

Divide by 10, 100 and 1,000

Notes and guidance

In the previous step, children multiplied numbers with up to 3 decimal places by 10, 100 and 1,000. In this small step, they divide whole and decimal numbers by 10, 100 and 1,000. The answers will never have more than 3 decimal places.

Children use place value counters to represent a decimal number being divided by 10. As with the previous step, using language such as “10 times the size” and “one-tenth of the size” will support children in their understanding.

Children recognise that dividing a number by 10 twice is the same as dividing the number by 100. They then use a place value chart with counters (and then digits) to divide a number by 10, 100 or 1,000 by moving the counters the correct number of places to the right. A Gattegno chart used in the same way as in the previous step will also help children understand what happens to numbers as they are divided by powers of 10

Things to look out for

- Children may try to remove a zero when dividing by 10, two zeros when dividing by 100 and so on.
- Children may move the decimal point as well as the digits. Encourage them to move digits to the right as they become, for example, one-tenth of the size.

Key questions

- How can you represent dividing a decimal number with place value counters?
- What is one-tenth the size of _____?
- What is one-hundredth the size of _____?
- What is one-thousandth the size of _____?
- How can you divide decimal numbers using a Gattegno chart?
- How can you use counters on a place value chart to divide numbers by 10/100/1,000?

Possible sentence stems

- _____ is 10/100/1,000 times the size of _____
- _____ is one-tenth/hundredth/thousandth the size of _____
- To divide by _____, I move the digits _____ places to the _____

National Curriculum links

- Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places

Divide by 10, 100 and 1,000

Key learning

- Alex divides 0.12 by 10 using place value counters.

1 tenth = 10 hundredths
1 hundredth = 10 thousandths
 $0.12 \div 10 = 0.012$

Use Alex's method to work out the calculations and complete the sentences for each one.

$2.43 \div 10$
 $1.05 \div 10$
 $0.03 \div 10$
 $4.1 \div 10$

_____ is 10 times the size of _____
_____ is one-tenth the size of _____

- Here are two division facts.

$2.5 \div 10 = 0.25$
 $0.25 \div 10 = 0.025$

- ▶ Explain why this means that $2.5 \div 100 = 0.025$
- ▶ Use this method to work out the divisions.

$6.1 \div 100$
 $0.8 \div 100$
 $25.3 \div 100$
 $7 \div 100$

- Amir uses a place value chart to divide 312 by 1,000

H	T	O	Tth	Hth	Thth
●●	●	●●			
↓ ÷ 1,000					
			●●	●	●●
$312 \div 1,000 = 0.312$ 312 is 1,000 times the size of 0.312 0.312 is one-thousandth the size of 312					

Use Amir's method to work out the divisions.

$9 \div 1,000$
 $45 \div 1,000$
 $508 \div 1,000$
 $2,060 \div 1,000$

- Complete the table.

	30	3 kg			
÷ 10			0.9		
÷ 100					0.09
÷ 1,000				9	

Divide by 10, 100 and 1,000

Reasoning and problem solving

Tiny is dividing numbers by 10, 100 and 1,000

When you divide by 10, 100 or 1,000, you just remove the zeros.



Do you agree with Tiny?
Explain your answer.

No

For example:
For $24 \div 10$, there are no zeros to remove.
For $107 \div 10$, you cannot just remove the zero to leave 17

Use the rules and the table to make 70 in as many ways as you can.

- Use a number from column A.
- Use an operation from column B.
- Use a number from column C.

A	B		C
7	×	÷	1
70			10
700			100
7,000			1,000

multiple possible answers, e.g.
 7×10

Is the statement true or false?

Dividing by 1,000 is the same as dividing by 10 three times.

Explain your answer.

True