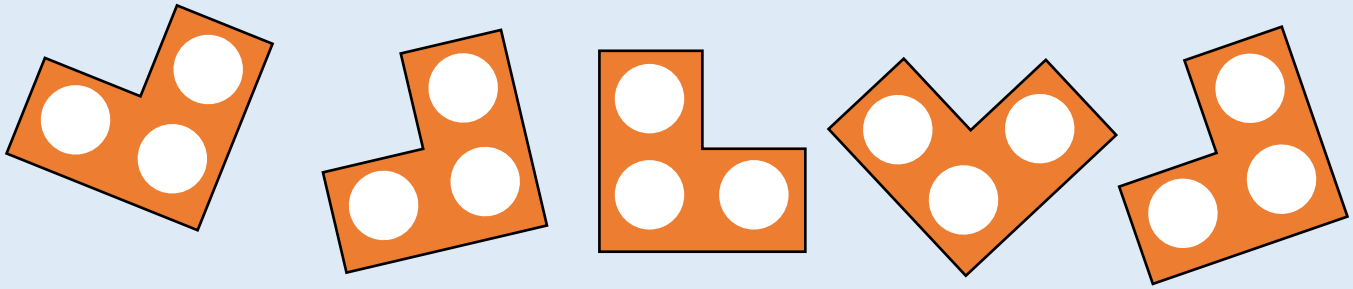


4 x 6 = 24

4 x 60 = 240

Activity 2 Related Calculations

The number pieces represent 5 x ___ = ___



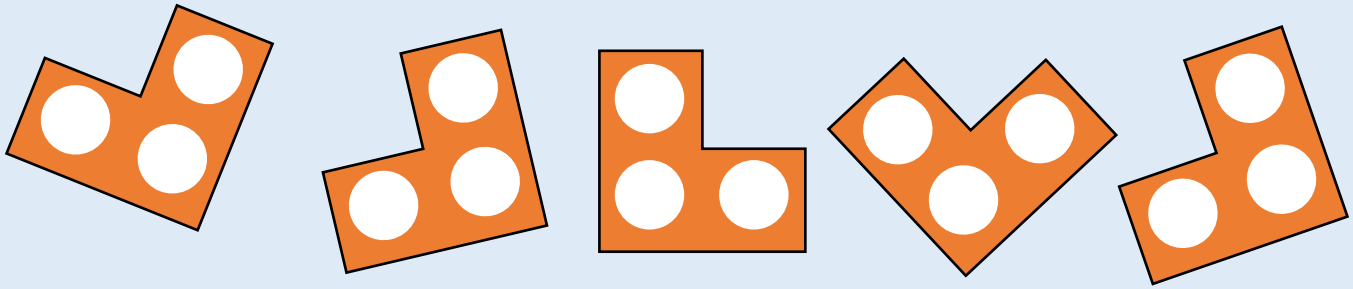
If each hole is worth 10, what do the pieces represent?

?

How does this fact help us solve this problem?

Activity 2 Related Calculations

The number pieces represent 5 x ___ = ___

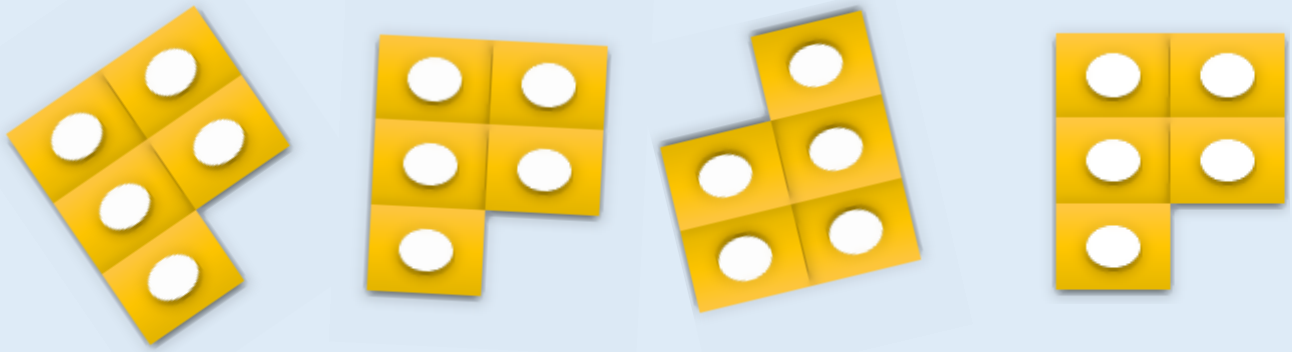


If each hole is worth 10, what do the pieces represent?

5 x 30 = 150

Activity 2 Related Calculations

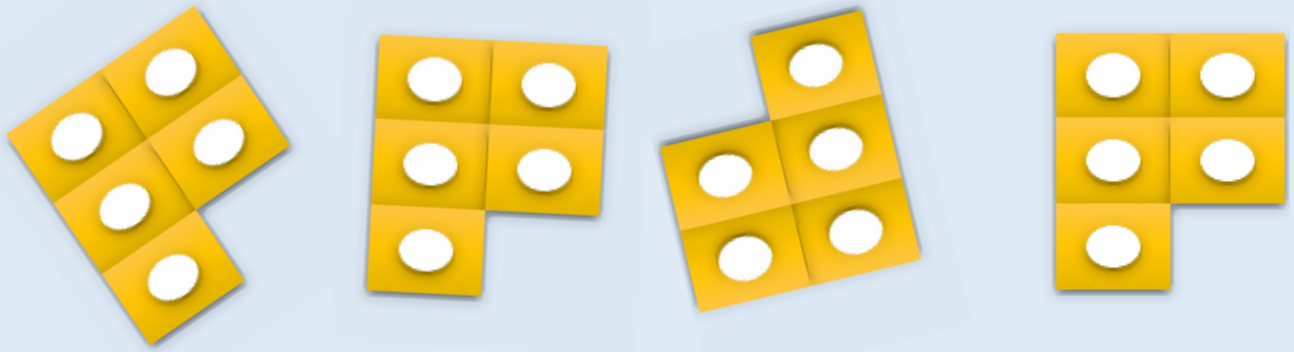
The number pieces represent 4 x ___ = ___



If each hole is worth 10, what do the pieces represent?

Activity 2 Related Calculations

The number pieces represent 4 x ___ = ___



If each hole is worth 10, what do the pieces represent?

4 x 50 = 200

Activity 3 Related Calculations

If we know 2 x 6 = 12, we also know 2 x 60 = 120.
Use this to complete the fact family.

2 x 60 = 120	☐ x ☐ = ☐
☐ ÷ ☐ = ☐	☐ ÷ ☐ = ☐

Complete the fact families for the calculations.

3 x 30 = ☐

☐ = 4 x 80

160 ÷ 2 = ☐

?

If we know these facts, what other facts do we know?

Activity 3 Related Calculations

If we know 2 x 6 = 12, we also know 2 x 60 = 120.
Use this to complete the fact family.

2 x 60 = 120	6 x 20 = 120
120 ÷ 2 = 60	120 ÷ 6 = 20

Complete the fact families for the calculations.

3 x 30 = 90

320 = 4 x 80

160 ÷ 2 = 80

Activity 3 Related Calculations

If we know 2 x 7 = 14, we also know 2 x 70 = 140.
Use this to complete the fact family.

2 x 70 = 140	_____x _____= _____
_____÷ _____= _____	_____÷ _____= _____

- 4 x 40 = ☐
- ☐ = 3 x 30
- 180 ÷ 2 = ☐

Activity 3 Related Calculations

If we know 2 x 7 = 14, we also know 2 x 70 = 140.
Use this to complete the fact family.

2 x 70 = 140	7 x 20 = 140
140 ÷ 2 = 70	140 ÷ 7 = 20

- 4 x 40 = 160
- 90 = 3 x 30
- 180 ÷ 2 = 90

Reasoning 1 Related Calculations

Malachi

I know that when multiplying 2 x 30, 30 is ten times bigger than 3, so my answer will be ten times bigger than 2 x 3.

Is Malachi correct?
Explain your answer.

Reasoning 1 Related Calculations

Malachi

I know that when multiplying 2 x 30, 30 is ten times bigger than 3, so my answer will be ten times bigger than 2 x 3.

Malachi is correct. I know 2 x 3 = 6, so if he has 2 x 30 then his answer will be ten times bigger because 3 has become ten times bigger.

Reasoning 2 Related Calculations

Esin has 220 cakes to sell.
She puts the same number of cakes into each box and has no cakes left over.

Which of these boxes could she use?

Reasoning 2 Related Calculations

Esin has 220 cakes to sell.
She puts the same number of cakes into each box and has no cakes left over.

She could use 10 or 20 because 220 is a multiple of both these numbers.

$10 \times 22 = 220$

$20 \times 11 = 220$

Reasoning 3 Related Calculations

True or False?

$$5 \times 40 = 4 \times 50$$

Prove it.

True or False?

Possible response:

True, because they are equal.

Children may represent it with place value counters.

Children may explore the problem in a context.
e.g. 5 lots of 40 cakes compared to 4 lots of 50 cakes.

Discussion

Related Calculations

What is the same and what is different about the place value counters?

How does this fact help us to solve this problem?

If we know these facts, what other facts do we know?

Can you prove your answer using manipulatives?

Multiply two digits by one digit (1)

3

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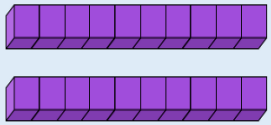
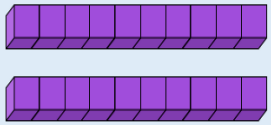
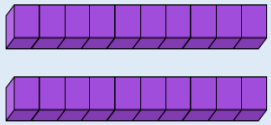
Activity 1

Multiply two digits by one digit (1)

There are 21 coloured balls on a snooker table.
How many coloured balls are there on three snooker tables?

Tens	Ones
	
	
	

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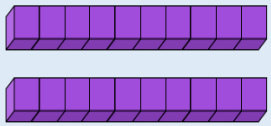
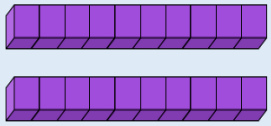
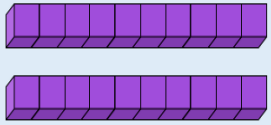
How does partitioning help you multiply a two-digit number by a one-digit number?

Activity 1 Multiply two digits by one digit (1)

There are 21 coloured balls on a snooker table.
How many coloured balls are there on three snooker tables?

Tens	Ones
	
	
	

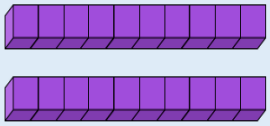
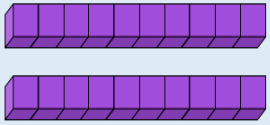
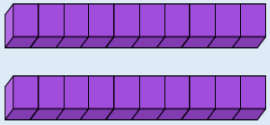
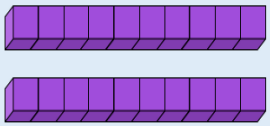
21 x 3 = 63
There are 63 coloured balls on three snooker tables.

Use Base 10 to calculate:
21 x 4 and 33 x 3

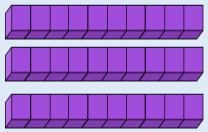
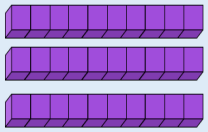
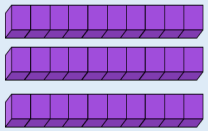
Activity 1 Multiply two digits by one digit (1)

Use Base 10 to calculate:
21 x 4 and 33 x 3

21 x 4 = 84

Tens	Ones
	
	
	
	

33 x 3 = 99

Tens	Ones
	
	
	

Activity 1

Multiply two digits by one digit (1)

There are 23 gummy bears in a sweet jar.
How many gummy bears are there in three sweet jars?

Use this method to solve:
23 x 4 and 31 x 5

Tens	Ones

Activity 1

Multiply two digits by one digit (1)

There are 23 gummy bears in a sweet jar.
How many gummy bears are there in three sweet jars?

Use this method to solve:
23 x 4 and 31 x 5

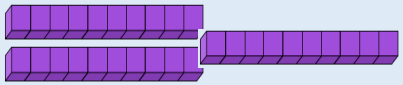
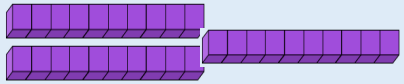
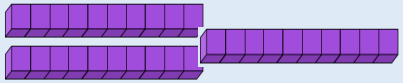
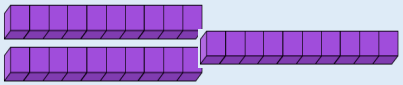
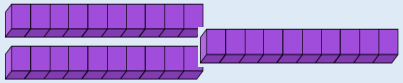
23 x 3 = 69
There are 69 gummy bears in three sweet jars.

Tens	Ones

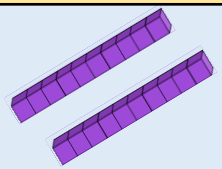
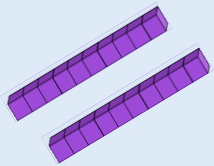
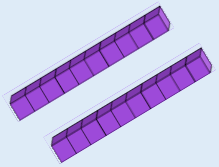
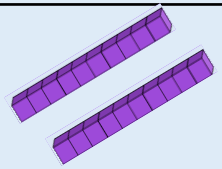
Activity 1 Multiply two digits by one digit (1)

There are 23 gummy bears in a sweet jar.
How many gummy bears are there in three sweet jars?

31 x 5 = 155

Tens	Ones
	
	
	
	
	

23 x 4 = 92

Tens	Ones
	
	
	
	

Activity 2

Multiply two digits by one digit (1)

Complete the calculations to match the place value counters.

Tens	Ones
10 10	1 1
10 10	1 1
10 10	1 1
10 10	1 1

□ + □ + □ + □ = □

□ x □ = □

?

How is multiplication linked to addition?

Activity 2

Multiply two digits by one digit (1)

Complete the calculations to match the place value counters.

Tens	Ones
10 10	1 1
10 10	1 1
10 10	1 1
10 10	1 1

22 + 22 + 22 + 22 = 88

22 x 4 = 88

Activity 2

Multiply two digits by one digit (1)

Complete the calculations to match the place value counters.

Tens	Ones
10 10 10	1 1
10 10 10	1 1
10 10 10	1 1
10 10 10	1 1

$$\square + \square + \square + \square = \square$$

$$\square \times \square = \square$$

Activity 2 Multiply two digits by one digit (1)

Complete the calculations to match the place value counters.

Tens	Ones
10 10 10	1 1
10 10 10	1 1
10 10 10	1 1
10 10 10	1 1

32 + 32 + 32 + 32 = 128

32 x 4 = 128

Activity 3

Multiply two digits by one digit (1)

Leanna uses place value counters to work out 34 x 2.

Tens	Ones
10 10 10	1 1 1 1
10 10 10	1 1 1 1

	T	O
	3	4
x		2
	6	8

Use Leanna's method to solve:
23 x 3
32 x 3
42 x 2

?

How does the written method match the concrete representation?

Activity 3

Multiply two digits by one digit (1)

Leanna uses place value counters to work out 34 x 2.

23 x 3 = 69

Tens	Ones
10 10	1 1 1
10 10	1 1 1
10 10	1 1 1

32 x 3 = 96

Tens	Ones
10 10 10	1 1
10 10 10	1 1
10 10 10	1 1

Activity 3

Multiply two digits by one digit (1)

Leanna uses place value counters to work out 34 x 2.

42 x 2 = 84

Tens	Ones
10 10 10 10	1 1
10 10 10 10	1 1

Activity 3 Multiply two digits by one digit (1)

Esin uses place value counters to work out 43 x 2.

Tens	Ones
10 10 10 10	1 1 1
10 10 10 10	1 1 1

	T	O
	4	3
x		2
	8	6

Use Esin's method to solve:
21 x 3
32 x 2

Activity 3 Multiply two digits by one digit (1)

Esin uses place value counters to work out 43 x 2.

21 x 3 = 63

Tens	Ones
10 10	1
10 10	1
10 10	1

32 x 2 = 64

Tens	Ones
10 10 10	1 1
10 10 10	1 1

Reasoning 1

Multiply two digits by one digit (1)

Zach completes the calculation: 34 x 2.

	T	O
	3	4
x		2
		8
		6
	1	4

Can you spot his mistake?

Reasoning 1

Multiply two digits by one digit (1)

Zach completes the calculation:
34 x 2.

	T	O
	3	4
x		2
		8
		6
	1	4

Zach has multiplied 3 by 2 rather than 30 by 2.

Reasoning 2

Multiply two digits by one digit (1)

Rosie completes the same calculation as Zach.

	T	O
	3	4
X		2
6	0	8

Can you spot and explain her mistake?

Reasoning 2

Multiply two digits by one digit (1)

Rosie completes the same calculation as Zach.

	T	O
	3	4
X		2
6	0	8

Rosie has written 60 where she should have just put 6 because she is multiplying 3 tens by 2 which is 6 tens. The answer should be 68.

Reasoning 3

Multiply two digits by one digit (1)

$4 \times 22 = 2 \times 44$

Is Tia correct?

Reasoning 3

Multiply two digits by one digit (1)

4 x 22 = 2 x 44

Yes. Both multiplications are equal to 88.

Children may explore that one number has halved and the other has doubled.

Discussion

Multiply two digits by one digit (1)

How does multiplication link to addition?

How does partitioning help you multiply a two-digit number by a one-digit number?

How does the written method match the concrete representation?

Multiply two digits by one digit (2)

3

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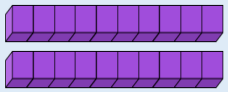
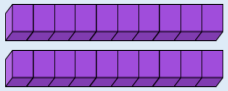
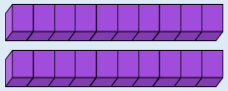
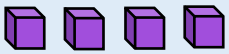
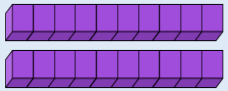
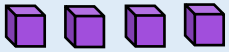
Activity 1

Multiply two digits by one digit (2)

Zach uses Base 10 to calculate 24 x 4.

Tens	Ones
	
	
	
	

	T	O
	2	4
X		4
	9	6

Use Zach's method to solve:

13 x 4

23 x 4

26 x 3

?

What happens when we have 10 or more ones in a column?

Activity 1

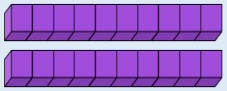
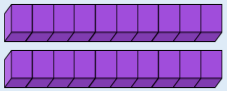
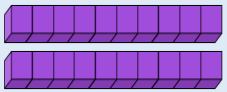
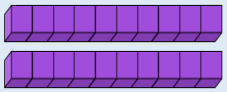
Multiply two digits by one digit (2)

Zach uses Base 10 to calculate 24 x 4.

13 x 4 = 52

Tens	Ones
	
	
	
	

23 x 4 = 92

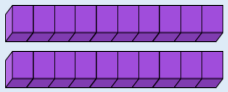
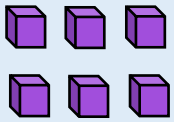
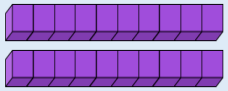
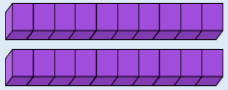
Tens	Ones
	
	
	
	

Activity 1

Multiply two digits by one digit (2)

Zach uses Base 10 to calculate 24 x 4.

26 x 3 = 78

Tens	Ones
	
	
	

Activity 2

Multiply two digits by one digit (2)

Malachi uses place value counters to calculate 16 x 4.

Tens	Ones
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1

	T	O
	1	6
X		4
	6	4

Use Malachi's method to solve:
16 x 6
17 x 5
28 x 3

?

What happens when we have 20 or more ones in a column?

Activity 2

Multiply two digits by one digit (2)

Malachi uses place value counters to calculate 16 x 4.

16 x 6 = 96

Tens	Ones
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1

17 x 5 = 85

Tens	Ones
10	1 1 1 1 1 1 1
10	1 1 1 1 1 1 1
10	1 1 1 1 1 1 1
10	1 1 1 1 1 1 1
10	1 1 1 1 1 1 1

Activity 2

Multiply two digits by one digit (2)

Malachi uses place value counters to calculate 16 x 4.

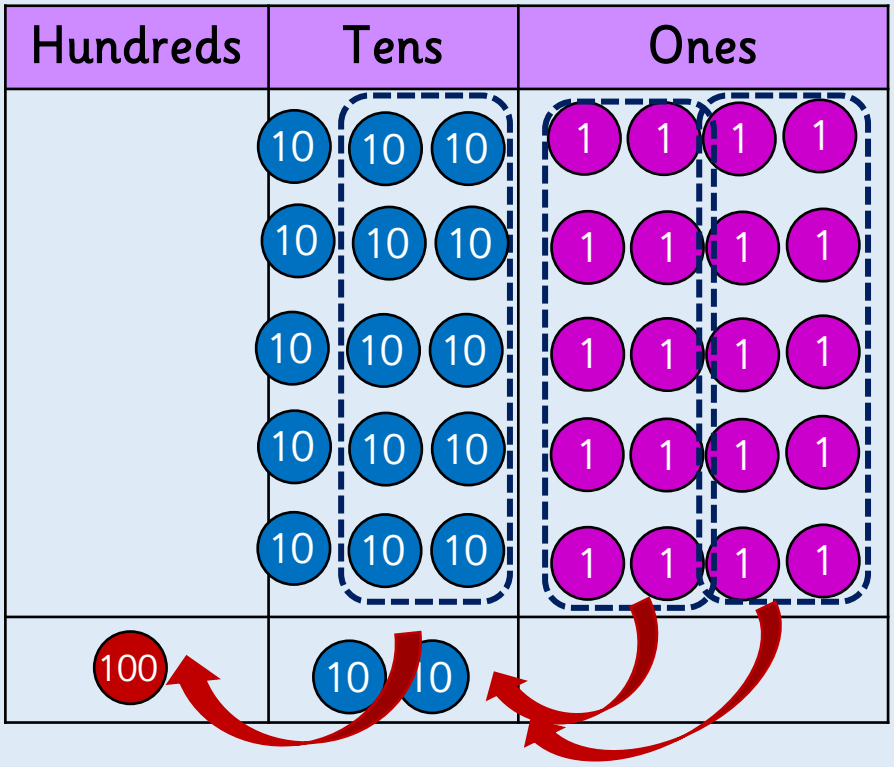
28 x 3 = 84

Tens	Ones
10 10	1 1 1 1 1 1 1 1
10 10	1 1 1 1 1 1 1 1
10 10	1 1 1 1 1 1 1 1

Activity 3

Multiply two digits by one digit (2)

Malachi then calculates 5 x 34.



	T	O
	3	4
X		5
1	7	0

1 2

Use Malachi's method to solve:
36 x 6
48 x 4

?

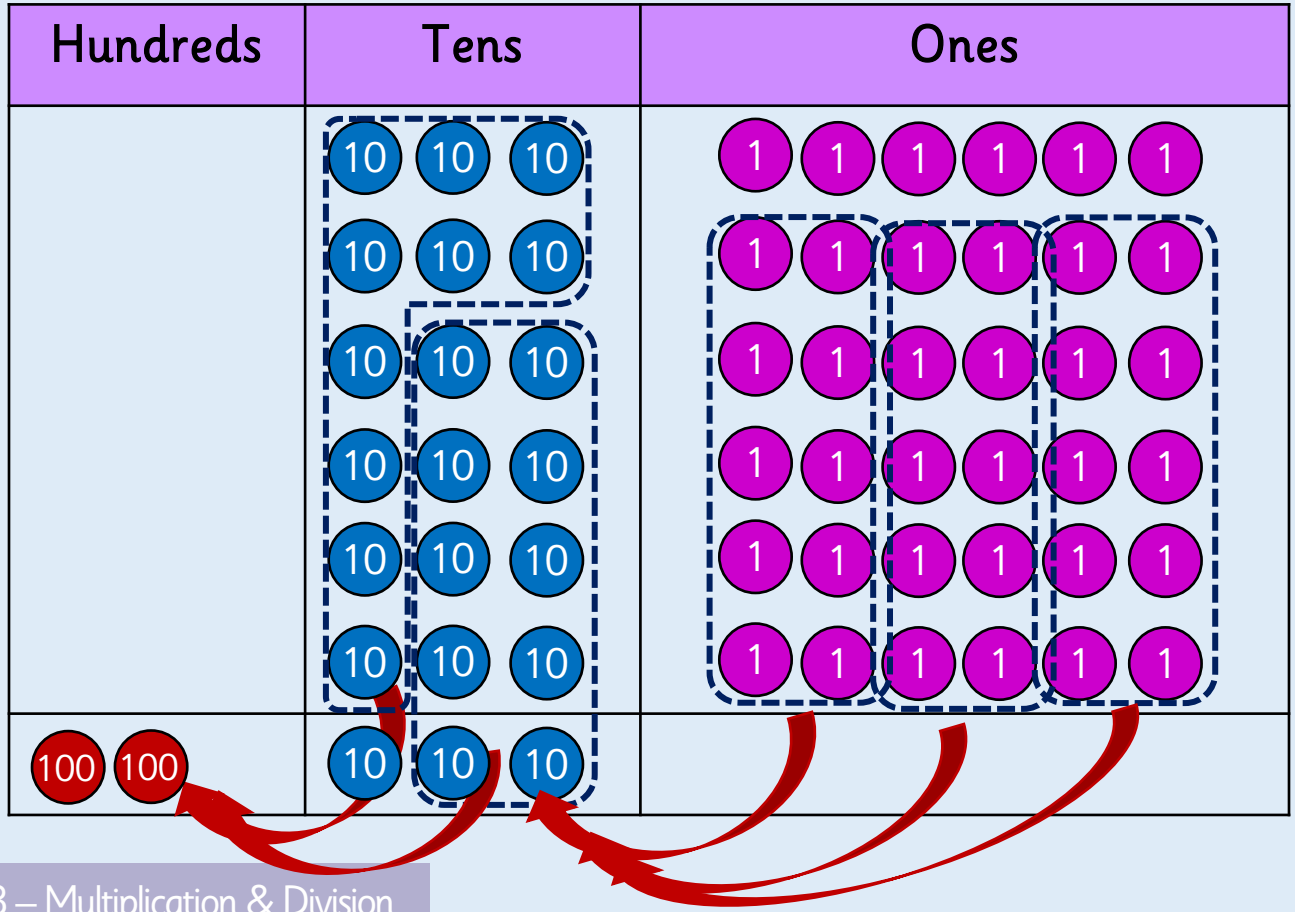
Do you prefer Zach's method or Malachi's method?

Activity 3

Multiply two digits by one digit (2)

Malachi then calculates 5 x 34.

36 x 6 = 216



	T	O
	3	6
X		6
2	1	6

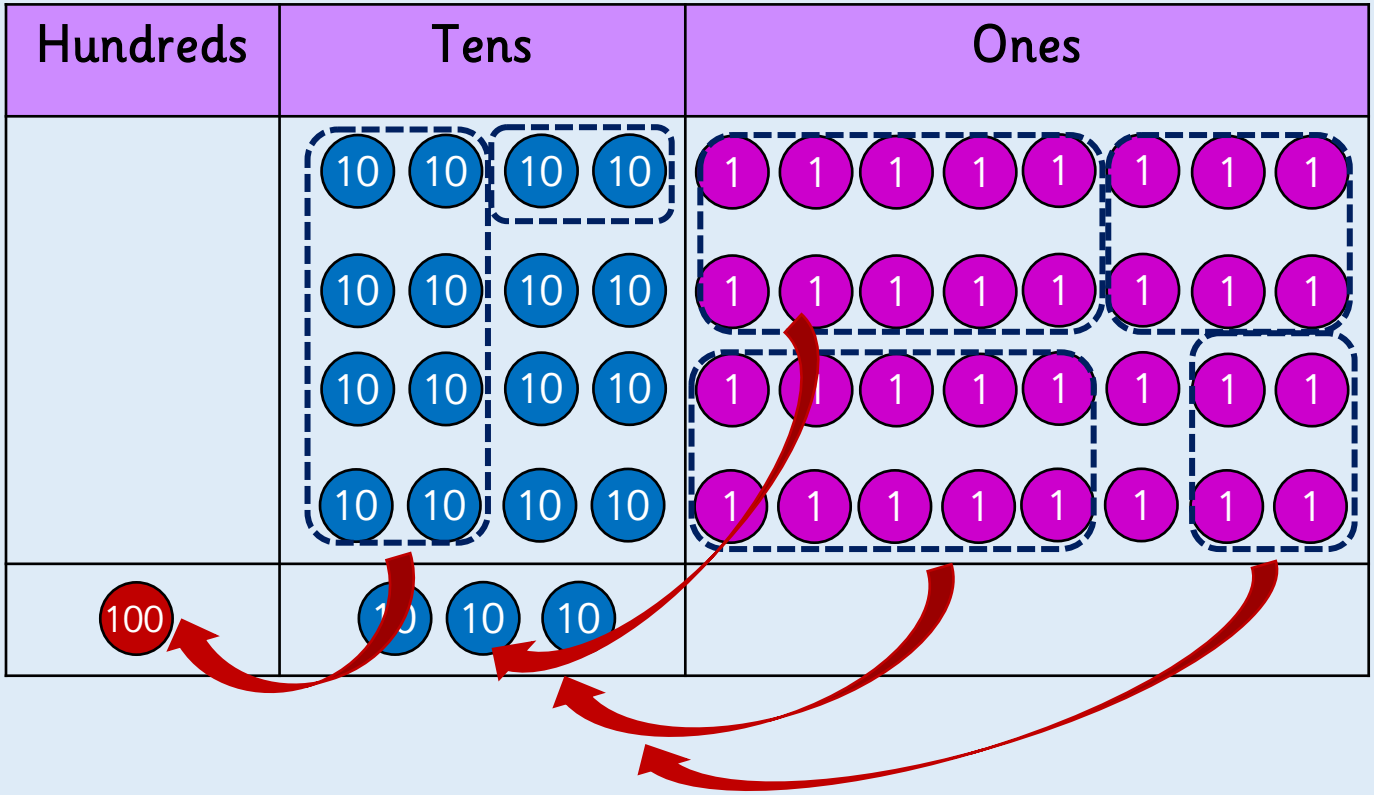
2 3

Activity 3

Multiply two digits by one digit (2)

Malachi then calculates 5 x 34.

48 x 4 = 192



	T	O
	4	8
X		4
1	9	2

1 3

Multiply two digits by one digit (2)

Always, Sometimes, Never?

A two-digit number multiplied by a one-digit number has a two-digit product.

Multiply two digits by one digit (2)

Always, Sometimes, Never?

A two-digit number multiplied by a one-digit number has a two-digit product.

Sometimes.

e.g.

13 x 5 = 65

31 x 5 = 155

Reasoning 2

Multiply two digits by one digit (2)

Explain the mistake.

H	T	O
	1	7
X		3
3	2	1

Reasoning 2

Multiply two digits by one digit (2)

Explain the mistake.

H	T	O
	1	7
X		3
3	2	1

They have not performed the exchange correctly. Three tens and two tens should be added together to make five tens so the correct answer is 51.

Reasoning 3

Multiply two digits by one digit (2)

How close can you get to 100?
Use each digit once in the multiplication.

4 3 2

□□ x □ =

Reasoning 3

Multiply two digits by one digit (2)

How close can you get to 100?
Use each digit once in the multiplication.

You can get within 8 of 100.

23 x 4 = 92 is the closest answer.

24 x 3 = 72
32 x 4 = 128
34 x 2 = 68

Discussion

Multiply two digits by one digit (2)

What happens when we have 10 or more ones in a column?
What happens when we have 20 or more ones in a column?

How do we record our exchange?

Do you prefer Zach's method or Malachi's method?
Can you use either method for all the calculations?

Divide two digits by one digit (1)

3

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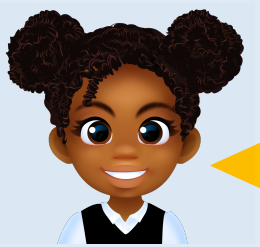
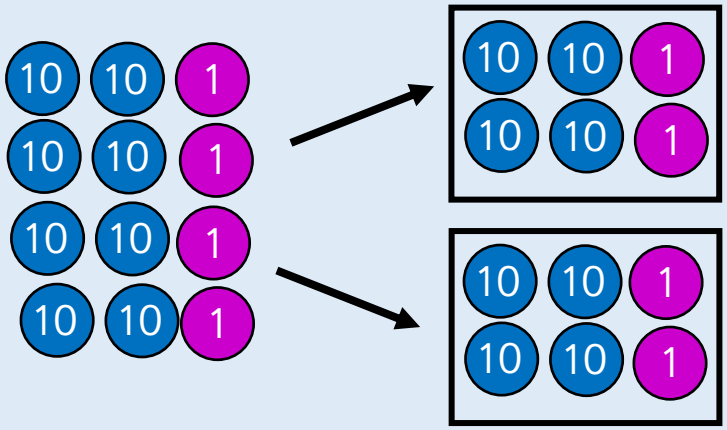
Activity 1 Divide two digits by one digit (1)

Leanna uses place value counters to solve 84 ÷ 2.



Leanna

I made 84 using place value counters and divided them between two equal groups.



Use Leanna's method to calculate:

84 ÷ 4 66 ÷ 2 66 ÷ 3

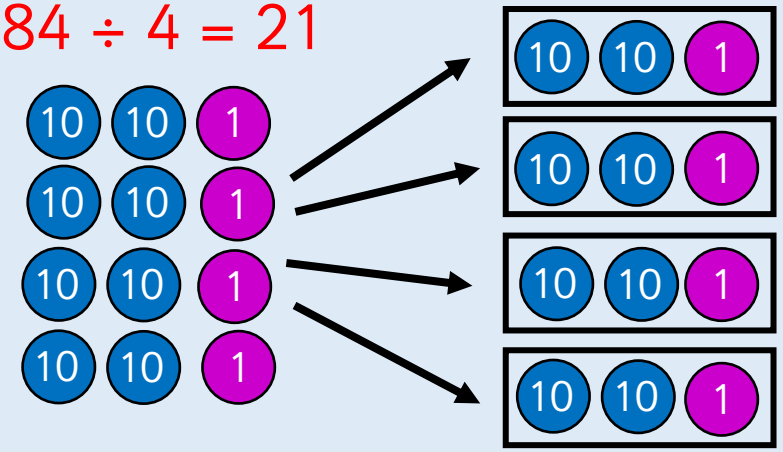
?

How can we partition the number?

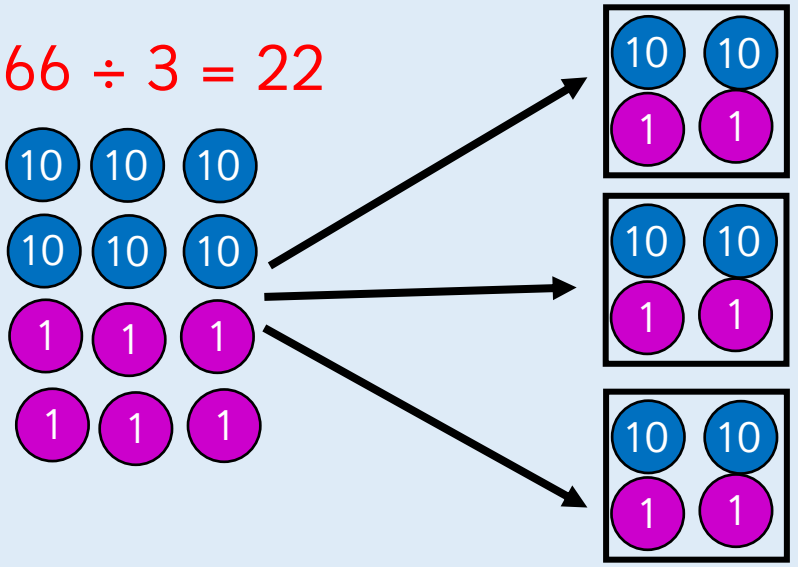
Activity 1 Divide two digits by one digit (1)

Leanna uses place value counters to solve 84 ÷ 2.

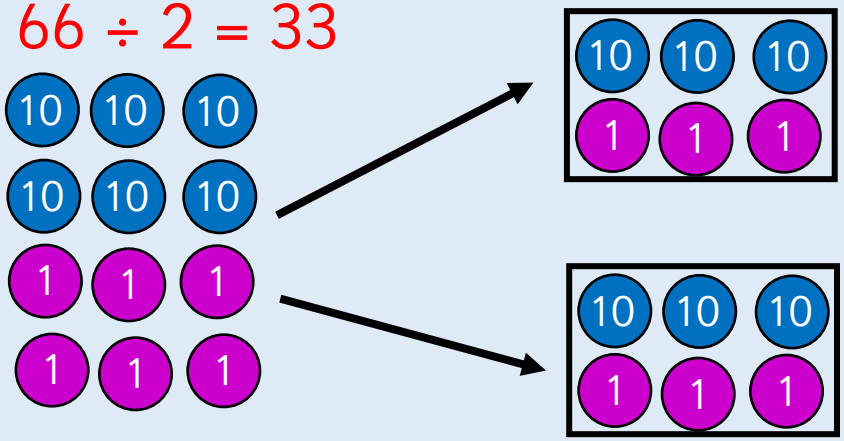
84 ÷ 4 = 21



66 ÷ 3 = 22

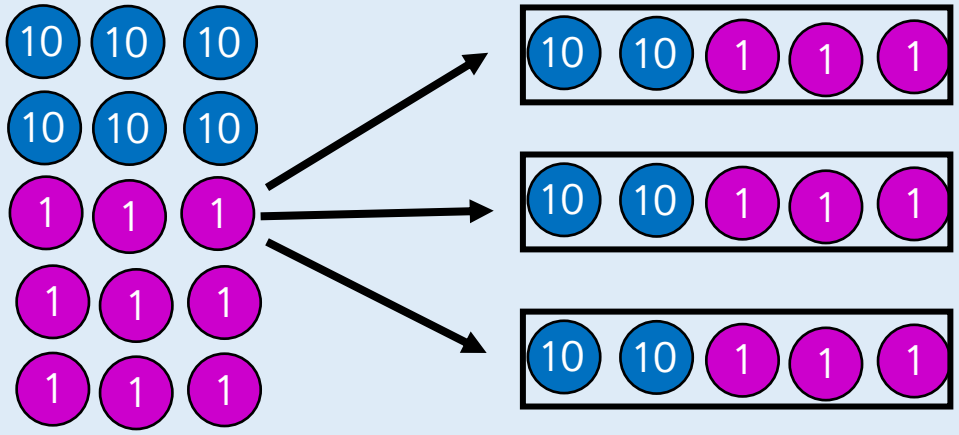


66 ÷ 2 = 33



Activity 1 Divide two digits by one digit (1)

Rosie uses place value counters to solve 69 ÷ 3.



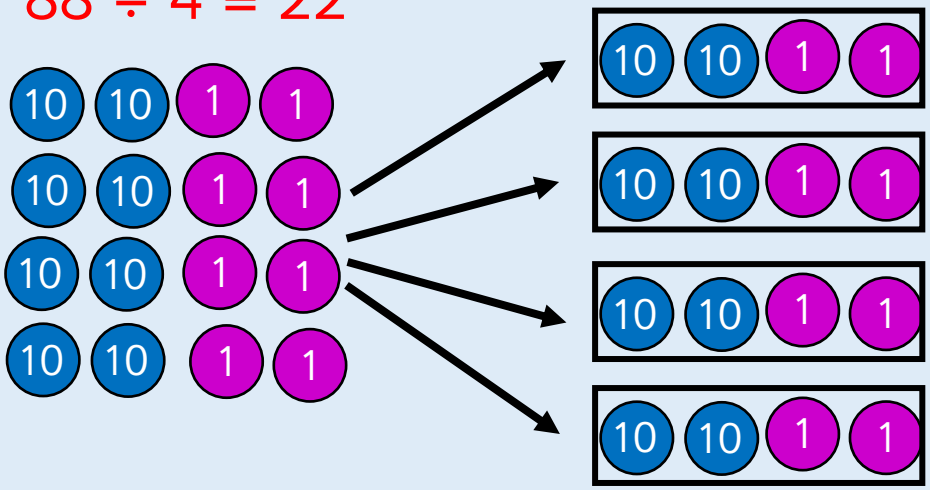
Use this method to solve:

88 ÷ 4 86 ÷ 2

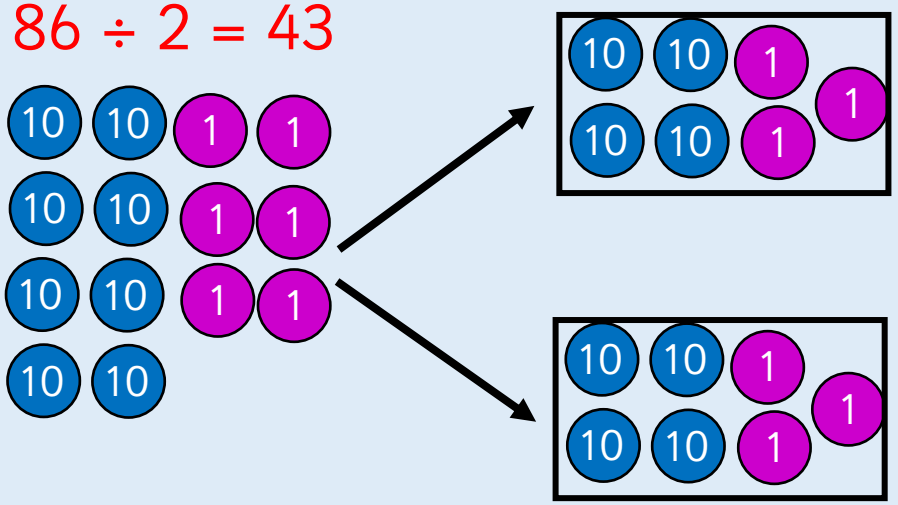
Activity 1 Divide two digits by one digit (1)

Rosie uses place value counters to solve 69 ÷ 3.

88 ÷ 4 = 22



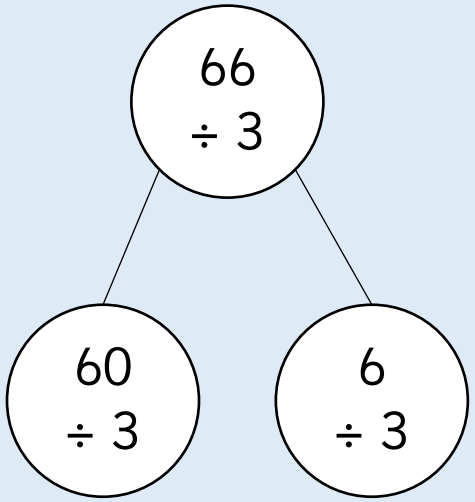
86 ÷ 2 = 43



Activity 2 Divide two digits by one digit (1)

Esin uses a place value grid and a part-whole model to solve 66 ÷ 3.

Tens	Ones
10 10	1 1
10 10	1 1
10 10	1 1



Use Esin's method to calculate:

69 ÷ 3 96 ÷ 3 86 ÷ 2

?

How many rows will my place value chart have?

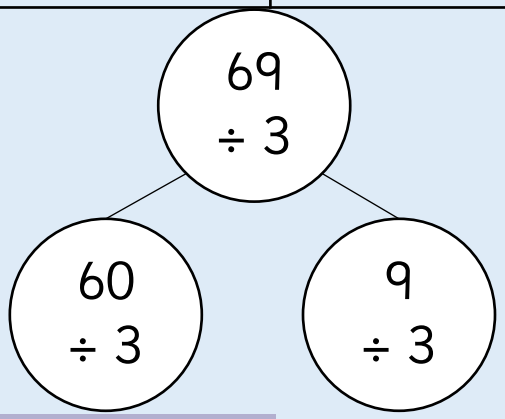
Activity 2

Divide two digits by one digit (1)

Esin uses a place value grid and a part-whole model to solve 66 ÷ 3.

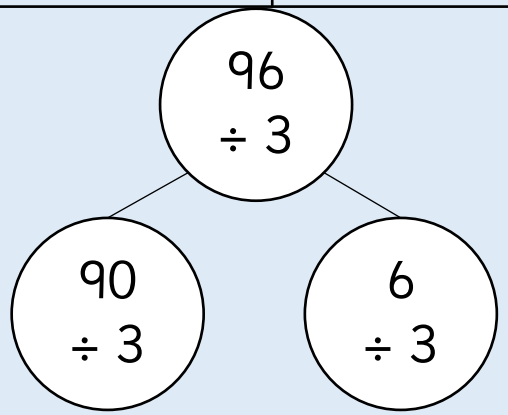
69 ÷ 3 = 23

Tens	Ones
10 10	1 1 1
10 10	1 1 1
10 10	1 1 1



96 ÷ 3 = 32

Tens	Ones
10 10 10	1 1
10 10 10	1 1
10 10 10	1 1

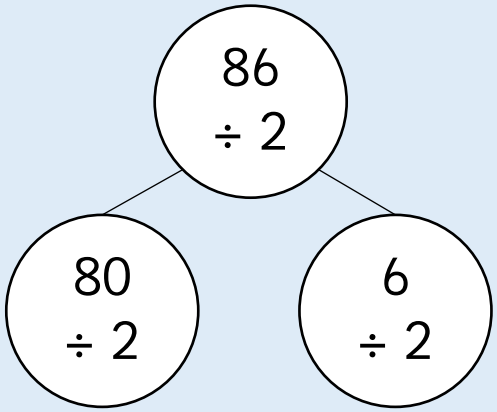


Activity 2 Divide two digits by one digit (1)

Esin uses a place value grid and a part-whole model to solve 66 ÷ 3.

86 ÷ 2 = 43

Tens	Ones
10 10 10 10	1 1 1
10 10 10 10	1 1 1



Reasoning 1

Divide two digits by one digit (1)

Zach answers the question 48 ÷ 4 using place value counters.

Tens	Ones
10 10	1 1 1 1
10 10	1 1 1 1

Is he correct?
Explain your reasoning.

Reasoning 1

Divide two digits by one digit (1)

Zach answers the question 48 ÷ 4 using place value counters.

Tens	Ones
10 10	1 1 1 1
10 10	1 1 1 1

Zach is incorrect. He has divided 48 by 2 instead of by 4.

Reasoning 2

Divide two digits by one digit (1)

Rosie thinks that 80 sweets can be shared equally between eight people.

Is she correct?

Reasoning 2

Divide two digits by one digit (1)

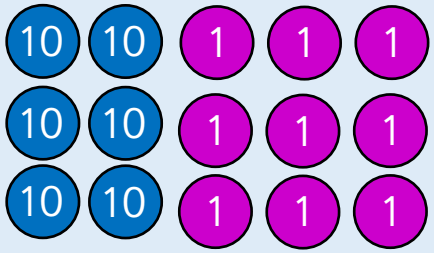
Rosie thinks that 80 sweets can be shared equally between eight people.

Rosie is correct because 80 divided by 8 is equal to 10.

Reasoning 3

Divide two digits by one digit (1)

Esin uses place value counters to help her calculate 69 ÷ 3.



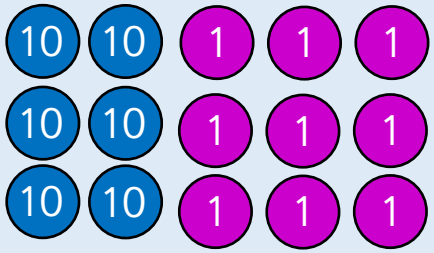
Tens	Ones
10 10 1	1 1
10 10 1	1 1
10 10 1	1 1

She gets an answer of 32.
Is she correct?

Reasoning 3

Divide two digits by one digit (1)

Esin uses place value counters to help her calculate 69 ÷ 3.



Tens	Ones
10 10 1	1 1
10 10 1	1 1
10 10 1	1 1

Esin is incorrect because she has not placed counters in the correct column. The correct answer is 23.

Discussion

Divide two digits by one digit (1)

How can we partition the number?
How many tens are there?
How many ones are there?
What could we use to represent this number?
How many equal groups do I need?

How many rows will my place value chart have?
How does this link to the number I am dividing by?

Divide two digits by one digit (2)

3

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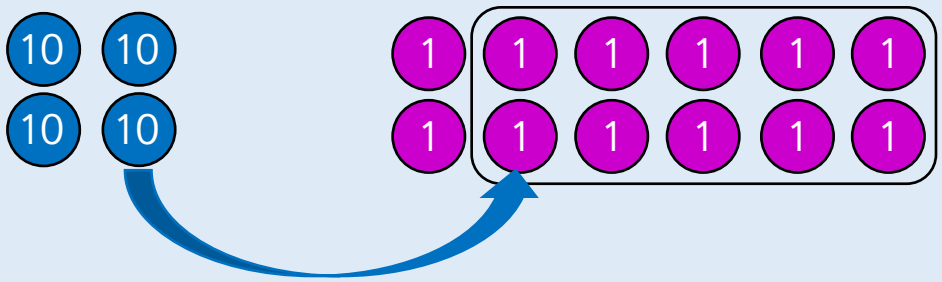
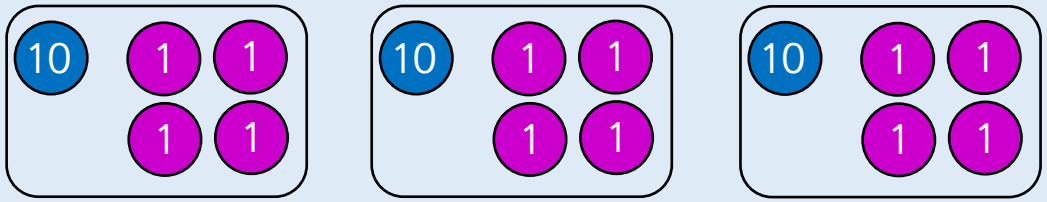
Activity 1 Divide two digits by one digit (2)

Tia uses place value counters to divide 42 into three equal groups.



She shares the tens first and exchanges the remaining 10 for ones.



Then she shares the ones.

$42 \div 3$

Use Tia's method to calculate

$48 \div 3$ $52 \div 4$

?

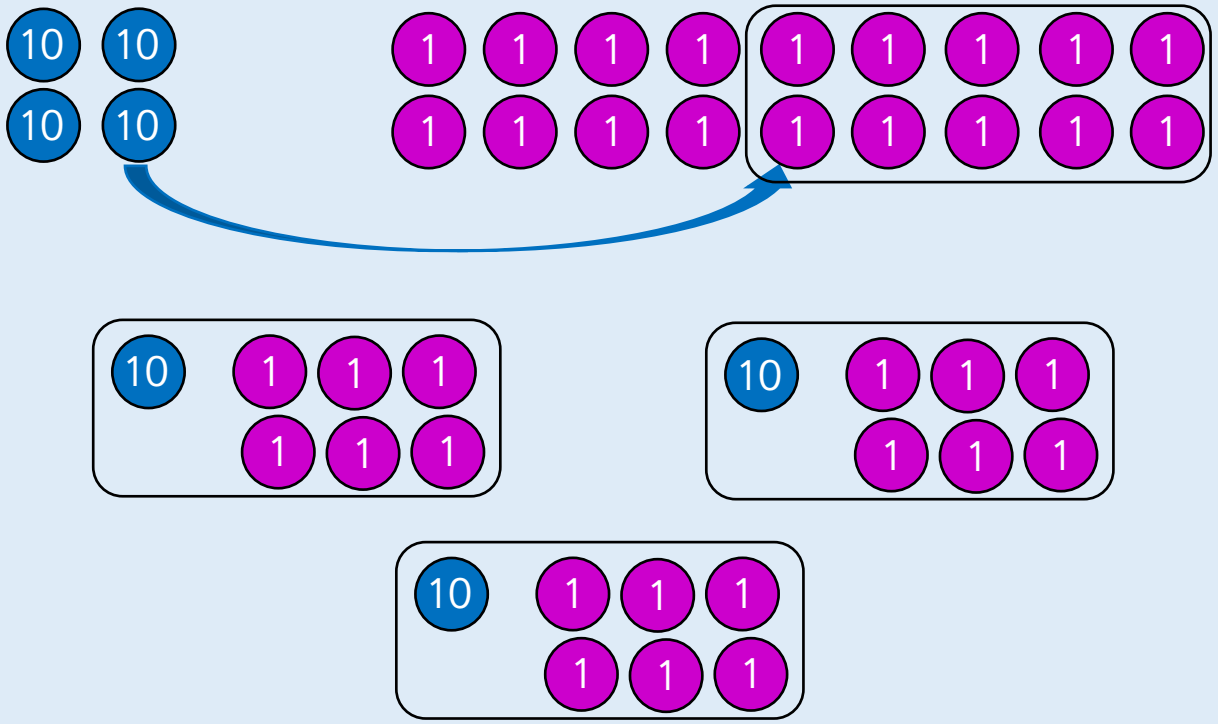
Why have we partitioned 42 into 30 and 12 instead of 40 and 2?

Activity 1

Divide two digits by one digit (2)

Tia uses place value counters to divide 42 into three equal groups.

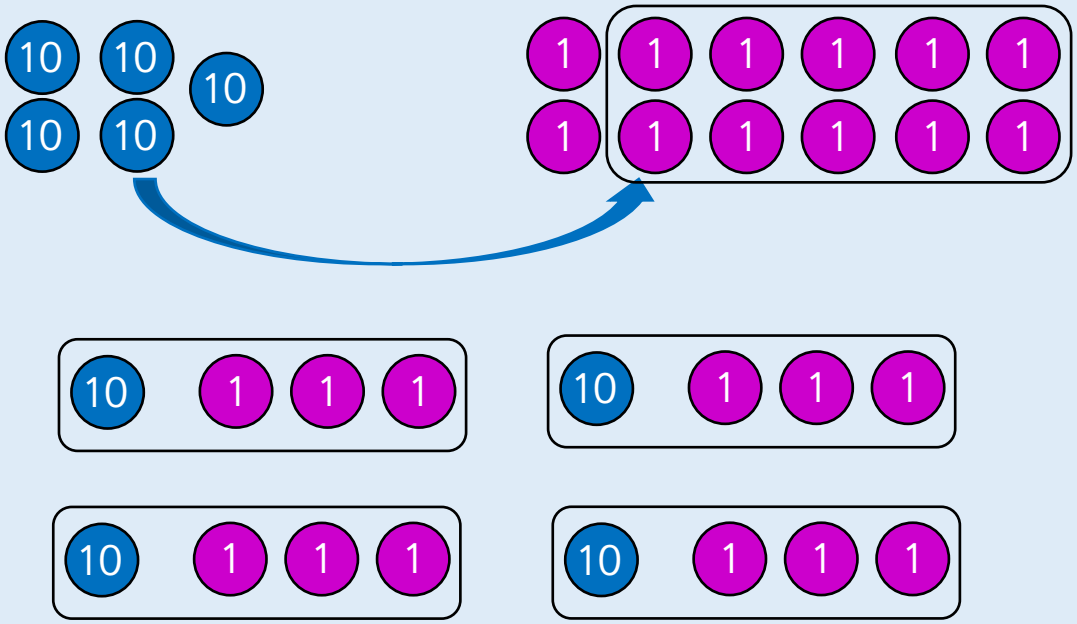
$48 \div 3 = 16$



Activity 1 Divide two digits by one digit (2)

Tia uses place value counters to divide 42 into three equal groups.

$52 \div 4 = 13$

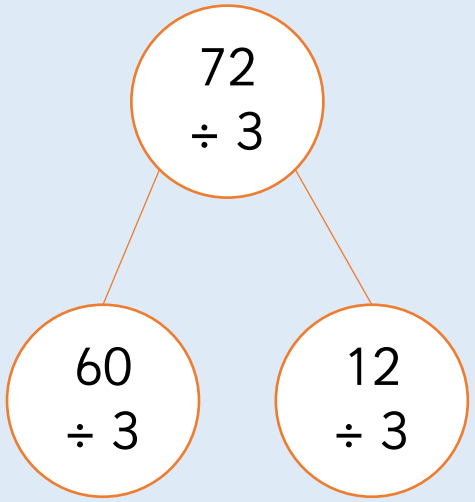


Activity 2

Divide two digits by one digit (2)

Rosie uses a similar method to divide 72 by 3.

Tens	Ones
10 10	1 1 1 1
10 10	1 1 1 1
10 10	1 1 1 1



Use Rosie's method to calculate:

96 ÷ 8 96 ÷ 4 96 ÷ 3 96 ÷ 6

?

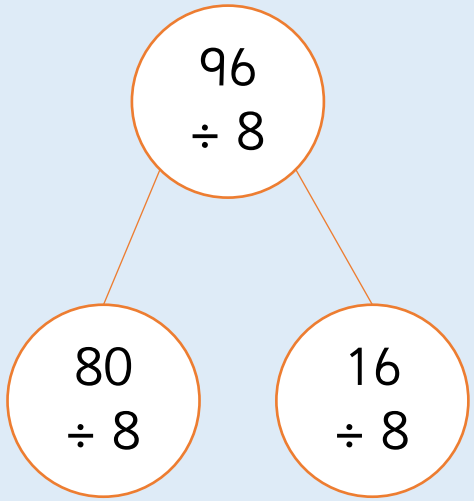
What do you notice about the partitioned numbers and the divisor?

Activity 2 Divide two digits by one digit (2)

Rosie uses a similar method to divide 72 by 3.

Tens	Ones
10	1 1
10	1 1
10	1 1
10	1 1
10	1 1
10	1 1
10	1 1
10	1 1

96 ÷ 8 = 12

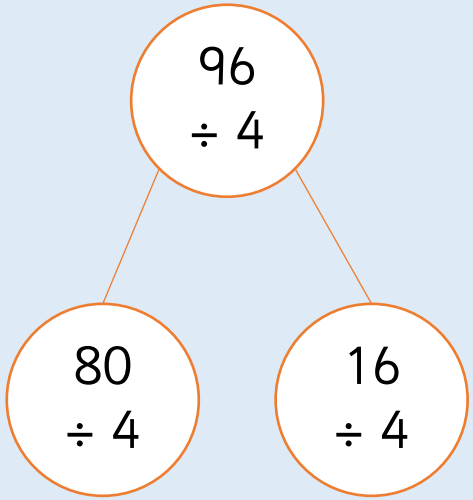


Activity 2 Divide two digits by one digit (2)

Rosie uses a similar method to divide 72 by 3.

$96 \div 4 = 24$

Tens	Ones
10 10	1 1 1 1
10 10	1 1 1 1
10 10	1 1 1 1
10 10	1 1 1 1

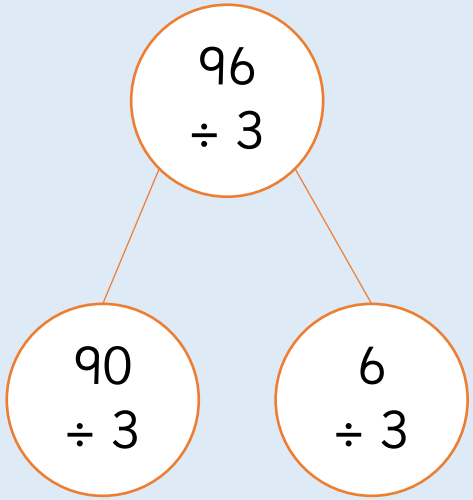


Activity 2 Divide two digits by one digit (2)

Rosie uses a similar method to divide 72 by 3.

$96 \div 3 = 32$

Tens	Ones
10 10 10	1 1
10 10 10	1 1
10 10 10	1 1

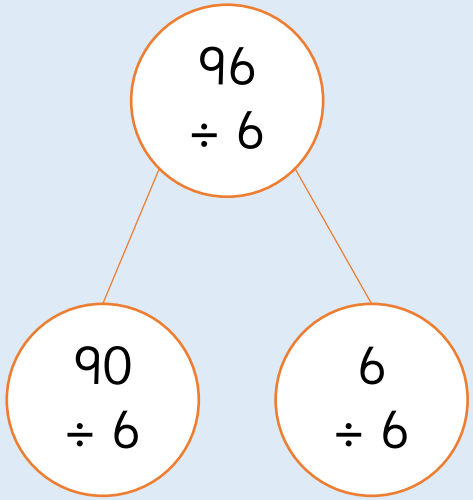


Activity 2 Divide two digits by one digit (2)

Rosie uses a similar method to divide 72 by 3.

$96 \div 6 = 16$

Tens	Ones
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1
10	1 1 1 1 1 1



Reasoning 1

Divide two digits by one digit (2)

Compare the statements using <, > or =.

44 ÷ 4 ◯ 33 ÷ 3

56 ÷ 4 ◯ 39 ÷ 3

60 ÷ 3 ◯ 60 ÷ 4

Reasoning 1

Divide two digits by one digit (2)

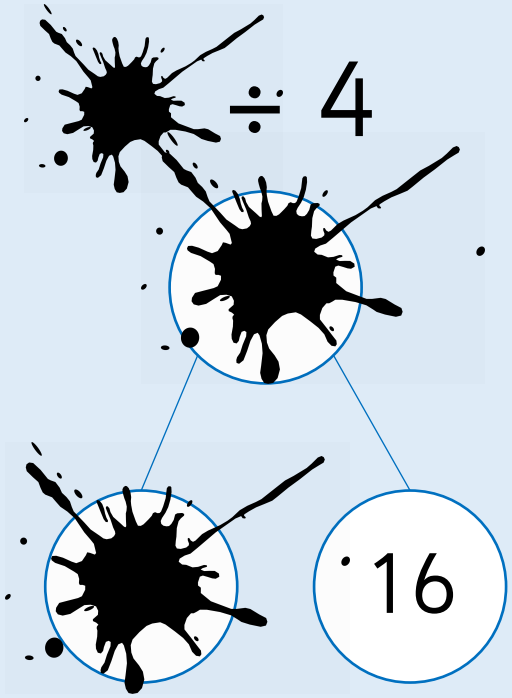
Compare the statements using <, > or =.

44 ÷ 4	=	33 ÷ 3
56 ÷ 4	>	39 ÷ 3
60 ÷ 3	>	60 ÷ 4

Reasoning 2

Divide two digits by one digit (2)

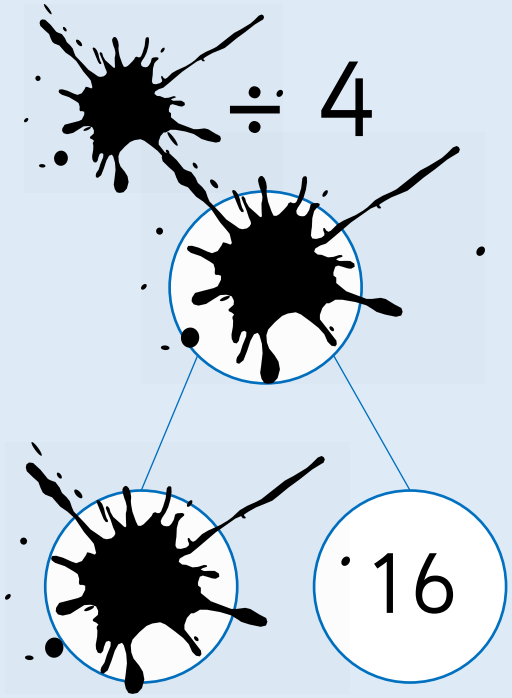
Malachi partitioned a number to help him divide by 4. Some of his working out has been covered with paint.



What number could Malachi have started with?

Reasoning 2 Divide two digits by one digit (2)

Malachi partitioned a number to help him divide by 4. Some of his working out has been covered with paint.



The answer could be 56 or 96.

Discussion

Divide two digits by one digit (2)

Why have we partitioned 42 into 30 and 12 instead of 40 and 2?

What do you notice about the partitioned numbers and the divisor?

Why do we partition 96 in different ways depending on the divisor?

Divide two digits by one digit (3)

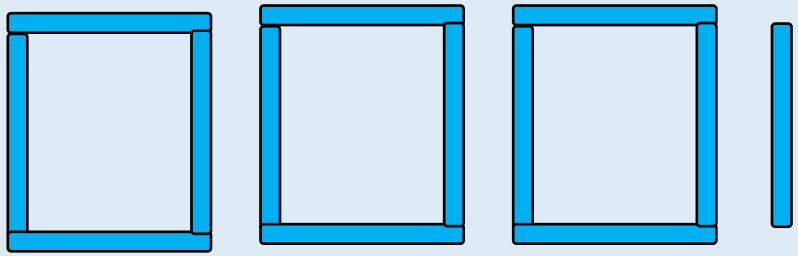
3

Fluency Teaching Slides

Activity 1 — Divide two digits by one digit (3)

How many squares can you make with 13 lollipop sticks?

There are ____ lollipop sticks.
There are ____ groups of 4.
There is ____ lollipop stick remaining.
13 ÷ 4 = ____ remainder ____



Use this method to see how many triangles you can make with 38 lollipop sticks.

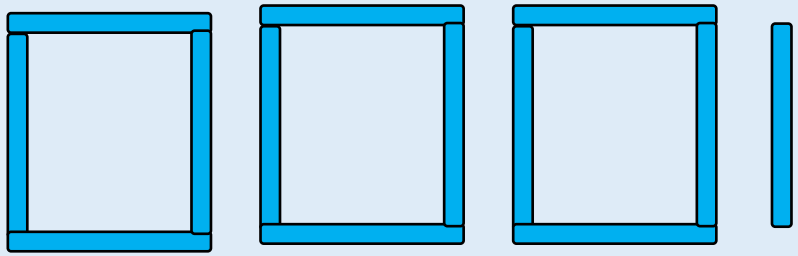
?

How do we know 13 divided by 4 will have a remainder?

Activity 1 — Divide two digits by one digit (3)

How many squares can you make with 13 lollipop sticks?

There are 13 lollipop sticks.
There are 3 groups of 4.
There is 1 lollipop stick remaining.
13 ÷ 4 = 3 remainder 1



Use this method to see how many triangles you can make with 38 lollipop sticks.

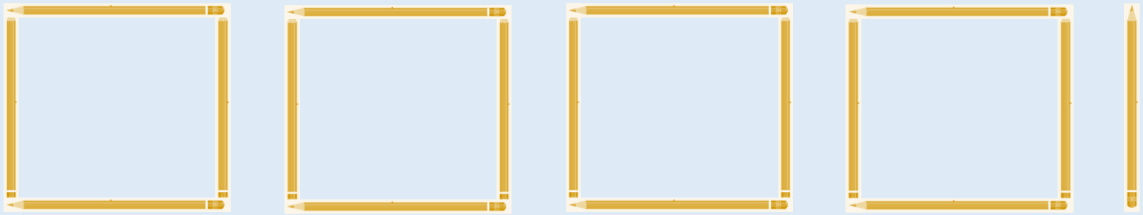
38 ÷ 3 = 12 remainder 2

Activity 1

Divide two digits by one digit (3)

How many squares can you make with 17 lollipop sticks?

There are ____ lollipop sticks.
There are ____ groups of 4.
There is ____ lollipop stick remaining.
17 ÷ 4 = ____ remainder ____

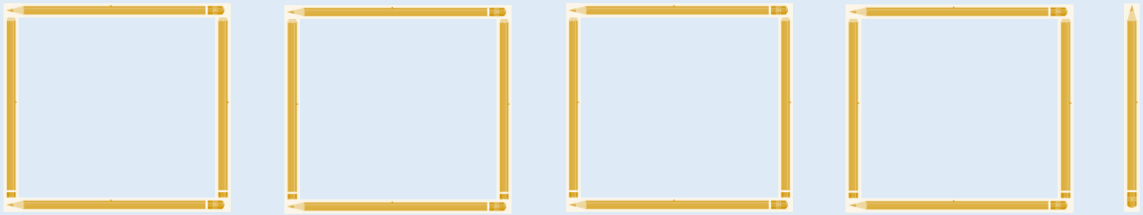


Use this method to see how many triangles you can make with 40 lollipop sticks.

Activity 1 — Divide two digits by one digit (3)

How many squares can you make with 17 lollipop sticks?

There are 17 lollipop sticks.
There are 4 groups of 4.
There is 1 lollipop stick remaining.
17 ÷ 4 = 4 remainder 1



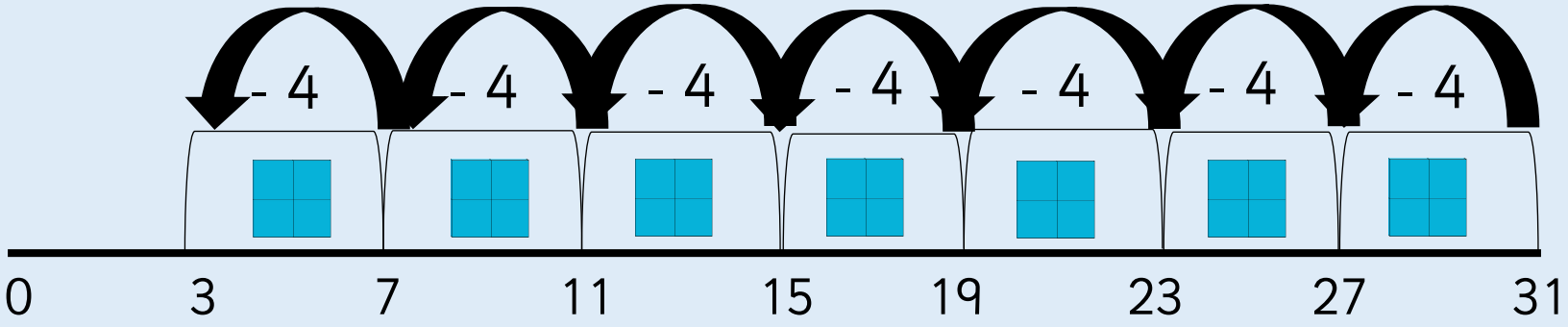
Use this method to see how many triangles you can make with 40 lollipop sticks.

40 ÷ 3 = 13 remainder 1

Activity 2 Divide two digits by one digit (3)

Zach uses repeated subtraction to solve 31 ÷ 4.

31 ÷ 4 = 7 r 3



Use Zach's method to solve 38 divided by 3.

?

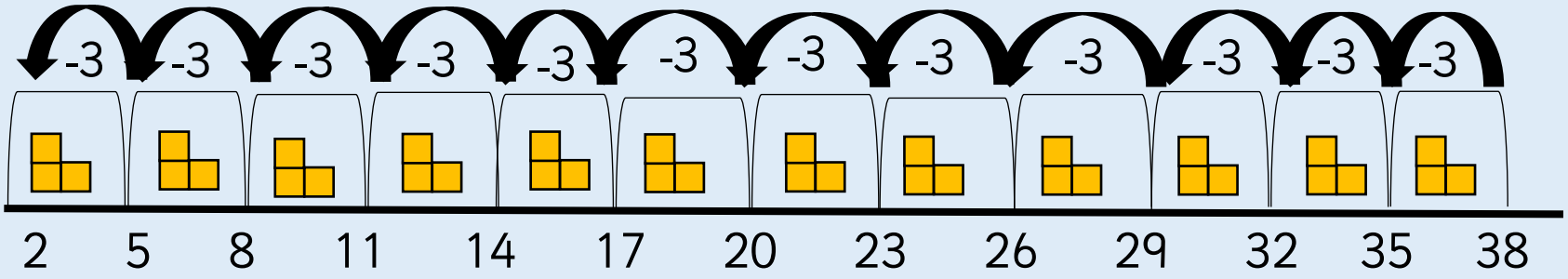
Can a remainder ever be more than the divisor?

Activity 2

Divide two digits by one digit (3)

Zach uses repeated subtraction to solve 31 ÷ 4.

38 ÷ 3 = 12 r 2

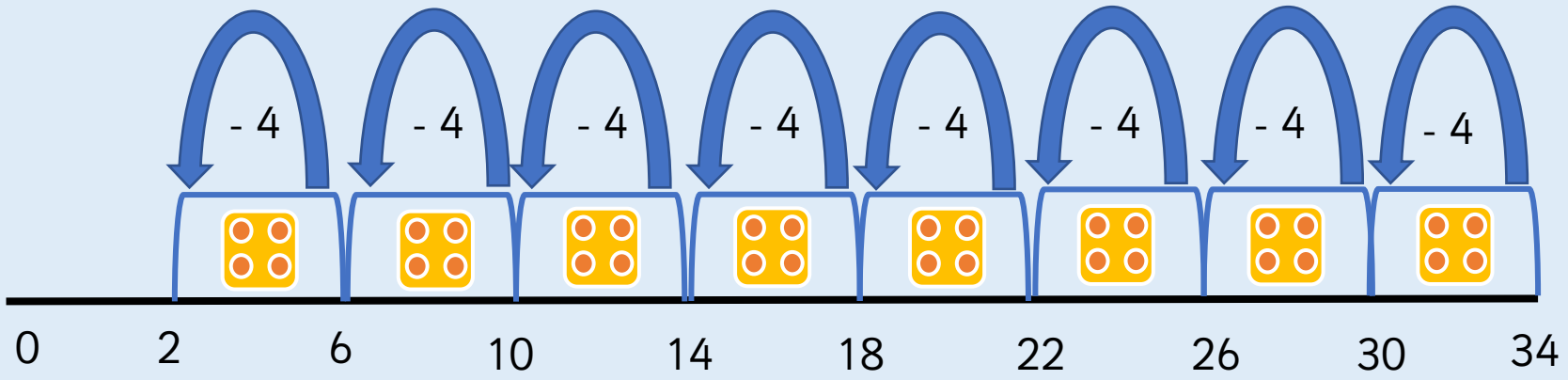


Activity 2

Divide two digits by one digit (3)

Zach uses repeated subtraction to solve 34 ÷ 4.

34 ÷ 4 = 8 r 2

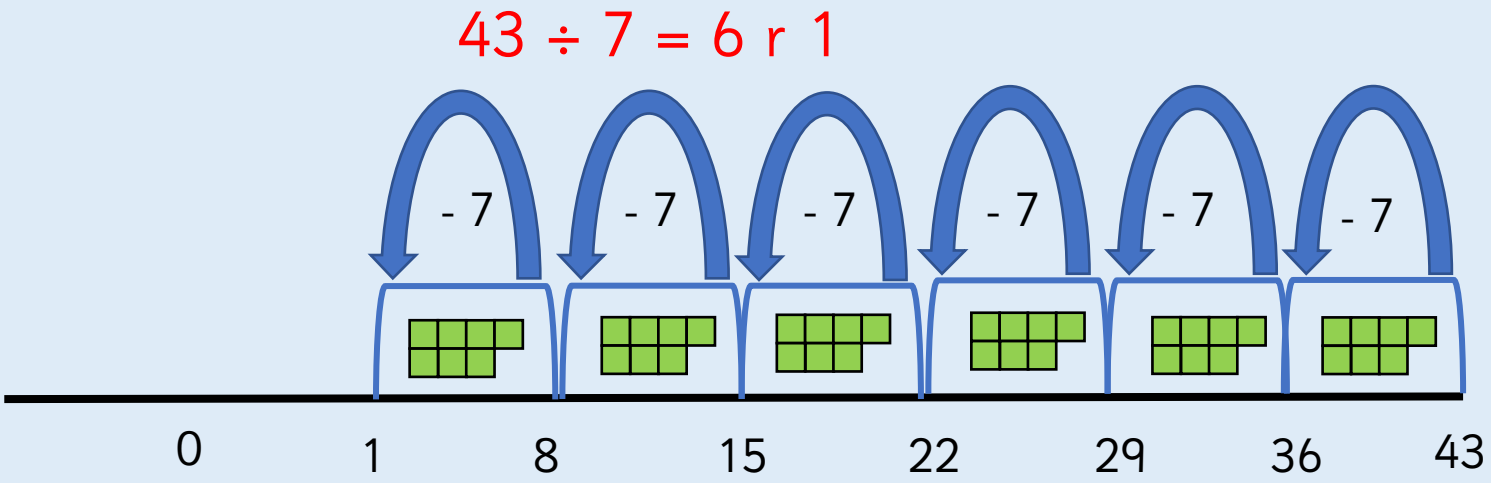


Use this method to solve 43 divided by 7.

Activity 2

Divide two digits by one digit (3)

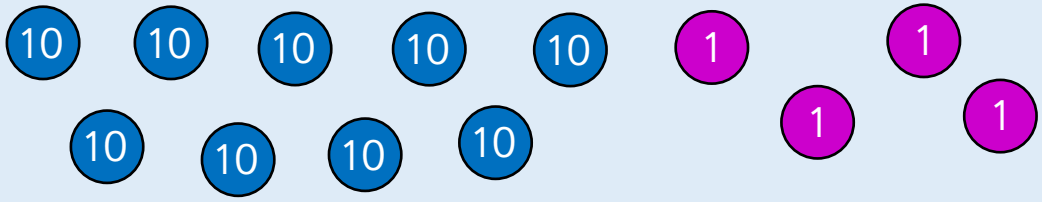
Zach uses repeated subtraction to solve 34 ÷ 4.



Activity 3

Divide two digits by one digit (3)

Use place value counters to work out 94 ÷ 4.
Did you need to exchange any tens for ones?
Is there a remainder?



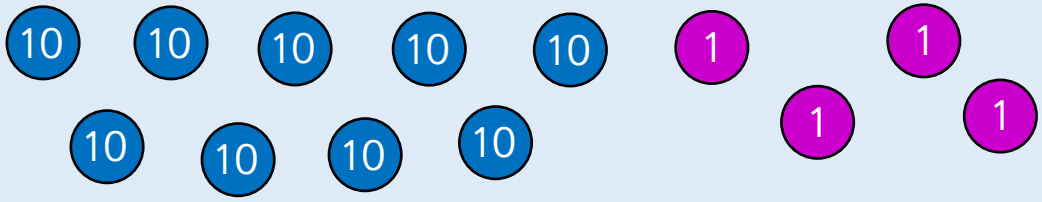
Tens	Ones

?

Which is your favourite method?

Activity 3 Divide two digits by one digit (3)

Use place value counters to work out 94 ÷ 4.
Did you need to exchange any tens for ones?
Is there a remainder?



Tens	Ones
10 10	1 1 1
10 10	1 1 1
10 10	1 1 1
10 10	1 1 1

94 ÷ 4 = 23 remainder 2

Reasoning 1

Divide two digits by one digit (3)

Which calculation is the odd one out?

60 ÷ 5	76 ÷ 5
45 ÷ 4	61 ÷ 3

Explain your thinking.

Reasoning 1 Divide two digits by one digit (3)

Which calculation is the odd one out?

60 ÷ 5 could be the odd one out as it is the only calculation without a remainder.

Make sure other answers are considered such as 45 ÷ 4 because it is the only one being divided by an even number.

Reasoning 2

Divide two digits by one digit (3)

Rosie has 13 stickers. She sorts her stickers into equal groups.

How many stickers could be in each group and how many stickers would be remaining?

Reasoning 2

Divide two digits by one digit (3)

Rosie has 13 stickers. She sorts her stickers into equal groups.

There are many solutions;
encourage a systematic approach.
e.g. 2 groups of 6 remainder 1,
3 groups of 4 remainder 1.

Reasoning 3

Divide two digits by one digit (3)

Leanna and Esin are planting bulbs.
They have 67 bulbs altogether.

Leanna plants her bulbs in rows of 9 and has 5 left over.
Esin plants her bulbs in rows of 10 and has 5 left over.

How many bulbs do they each have?

Reasoning 3

Divide two digits by one digit (3)

Leanna and Esin are planting bulbs.
They have 67 bulbs altogether.

Leanna plants her bulbs in rows of 9 and has 5 left over.
Esin plants her bulbs in rows of 10 and has 5 left over.

Leanna has 32 bulbs.
Esin has 35 bulbs.

Discussion

Divide two digits by one digit (3)

How do we know 13 divided by 4 will have a remainder?

Can a remainder ever be more than the divisor?

Which is your favourite method?
Which methods are most efficient with larger two-digit numbers?

Scaling

3

Fluency Teaching Slides

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Activity 1 Scaling

In a playground there are three times as many girls as boys.

boys 

girls 

boys 

girls 

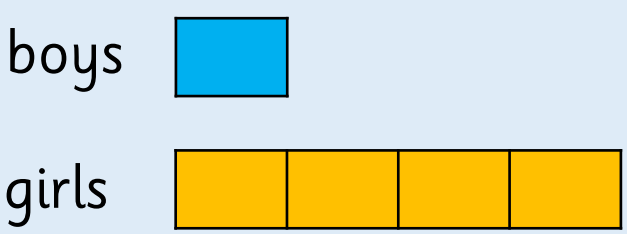
Which bar model represents the number of boys and girls?
Explain your choice.

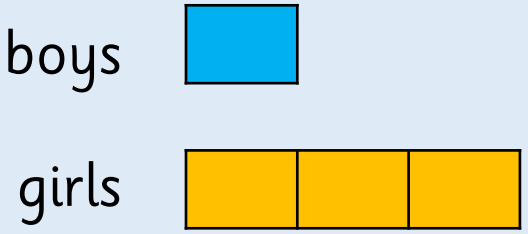
?

Why might someone draw the first bar model?

Activity 1 Scaling

In a playground there are three times as many girls as boys.





Which bar model represents the number of boys and girls?
Explain your choice.

The bar model on the right because it shows three times as many girls.

Activity 2 Scaling

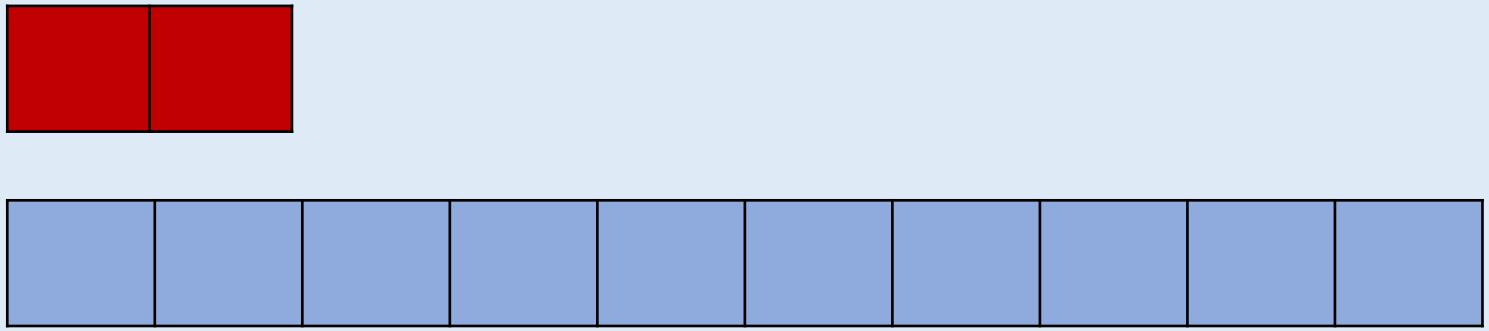
Draw a bar model to represent this situation.

In a car park there are five times as many blue cars as red cars.

Activity 2 Scaling

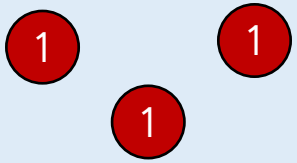
Draw a bar model to represent this situation.

In a car park there are five times as many blue cars as red cars.



Activity 3 Scaling

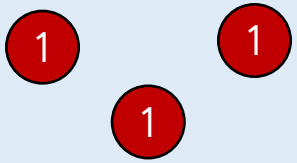
Tia has these counters. Malachi has four times as many counters. How many counters does Malachi have?

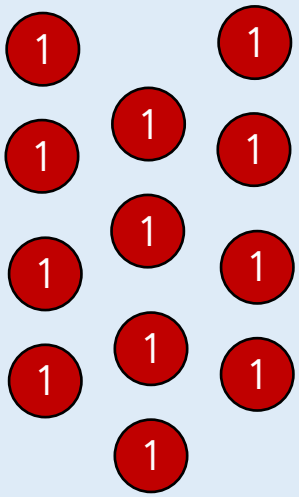


What is the value of Malachi's counters? How do you know?

Activity 3 Scaling

Tia has these counters. Malachi has four times as many counters. How many counters does Malachi have?

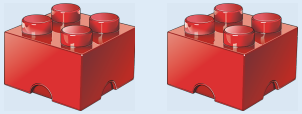




Malachi has 12 counters which is four times as many as Tia.

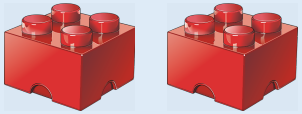
Activity 3 Scaling

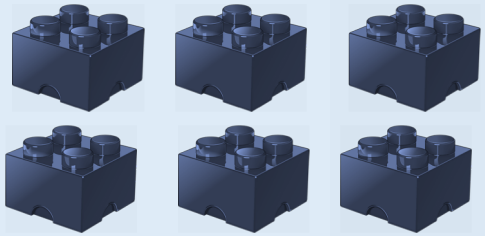
Esin has these Lego pieces. Zach has three times as much Lego. How many Lego pieces does Zach have?



Activity 3 Scaling

Esin has these Lego pieces. Zach has three times as much Lego. How many Lego pieces does Zach have?





Zach has six Lego pieces which is three times as many as Esin.

Activity 4 Scaling

There are 35 children at a concert. This is three times as many as the number of adults there. How many people are at the concert in total?

?

How many adults are at the concert?

Activity 4 Scaling

There are 35 children at a concert. This is three times as many as the number of adults there. How many people are at the concert in total?

$35 \div 3 = 11$ remainder 2

$35 + 11 = 46$

There are approximately 46 people at the concert.

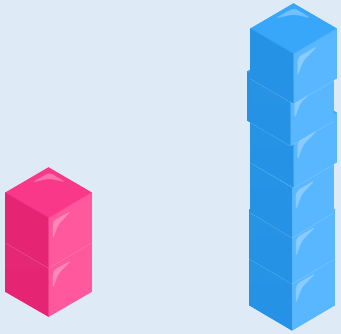
Reasoning 1 Scaling

Leanna

Zach's tower is three times taller than my tower.

My tower is six times taller than Leanna's tower.

Zach



Who do you agree with?
Explain why.

Reasoning 1 Scaling

Leanna

Zach's tower is three times taller than my tower.

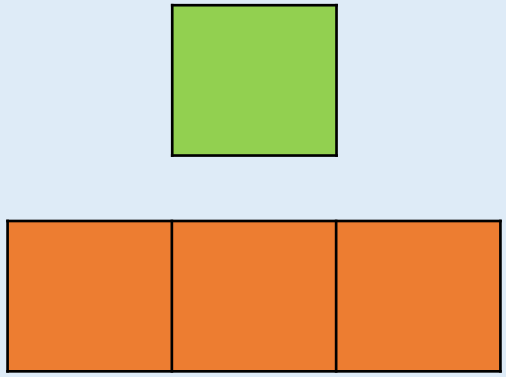
My tower is six times taller than Leanna's tower.

Zach

I agree with Leanna. Her tower is two cubes tall. Zach's tower is six cubes tall. 6 is three times as big as 2. Zach has just counted his cubes and not compared them to Leanna's tower.

Reasoning 2 Scaling

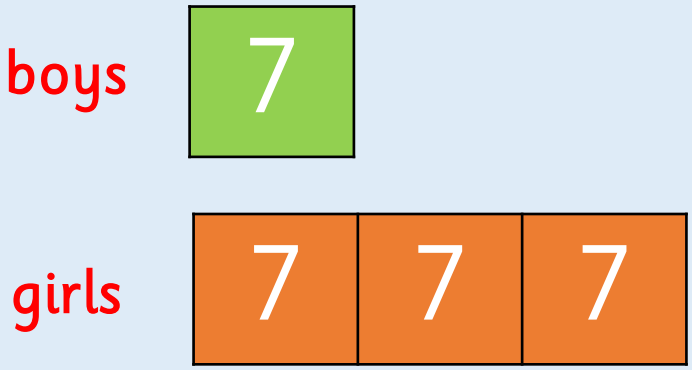
In a playground there are three times as many girls as boys. There are 21 girls.



Label and complete the bar model to help you work out how many boys there are in the playground.

Reasoning 2 Scaling

In a playground there are three times as many girls as boys. There are 21 girls.



There are seven boys in the playground.

Reasoning 3 Scaling

A box contains some counters. There are twice as many yellow counters as blue counters.

There are 18 counters in total.
How many blue counters are there?

Reasoning 3 Scaling

A box contains some counters. There are twice as many yellow counters as blue counters.

There are six blue counters.

Discussion

Scaling

Why might someone draw the first bar model?
What have they misunderstood?

What is the value of Malachi's counters? How do you know?

How many adults are at the concert?
How will you work out the total?

How Many Ways?

3

Fluency Teaching Slides

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Activity 1 How Many Ways?

Zach has three tops and four pairs of shorts. Complete the table to show how many different outfits he can make.

Tops	Shorts
Blue	Green
Blue	Blue
Blue	Sky Blue
Blue	Yellow

?

How do you know you have found all the ways?

Activity 1 How Many Ways?

Zach has three tops and four pairs of shorts. Complete the table to show how many different outfits he can make.

Tops	Shorts
Blue	Green
Blue	Blue
Blue	Sky Blue
Blue	Yellow
Yellow	Green
Yellow	Blue
Yellow	Sky Blue
Yellow	Yellow

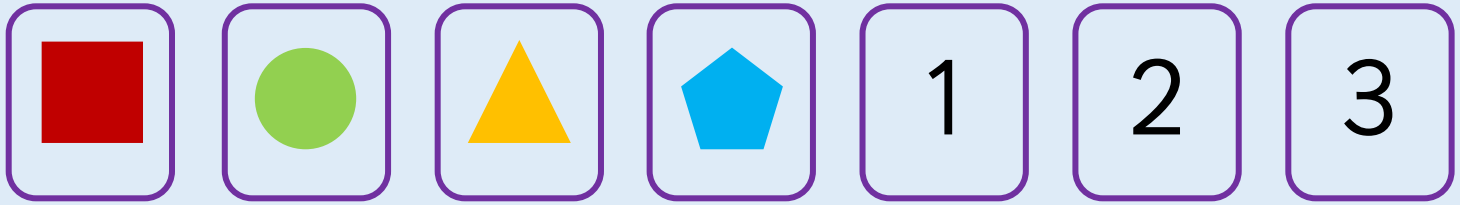
Tops	Shorts
Green	Green
Green	Blue
Green	Sky Blue
Green	Yellow

3 x 4 = 12

There are 12 different outfits he can make.

Activity 2 How Many Ways?

Rosie has four shape cards and three number cards.



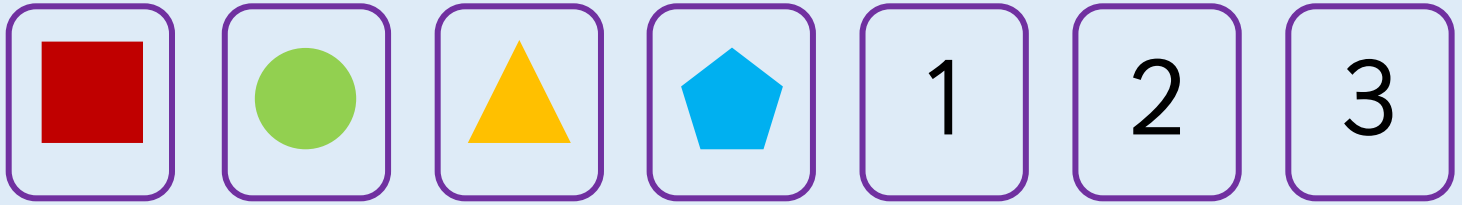
She chooses a shape card and a number card.
List all the possible ways she could do this.

?

Would making a table help?

Activity 2 How Many Ways?

Rosie has four shape cards and three number cards.



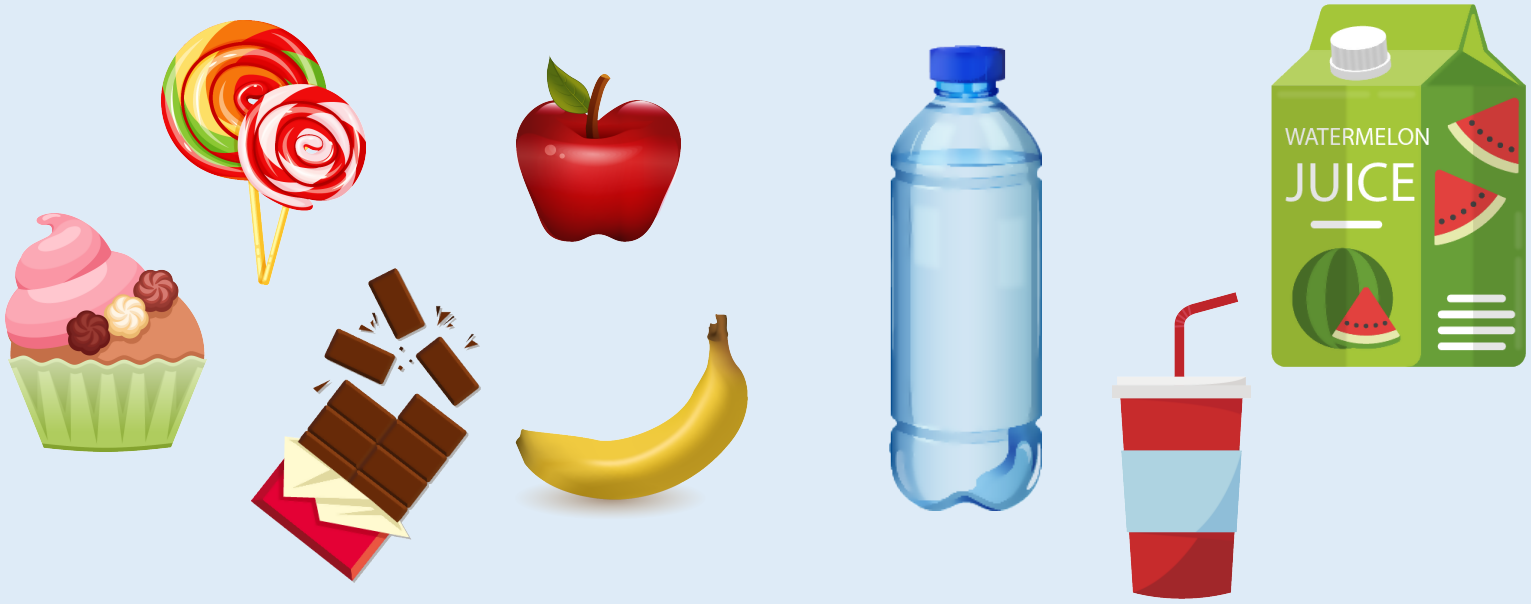
She chooses a shape card and a number card.
List all the possible ways she could do this.

3 x 4 = 12

There are 12 possible ways Rosie could do it.

Reasoning 1 How Many Ways?

Esin chooses a snack and a drink.
What could she have chosen?



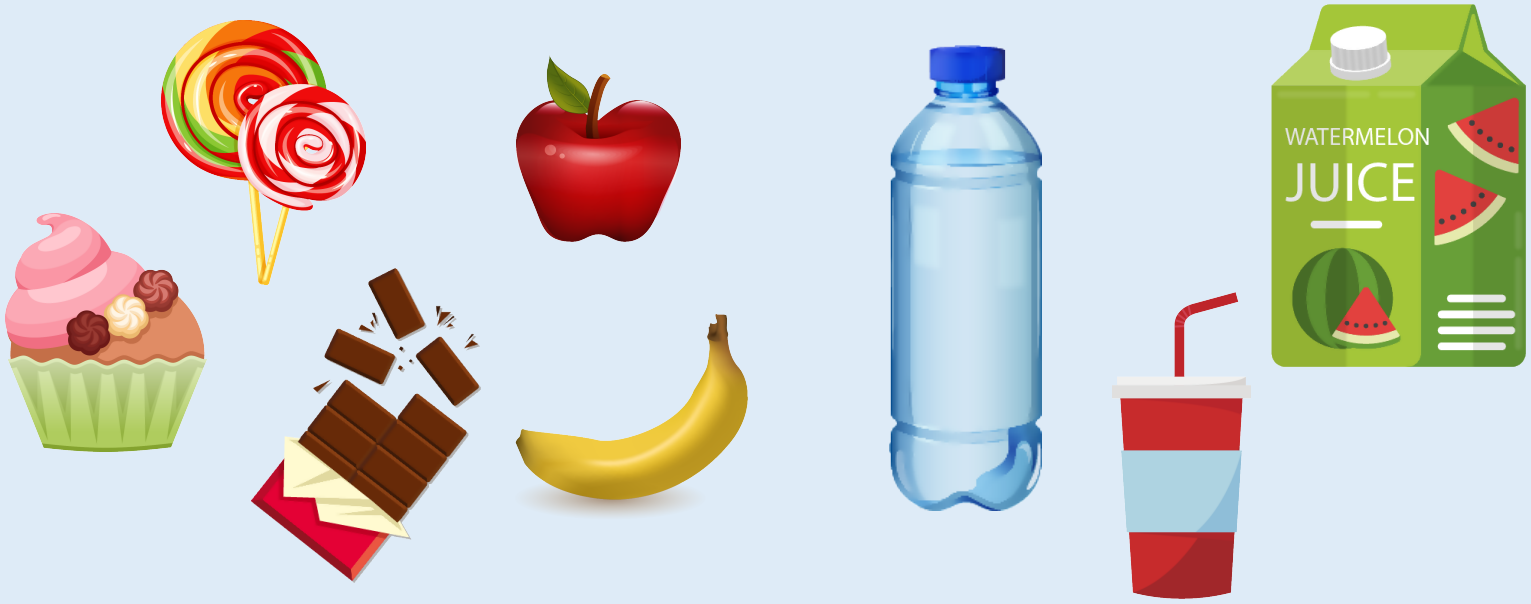
How many different possibilities are there?

_____ x _____ = _____

How many of the ways contain an apple?

Reasoning 1 How Many Ways?

Esin chooses a snack and a drink.
What could she have chosen?



There are 15 possibilities.
Three ways contain an apple.

Reasoning 2 How Many Ways?

Zach has some jumpers and pairs of trousers. He can make 12 different outfits.

How many jumpers could he have and how many pairs of trousers could he have?

Reasoning 2 How Many Ways?

Zach has some jumpers and pairs of trousers. He can make 12 different outfits.

He could have:

1 jumper and 12 pairs of trousers.
2 jumpers and 6 pairs of trousers.
3 jumpers and 4 pairs of trousers.
4 jumpers and 3 pairs of trousers.
6 jumpers and 2 pairs of trousers.
12 jumpers and 1 pair of trousers.

Discussion

How Many Ways?

What are the names of the shapes on the shape cards?
How do you know you have found all of the ways?
Would making a table help?

Without listing them, can you tell me how many possibilities there would be if there are five different shape cards and four different number cards?