

Divide a 2-digit number by 10

Notes and guidance

In this small step, children divide 2-digit numbers by 10, building on their learning from the previous step.

Counters on a place value chart are a good resource for this concept. Children make the number using counters, then move all the counters one place to the right. The key learning is that both digits of the number move in the same direction by the same number of places. The digits are together before dividing and are still together after dividing.

Children may think that certain “tricks” always work, such as placing a decimal point between the digits. Reinforce with children that this does not always work and so is not a method they should rely on. Also discuss that if a multiple of 10 is divided by 10, then nothing is needed in the tenths column, for example $50 \div 10 = 5$, not 5.0

Things to look out for

- If children are not using a place value chart, they may move the digits an incorrect number of places.
- Children may move only one of the digits one place to the right.
- Children may forget to add the decimal point to their answer, in effect leaving the original number unchanged.

Key questions

- How can you show this 2-digit number on a place value chart?
- How can you show this 2-digit number in a part-whole model?
- When dividing a number by 10, how many equal parts are you splitting it into?
- How can you use a part-whole model to help you divide a 2-digit number by 10?
- What could a 2-digit number look like once it has been divided by 10?
- What happens to a number when you divide it by 10?

Possible sentence stems

- _____ divided by 10 is equal to _____

National Curriculum links

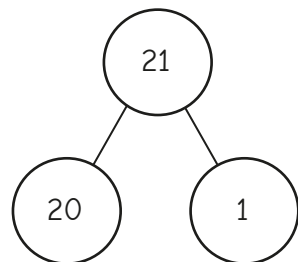
- Recognise and write decimal equivalents of any number of tenths or hundredths
- Find the effect of dividing a 1- or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths

Divide a 2-digit number by 10

Key learning

- Kim knows that to divide a number by 10, she must split it into 10 equal groups.

She uses partitioning to divide 21 by 10



$$\begin{aligned}
 20 \div 10 &= 2 \\
 1 \div 10 &= 0.1 \\
 \text{So } 21 \div 10 &= 2 + 0.1 = 2.1
 \end{aligned}$$

Use Kim's method to work out the divisions.

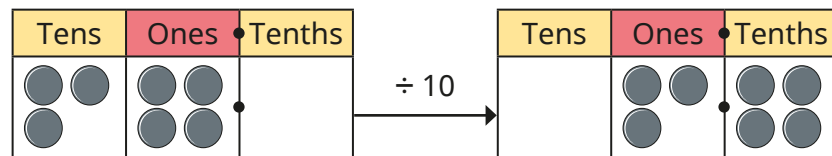
$52 \div 10$

$27 \div 10$

$19 \div 10$

$37 \div 10$

- Filip uses a place value chart to find that $34 \div 10 = 3.4$



Use Filip's method to work out the divisions.

$12 \div 10$

$45 \div 10$

$90 \div 10$

$80 \div 10$

$78 \div 10$

- Jack uses a Gattegno chart to work out that $23 \div 10 = 2.3$

10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9

Use Jack's method to work out the divisions.

$27 \div 10$

$65 \div 10$

$91 \div 10$

$30 \div 10$

- Write $<$, $>$ or $=$ to make the statements correct.

$50 \div 10 \bigcirc 45 \div 10$

$85 \div 10 \bigcirc 90 \div 10$

$\text{double } 0.2 \bigcirc 22 \div 10$

$\text{halfway between 4 and 5} \bigcirc 46 \div 10$

- Eva has 34 cm of ribbon.

She cuts it up to share equally between her 10 friends.

What length of ribbon do they each get?

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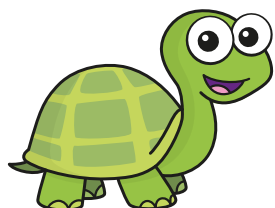
Reasoning and problem solving

Max is thinking of a 2-digit number.



I am going to divide my number by 10

I know that Max's answer must have some ones and some tenths.



Do you agree with Tiny?
Explain your answer.



No

Max might be thinking of a multiple of 10, e.g. 50

$50 \div 10 = 5$ and 5 does not have a digit in the tenths column.

Jo has used a Gattegno chart to divide a 2-digit number by 10



Here is her answer.

10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9

What was Jo's original number?

How does the Gattegno chart help?



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Sam thinks of a 2-digit number.

When she divides it by 10, the answer has 4 tenths.

Is Sam's number even or odd?

How do you know?



even