

Fractions as division

Notes and guidance

In this small step, children build on the learning from the previous step as they look at fractions as division to support them in converting between fractions and decimals.

Children explore the idea of fractions as divisions, learning that, for example $\frac{3}{4}$ can be interpreted as $3 \div 4$. They use place value counters to exchange ones for tenths and share them into equal groups to see that, for example, $\frac{1}{5} = 0.2$

Children progress to performing multiple exchanges to find other decimal equivalents. Once confident with this concept, they work with the more abstract short division method. It can be helpful to explore more complex examples, for example those that give recurring decimal answers, such as $\frac{1}{3} = 0.\dot{3}$

Things to look out for

- Children may interpret the division the wrong way around, for example $\frac{4}{5}$ as $5 \div 4$ rather than $4 \div 5$
- Children may need support to use extra zeros as placeholders when dividing, to avoid errors such as $3 \div 4 = 0.7$ remainder 2

Key questions

- If the denominator is _____, how many equal parts are there? What are you dividing by?
- Can you share 1 one into 4 equal parts? What can you exchange the 1 one for?
- What can you exchange the remaining _____ tenths for?
- What do you notice about the decimal parts when dividing 1 by 3?
- What does “recurring” mean?
- How do you know that $\frac{1}{2} = 2$ or $\frac{5}{8} = 1.6$ cannot be correct?

Possible sentence stems

- The fraction _____ can be expressed as _____ \div _____
- _____ \div _____ is the same as the fraction _____
- I can exchange 1 _____ for _____

National Curriculum links

- Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction

Fractions as division

Key learning

- Write each fraction as a division.

$$\triangleright \frac{3}{4} \quad \triangleright \frac{7}{9} \quad \triangleright \frac{112}{137}$$

Write each division as a fraction.

$$\triangleright 2 \div 3 \quad \triangleright 5 \div 8 \quad \triangleright 24 \div 35$$

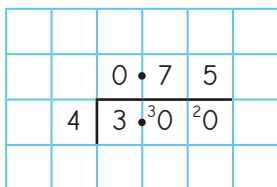
- Aisha uses place value counters to convert $\frac{1}{2}$ to a decimal by dividing 1 whole by 2



$$\frac{1}{2} = 0.5$$

- Use Aisha's method to find the decimal equivalent of $\frac{1}{5}$
- Use place value counters to find the decimal equivalent of $\frac{1}{4}$

- Kim converts $\frac{3}{4}$ to a decimal.



$$\frac{3}{4} = 0.75$$

Use Kim's method to find the decimal equivalent of each fraction.

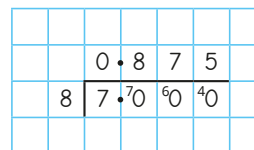
$$\triangleright \frac{2}{5} \quad \triangleright \frac{4}{5} \quad \triangleright \frac{3}{8} \quad \triangleright \frac{5}{8}$$

- Use division to find the decimal equivalents of $\frac{2}{3}$, $\frac{5}{6}$ and $\frac{2}{9}$

What do you notice?

- Teddy, Rosie and Jack have each found the decimal equivalent of $\frac{7}{8}$

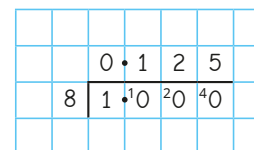
Teddy



$$7 \div 8$$

$$\frac{7}{8} = 0.875$$

Rosie



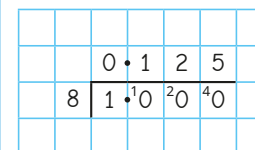
$$1 \div 8$$

$$\frac{1}{8} = 0.125$$

$$\frac{7}{8} = 7 \times 0.125$$

$$\frac{7}{8} = 0.875$$

Jack



$$1 \div 8$$

$$\frac{1}{8} = 0.125$$

$$\frac{7}{8} = 1 - 0.125$$

$$\frac{7}{8} = 0.875$$

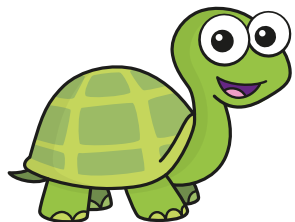
- Explain why each method works.
- Whose method do you prefer?
- Use your preferred method to find the decimal equivalent of $\frac{19}{20}$

Fractions as division

Reasoning and problem solving

Tiny uses division to find the decimal equivalent of $\frac{3}{5}$

		1	•	6	6	...
3		5	•	20	20	...



$$\frac{3}{5} = 1.66 \dots$$

Tiny worked out
 $5 \div 3$ instead of
 $3 \div 5$

0.6

How do you know that Tiny must be incorrect?

What mistake has Tiny made?

What is the correct answer?

Filip shares 7 large pizzas equally with 7 of his friends.

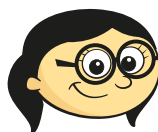
Esther shares 5 large pizzas with 5 of her friends.

Who gets more pizza, Filip or Esther?

Use decimals to help compare.

Filip

Annie has a plank of wood that is 1 metre long.



I have painted $\frac{5}{8}$ of the plank red.

How long is the piece of wood that is painted red?

Give your answer in metres and then in centimetres.

0.625 m
62.5 cm