Miss Cole's Maths Group

Multiplication and Division

Write today's date and LO in your work book.

20.4.20

LO: To multiply 2 digit numbers by a 1 digit number

Starter:

Write out your 2x table. Remember when x2 you double.

Count in groups to help.

0x2=0, 1x2=2, 2x2=4, 3x2=6, 4x2=8… continue up to 12x2.

Multiplication

When we multiply we times a number by another number. Our answer will always get bigger.

Key Vocabulary:

- Groups of (e.g. 3 x 4 is the same as '3 groups of 4')
- Lots of (e.g. 6 x 5 is the same as '6 lots of 5')
- Repeated addition (e.g. 7 x 2 is the same as 2+2+2+2+2+2+2)

Annie works out 43 × 2 = 86

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

		T	O	
		4	3	
	×		2	
		8	6	

Talk about Annie's methods with a partner.

Can you discuss these methods with a grown up at home?

Both methods use partitioning and columns to solve this multiplication number sentence.

The method on the right is called **written column method**.

Today we are going to practise using this method to multiply a 2 digit number by a 1 digit number.

		T	O	
		4	3	
	x		2	
		8	6	

Practise this sum in your work book.

Important Things to Remember:

- Take care when setting out your sum in columns, making sure you line up the tens and ones correctly.
- Remember to write the calculation symbol so we know what operation you are using – in this case it is x.
- Start with the ones column, then move onto the tens column.
- Use a ruler when drawing lines – careful, neat presentation makes it easier to read back your answers and check your work.

Challenge 1

Record these in your work book.

Complete the multiplications.

a)

		T	O	
		2	4	
	×		2	

b)

		T	O	
		4	4	
	×		2	

You can check your answers at the end

Challenge 2

Remember to set these questions out in your book using column method.

a) 12 x 2 =

b) 24 x 2 =

c) 31 x 3 =

d) 42 x 4 =

e) 50 x 4 =

Top Tip:
Use counting in groups or arrays to help you solve simple multiplications.

d) Top Tip:
You can create a hundreds column (H) to show 3 digit numbers.

e) Top Tip:
Remember when you multiply by 0, the answer is 0.

You can check your answers at the end

Challenge 3

Can you now solve this word problem using column method?

One toaster costs £32

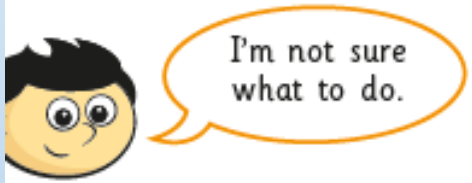
How much do 3 toasters cost?

You can check your answers at the end

Challenge 4

Write the calculation out correctly in your book.

Jack is trying to work out 34 × 2 using the column method.



			2	
	×	3	4	

Show how Jack could improve his column method and work out the answer.

You can check your answers on the NEXT SLIDE

Answers

1. Complete the multiplications.

a)

		T	O	
		2	4	
	×		2	
		4	8	

b)

		T	O	
		4	4	
	×		2	
		8	8	

2.

a) 24

b) 48

c) 93

d) 168

e) 200

3. One toaster costs £32

How much do 3 toasters cost?

£96

4. Jack is trying to work out 34 × 2 using the column method.

I'm not sure what to do.

			2	
	×	3	4	

Show how Jack could improve his column method and work out the answer.

		3	4	
	×		2	
		6	8	

Miss Cole's Maths Group

Write today's date and LO in your work book.

21.4.20

LO: To multiply 2 digit numbers by a 1 digit number

Starter:

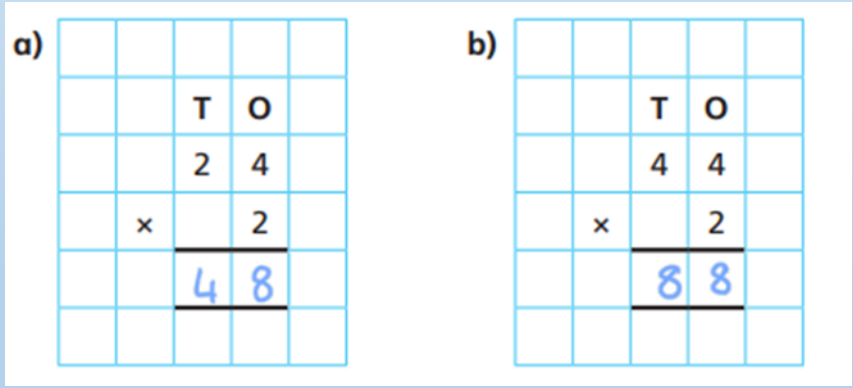
Write out your 4x table. Remember when x4 you double twice. Count in groups to help.

0x4=0, 1x4=4, 2x4=8, 3x4=12, 4x4=16… continue up to 12x4.

Multiplication

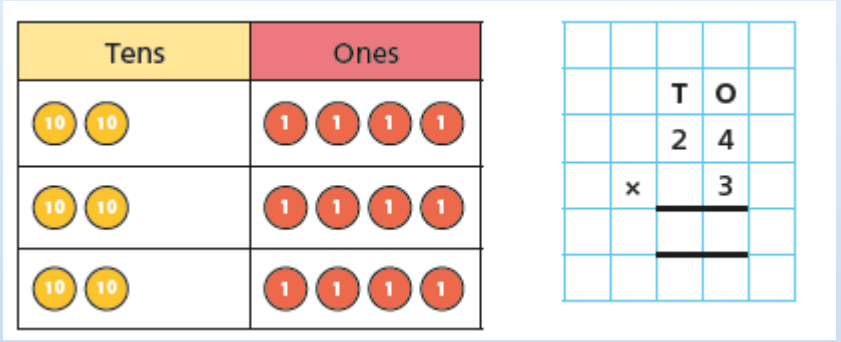
Today we are going to continue practising written column method to solve multiplication number sentences.

Remember yesterday's top tips. Take a look back to refresh your memory.



Today we will be learning how to carry the tens, as often when we multiply a single digit by another single digit in the ones column, the answer is greater than 10 e.g. 4 x 3 = 12

Example:



1. Multiplying the ones: 4 x 3 = 12

Look carefully at how 12 has been recorded. The ones stay in the ones column and the ten has been carried underneath the tens column to be added later.

2. Multiplying the tens: 2 x 3 = 6

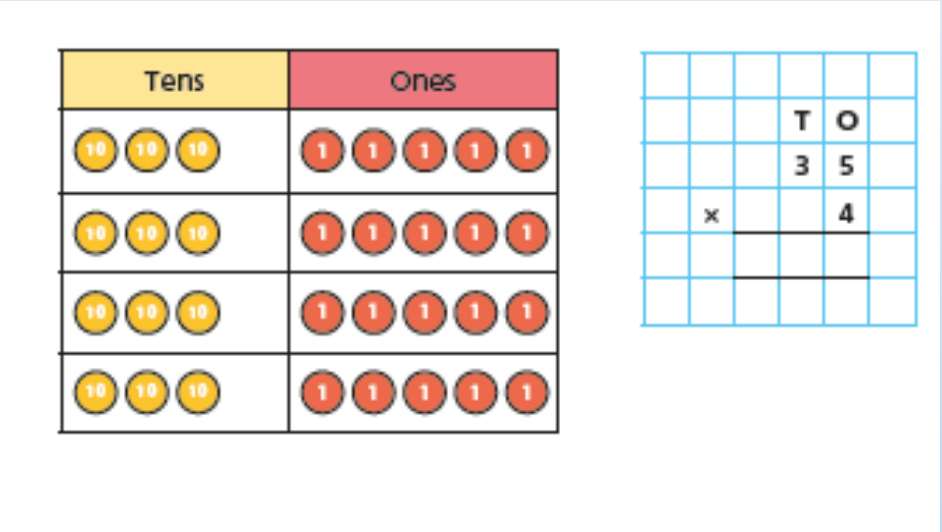
Represents 20 x 3 = 60.

Why do we not put a 6 in the tens column?

Because we must add the ten/s that we carried over from the ones multiplication.

Challenge 1

Solve this column multiplication in your book.



You can check your answers at the end

Challenge 2

Use column method.

Complete the multiplications.

a) $4 \times 24 =$ ☐

b) $3 \times 17 =$ ☐

c) $3 \times 25 =$ ☐

d) $34 \times 4 =$ ☐

You can check your answers at the end

Challenge 3

Tommy works out 37 × 2

			T	O	
			3	7	
	×			2	
		6	1	4	

What mistake has Tommy made? Work out the correct answer.

You can check your answers at the end

Challenge 4

Here are some digit cards.

1	2	3	4	5	8

a) Use the digit cards to create a multiplication and work out the answer.

☐☐ × ☐ = ☐

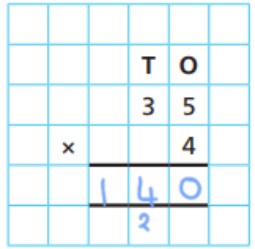
Optional Challenge:
How many different ways can you find?

You can check your answers on the NEXT SLIDE

Answers

1.

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



2.

Complete the multiplications.

a) 4 × 24 = 96

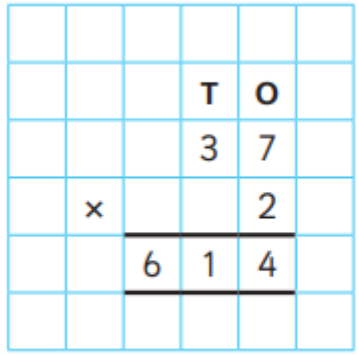
b) 3 × 17 = 51

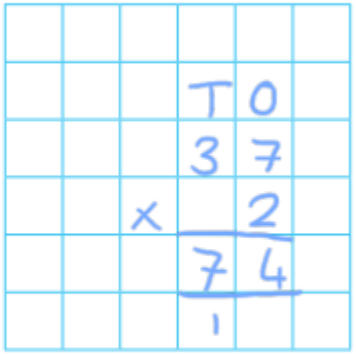
c) 3 × 25 = 75

d) 34 × 4 = 136

3.

Tommy works out 37 × 2





What mistake has Tommy made? Work out the correct answer.

4.

Here are some digit cards. 1 2 3 4 5 8

a) Use the digit cards to create a multiplication and work out the answer.

E.g. 32 × 5 = 160

Miss Cole's Maths Group

Write today's date and LO in your work book.

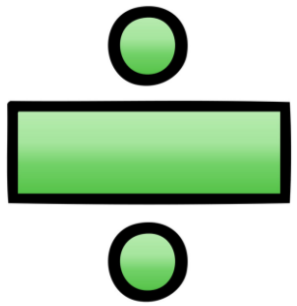
22.4.20

LO: To divide 2 digit numbers by 1 digit numbers

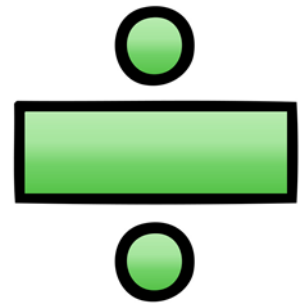
Starter:

Write out your 8x table. Count in groups or use the 4x table to help.

0x8=0, 1x8=8, 2x8=16, 3x8=24, 4x8=32… continue up to 12x8.



Division



When we divide we share into equal parts.

Our answer will always get smaller.

Key Vocabulary:

- Shared between (e.g. 20 ÷ 4 = 5 is the same as '20 shared between 4 is 5')
- Repeated subtraction (e.g. 20 ÷ 4 is the same as '20 – 4 – 4 – 4 – 4 – 4')

Challenge 1

Find the division inverse to these multiplication number sentences:

a) 4 x 3 = 12

b) 5 x 10 = 50

c) 6 x 2 = 12

d) 3 x 11 = 33

e) 8 x 3 = 24

e.g. 4 x 3 = 12

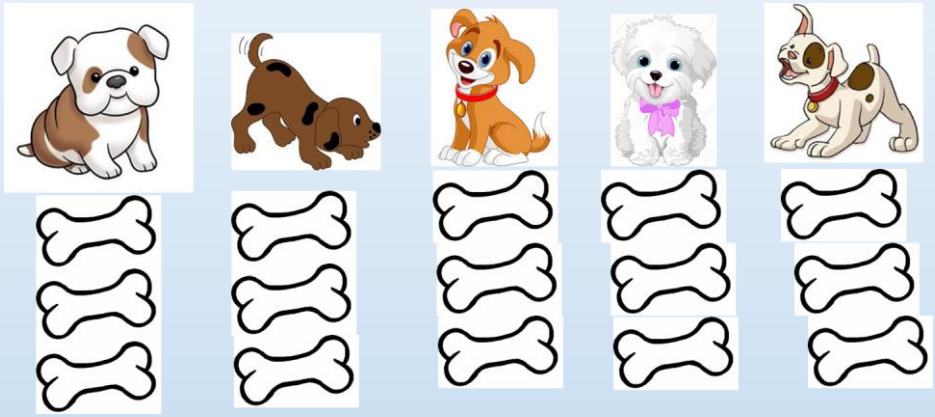
12 ÷ 3 = 4

Remember that you don't change any of the numbers – the answer is already there.

You can check your answers at the end

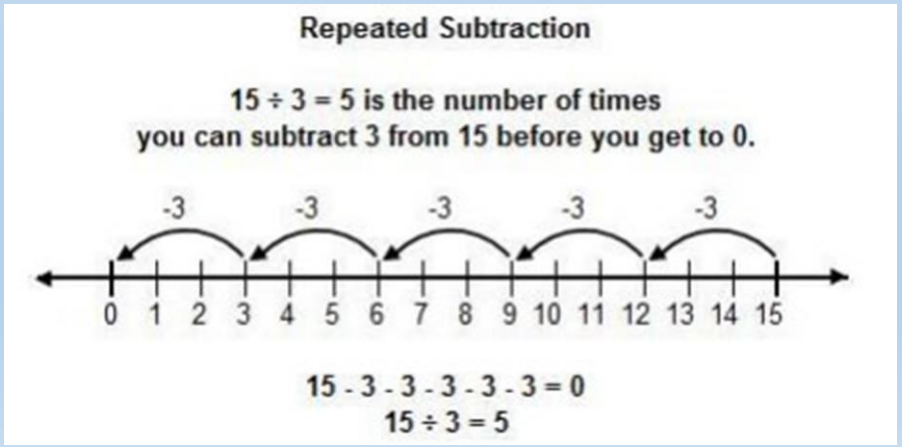
We know we can solve division using sharing.

e.g. 15 ÷ 5 = 3



Or using repeated subtraction.

e.g.



Or using the inverse of multiplication.

e.g. 4 x 3 = 12

so…

12 ÷ 3 = 4

But sometimes these methods can be tricky or simply take too long when working with bigger numbers.

Today we are going to explore a new method…

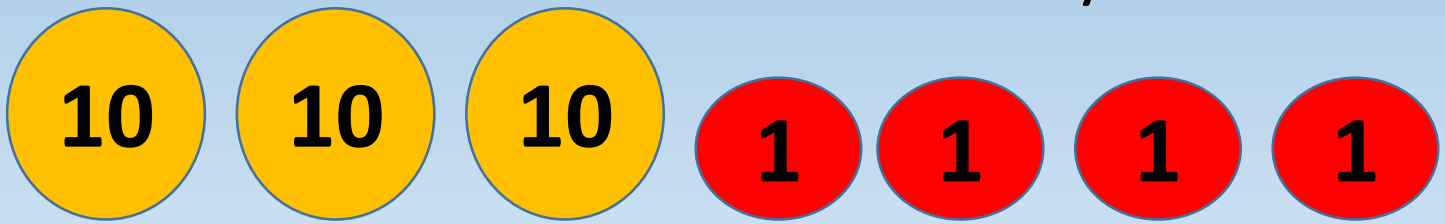
This method involves partitioning.

Remember partitioning is when we split numbers into different ways, often into hundreds, tens and ones (H,T,O).

For this method I recommend using some practical resources/objects to support. These will represent your tens and ones (as shown in the picture below). These will support you in the upcoming activities this week so spend time finding or making these today.

You could use 10p and 1p coins or you could make your own 10p and 1p counters out of scrap paper.

You will need a maximum of twenty 10s counters and twenty 1s counters.



Challenge 2

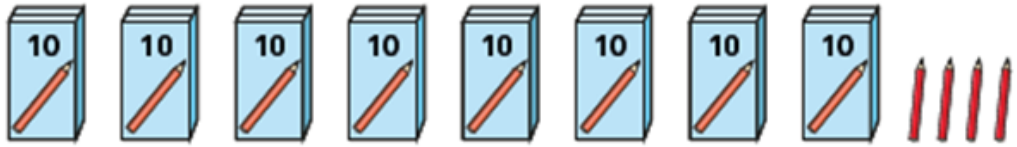
Have a look at this challenge. Work through the steps.

Top Tips:

- Remember to read the question carefully – how many pots are you sharing between?
- This questions says shared between 4 pots so you must need 4 equal groups.
- Move your tens and ones around until you make 4 equal groups.
- Remember to combine/add the tens and ones answers to find your final answer.

Can you draw this place value chart in your book?

There are 84 pencils to be shared equally into 4 pots.



a) Draw the pencils on the place value chart to show how they are shared.

Tens	Ones

b) Complete the number sentences.

8 tens ÷ 4 = ☐ tens

4 ones ÷ 4 = ☐ one

84 ÷ 4 = ☐

c) How many pencils are in each pot? ☐

You can check your answers at the end

Challenge 3

Explore using place value charts and partitioning to help solve these division number sentences.

a) 39 ÷ 3 = ☐

Tens	Ones

b) 68 ÷ 2 = ☐

Tens	Ones

Look carefully at the table. When we divide by 3 we have 3 groups, when we divide by 2 we have 2 groups.

Answers

1.

a) 12 ÷ 3 = 4

b) 50 ÷ 10 = 5

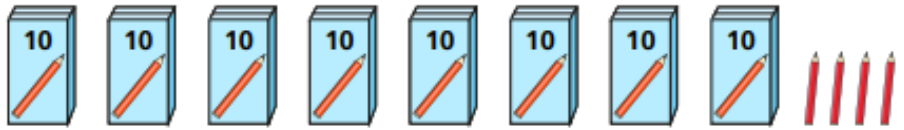
c) 12 ÷2 = 6

d) 33 ÷ 11 = 3

e) 24 ÷ 3 = 8

2.

There are 84 pencils to be shared equally into 4 pots.



a) Draw the pencils on the place value chart to show how they are shared.

Tens	Ones
10 10	
10 10	
10 10	
10 10	

b) Complete the number sentences.

8 tens ÷ 4 = 2 tens

4 ones ÷ 4 = 1 one

84 ÷ 4 = 21

c) How many pencils are in each pot? 21

3.

Use a place value chart to work out the calculations.

a) 39 ÷ 3 = 13

b) 68 ÷ 2 = 34

Miss Cole's Maths Group

Write today's date and LO in your work book.

23.4.20

LO: To divide 2 digit numbers by 1 digit numbers

Starter:

Write out your 3x table. Count in groups to help.

0x3=0, 1x3=3, 2x3=6, 3x3=9, 4x3=12… continue up to 12x3.

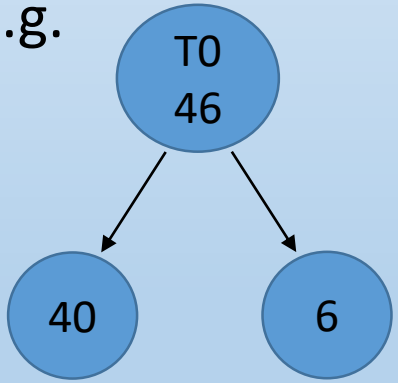
Division

Today we will be continuing to practise division using our partitioning skills.

Practise partitioning:

Partition these numbers into tens and ones and draw the partitioning trees in your books.

e.g.



18, 24, 31, 47, 52, 69, 70, 86

Revising this skill will be helpful for today's session.

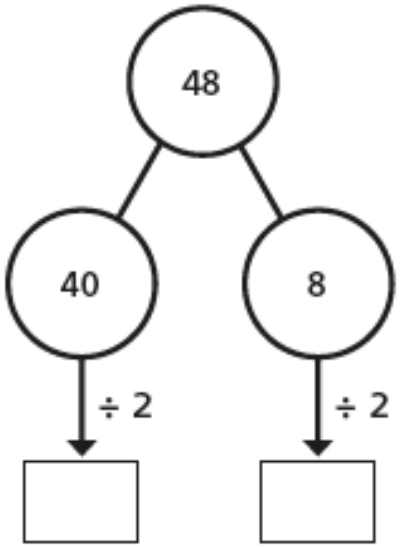
Challenge 1 – Part-whole Model

Remember to use your tens and ones counters to help with your learning today.

Amir solves 48 ÷ 2 on a place value chart.

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

Complete the part-whole model to show what Amir has done.



48 ÷ 2 = ☐

Step 1: Read the division number sentence carefully.

Step 2: Partition the first number into tens and ones using a partitioning tree.

Step 3: Divide the ones by the second number and record underneath. In this example you are dividing between 2.

Step 4: Divide the tens by the second number and record underneath. In this example you are dividing between 2.

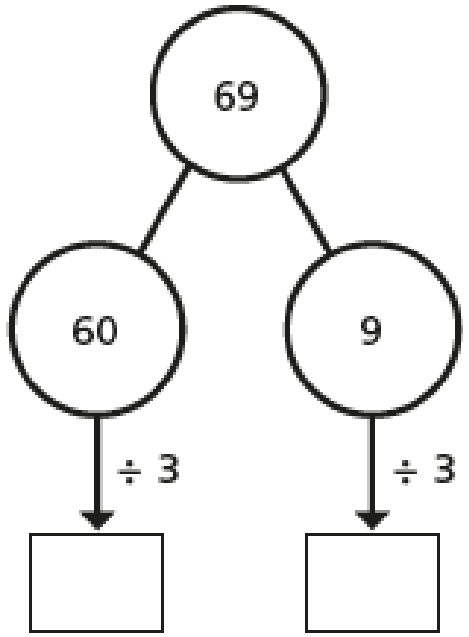
Step 5: Combine/add the tens and ones and record your answer in the division number sentence.

You can check your answers at the end

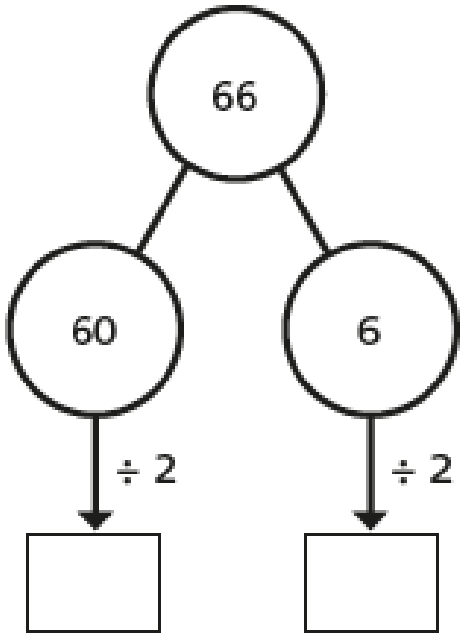
Challenge 2

Work out the divisions.

a) 69 ÷ 3 = ☐



b) 66 ÷ 2 = ☐

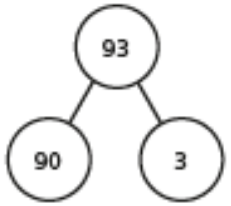


You can check your answers at the end

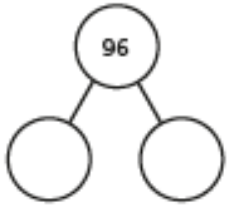
Challenge 3

Work out the divisions.

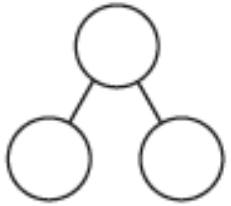
a) 93 ÷ 3 = ☐



96 ÷ 3 = ☐



99 ÷ 3 = ☐



Continue to use the Partitioning Model as shown on the previous slides.

You can check your answers at the end

Challenge 4

82 ÷ 2 = ☐

84 ÷ 2 = ☐

86 ÷ 2 = ☐

Continue to use the Part-whole Model as shown on the previous slides.

Look carefully – this time you are dividing by 2.

You can check your answers on the NEXT SLIDE

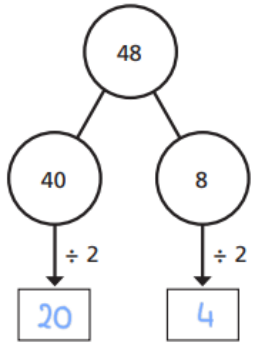
Answers

1.

Amir solves 48 ÷ 2 on a place value chart.

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

Complete the part-whole model to show what Amir has done.

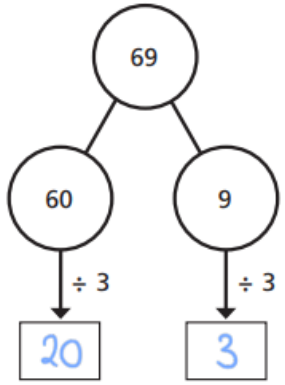


48 ÷ 2 = 24

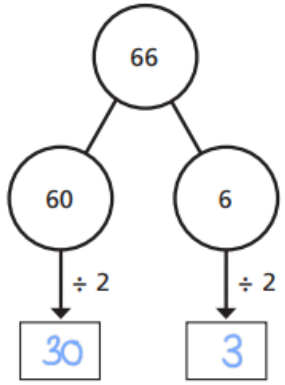
2.

Work out the divisions.

a) 69 ÷ 3 = 23

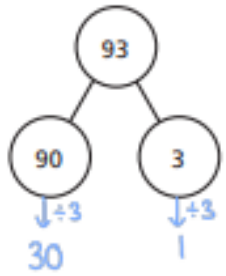


b) 66 ÷ 2 = 33

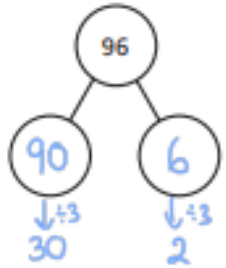


3.

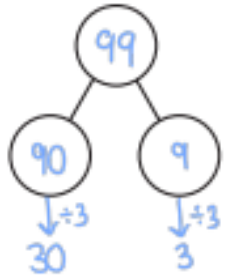
93 ÷ 3 = 31



96 ÷ 3 = 32



99 ÷ 3 = 33



4.

82 ÷ 2 = 41

84 ÷ 2 = 42

86 ÷ 2 = 43

Miss Cole's Maths Group

Write today's date and LO in your work book.

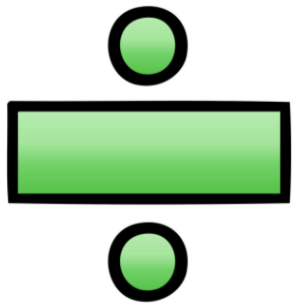
24.4.20

LO: To divide 2 digit numbers by 1 digit numbers

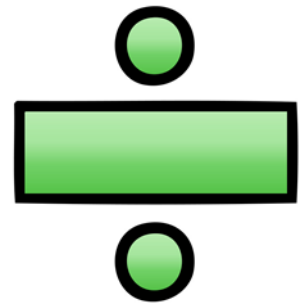
Starter:

Write out your 5x table. Count in groups to help

0x5=0, 1x5=5, 2x5=10, 3x5=15, 4x5=20… continue up to 12x5.



Division



Sometimes using the partitioning method can be a little more tricky. Sometimes you need to exchange one of the tens and split these into ones so that the number can be divided equally between the groups.

exchange = swap

equal = same

We will look at an example together on the next slide.

Rosie has 56 pencils.

a) Draw base 10 to represent the pencils.

Rosie shares the 56 pencils equally between 4 pots.

b) Draw base 10 on the place value grid to share the pencils.

Tens	Ones

c) How many pencils are in each pot?

d) Did you have to make an exchange?

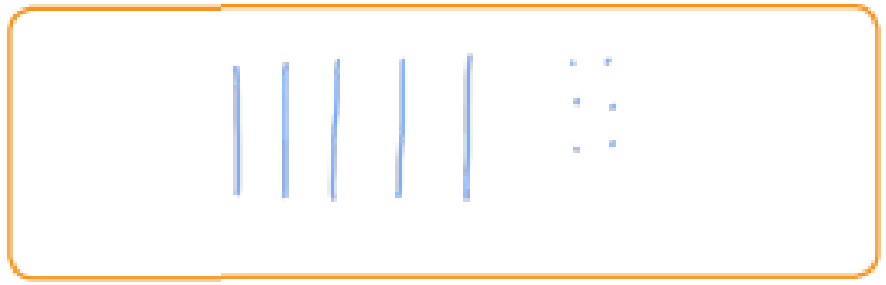
Draw 'base 10' means draw your tens and ones.

Tens = | **Ones = x**

Use your homemade tens ones counters for support. The left over ten can be swapped for ten ones, then share the remaining 16 counters between the 4 groups.

Rosie has 56 pencils.

a) Draw base 10 to represent the pencils.



Rosie shares the 56 pencils equally between 4 pots.

b) Draw base 10 on the place value grid to share the pencils.

Tens	Ones

c) How many pencils are in each pot? 14

d) Did you have to make an exchange?

exchange = swap

Yes you make an exchange.
You split the final 10 that cannot be shared evenly into ones, then add these to the ones in the original number – in this example 6 (in 56).
10 + 6 = 16
Share 16 ones between the 4 ones groups to complete the method.

Challenge 1

Eva has this money.

She wants to share the money equally between 3 people.

a) Use the place value chart to show how Eva can share the money.

Tens	Ones

b) How much money does each person get?

You can check your answers at the end

Challenge 2

Divide 72 by 3

Tens	Ones

Use the place value counters to help you.

72 ÷ 3 = ☐

You can check your answers at the end

Challenge 3

Use base 10 or counters to work out the divisions.

a) 45 ÷ 3 = ☐

b) 57 ÷ 3 = ☐

c) 92 ÷ 4 = ☐

Use your homemade tens ones counters for support.
You can choose whether to draw a partitioning table or whether to use the part-whole model.

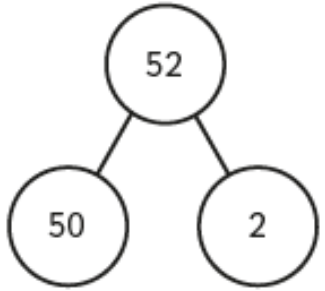
You can check your answers at the end

Challenge 4

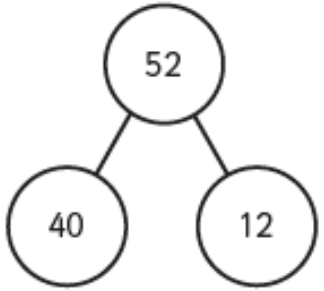
Rosie and Tommy are working out 52 ÷ 4

They both use a part-whole model.

Rosie



Tommy



a) Whose part-whole model will help them with the division?

_____

How do you know?

_____

_____

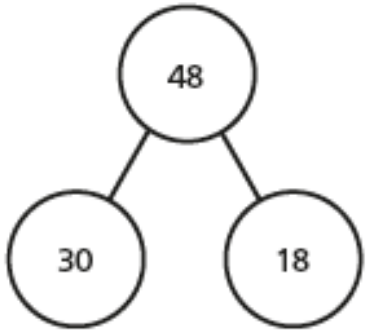
b) Use a part-whole model to work out 52 ÷ 4 ☐

You can check your answers at the end

Optional Practise:

Use the part-whole models to complete the divisions.

a) 48 ÷ 3 = ☐

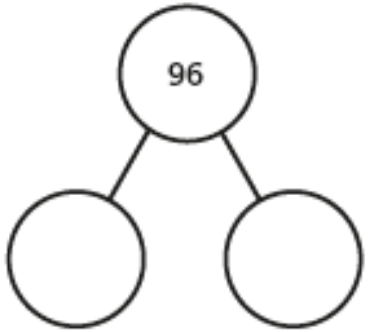


30 ÷ 3 = ☐

18 ÷ 3 = ☐

48 ÷ 3 = ☐

b) 96 ÷ 4 = ☐



c) 65 ÷ 5 = ☐

d) 75 ÷ 3 = ☐

You can check your answers on the NEXT SLIDE

Answers

1.

Eva has this money.

She wants to share the money equally between 3 people.

a) Use the place value chart to show how Eva can share the money.

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

b) How much money does each person get? £14

2.

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 the place value counters to help you.

72 ÷ 3 = 24

3.

Use base 10 or counters to work out the divisions.

a) 45 ÷ 3 = 15

b) 57 ÷ 3 = 19

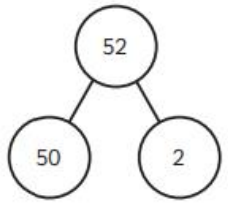
c) 92 ÷ 4 = 23

4.

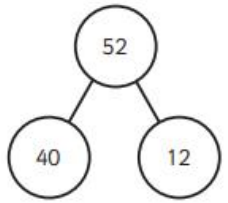
Rosie and Tommy are working out 52 ÷ 4

They both use a part-whole model.

Rosie



Tommy



a) Whose part-whole model will help them with the division?

Tommy

How do you know?

40 and 12 are both divisible by 4

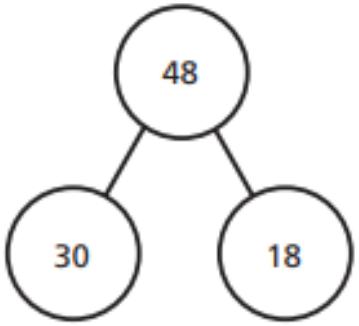
b) Use a part-whole model to work out 52 ÷ 4 13

Answers

Optional practise:

Use the part-whole models to complete the divisions.

a) 48 ÷ 3 = 16

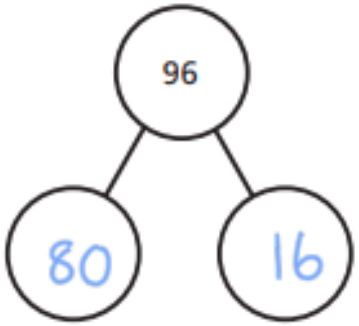


30 ÷ 3 = 10

18 ÷ 3 = 6

48 ÷ 3 = 16

b) 96 ÷ 4 = 24



c) 65 ÷ 5 = 13

d) 75 ÷ 3 = 25