

Divide a 3-digit number by a 1-digit number

Notes and guidance

In this small step, children continue to develop their understanding of division by extending from dividing 2-digit numbers in the previous two steps to dividing 3-digit numbers.

Place value counters are again used to represent the calculations, so that children can make sense of exchanges that are needed to complete the division.

Part-whole models are also used to show how flexible partitioning can support the process of division by looking for multiples of the number being divided by.

The step starts with divisions that do not leave a remainder, before progressing to divisions with remainders.

By the end of this step, children should have a good understanding of division that will support them when they move on to the formal written method in Year 5

Things to look out for

- Children may partition the 3-digit number correctly, but then divide the hundreds and tens as if they are ones, for example $846 \div 2 = 8 \div 2 + 4 \div 2 + 6 \div 2$
- Children may divide the whole number rather than partitioning into hundreds, tens and ones and then unitising the hundreds and tens.

Key questions

- How do you partition a 3-digit number into hundreds, tens and ones?
- How else can you partition a 3-digit number?
- What is the best way to partition the number to help you work out the division?
- If you cannot share all of the hundreds/tens equally, what do you need to do?
- How can you represent the division using a part-whole model?

Possible sentence stems

- _____ hundreds divided by _____ = _____ hundreds
- _____ tens divided by _____ = _____ tens
- _____ ones divided by _____ = _____ ones
- There is _____ left over, so I need to exchange it for _____

National Curriculum links

- Recall multiplication and division facts for multiplication tables up to 12×12
- Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers

Divide a 3-digit number by a 1-digit number

Key learning

- Annie uses place value counters to divide 639 by 3

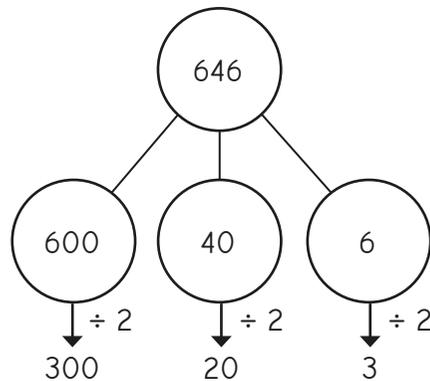
Hundreds	Tens	Ones
100 100	10	1 1 1
100 100	10	1 1 1
100 100	10	1 1 1

$$639 \div 3 = 213$$

Use Annie's method to work out the divisions.

$862 \div 2$	$884 \div 4$	$906 \div 3$	$630 \div 3$
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- Mo uses a part-whole model to work out $646 \div 2$



$$646 \div 2 = 300 + 20 + 3 = 323$$

Use Mo's method to work out the divisions.

$428 \div 2$	$963 \div 3$	$840 \div 4$	$399 \div 3$
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- Rosie uses place value counters to work out $435 \div 3$

Hundreds	Tens	Ones
100	10 10 10 10	1 1 1 1 1
100	10 10 10 10	1 1 1 1 1
100	10 10 10 10	1 1 1 1 1
100	10	1 1 1 1 1

$$435 \div 3 = 145$$

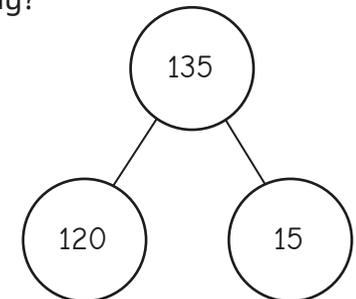
Use Rosie's method to work out the divisions.

$528 \div 2$	$672 \div 6$	$934 \div 4$
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- Tiny is using a part-whole model to work out $135 \div 3$

Why has Tiny partitioned 135 this way?

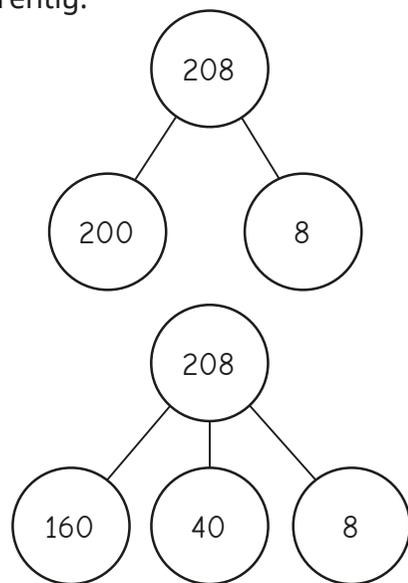
Complete Tiny's workings.



Divide a 3-digit number by a 1-digit number

Reasoning and problem solving

Max and Jo are working out $208 \div 8$
They have each partitioned 208 differently.



Work out the division using both methods.

What do you notice?

Which method do you prefer?

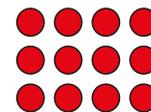


26

The answer is the same for both methods.

Use 12 counters and the place value chart to make the numbers described.

Use all 12 counters to make each number.



H	T	O

- a 3-digit number divisible by 2
- a 3-digit number divisible by 3
- a 3-digit number divisible by 4
- a 3-digit number divisible by 5

Is it possible to make 3-digit numbers that are divisible by 6, 7, 8 or 9?



2: any even number

3: any 3-digit number (as the digits add up to 12, which is a multiple of 3)

4: a number where the last two digits are a multiple of 4

5: any number with 0 or 5 in the ones column