

Equivalent fractions as bar models

Notes and guidance

In this small step, children deepen their understanding by exploring bar models as another way of representing equivalent fractions.

Children begin by comparing two bar models of equal length divided into different amounts to identify any equivalent fractions. As with the previous step, a common mistake here is drawing bar models of unequal length. Once confident, children progress to comparing multiple bar models to find families of equivalent fractions, again exploring any patterns.

Another strategy for finding equivalent fractions is to use a single bar model and to break up each of the existing parts into smaller ones. A common error is not splitting the existing parts into the same number of smaller equal parts, so this key point must be stressed.

Children may find folding strips of paper useful in supporting their understanding of bar models.

Things to look out for

- If bar models are not drawn so that they are equal in length, then equivalent fractions will not be easy to see.
- Children may need support drawing bar models accurately.

Key questions

- What are equivalent fractions?
- What does each whole bar model show?
- How many equal parts has the bar model been split into? What fraction does this show?
- How do you know _____ is equivalent to _____?
- When drawing bar models to find equivalent fractions, why do the bar models have to be the same length?
- How can splitting each part of the bar model into the same number of smaller parts help you to find equivalent fractions?

Possible sentence stems

- The bar model is split into _____ equal parts.
The bar model shows _____
- I know _____ is equivalent to _____ because ...

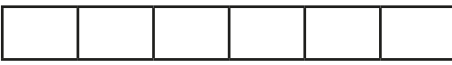
National Curriculum links

- Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
- Recognise and show, using diagrams, equivalent fractions with small denominators

Equivalent fractions as bar models

Key learning

- Shade $\frac{1}{3}$ of the bar model. 

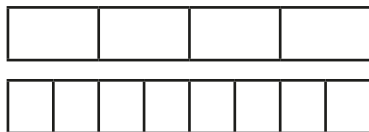
Shade $\frac{2}{6}$ of the bar model. 

What do you notice?

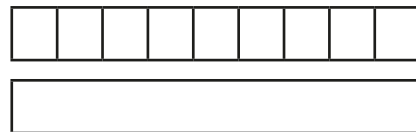
Complete the sentence. $\frac{\square}{\square}$ is equivalent to $\frac{\square}{\square}$

Use the same bar models to find another pair of equivalent fractions.

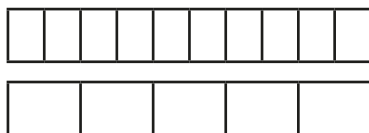
- Use the bar models to find the equivalent fractions.



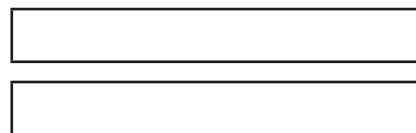
$$\frac{1}{4} = \frac{\square}{8}$$



$$\frac{6}{9} = \frac{\square}{6}$$

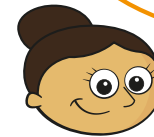


$$\frac{8}{10} = \frac{\square}{\square}$$

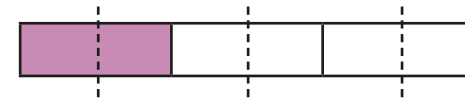


$$\frac{3}{4} = \frac{\square}{12}$$

- Dora is finding equivalent fractions to $\frac{1}{3}$



If I split each of the three parts into two, then I can see that $\frac{1}{3}$ is equivalent to $\frac{2}{6}$

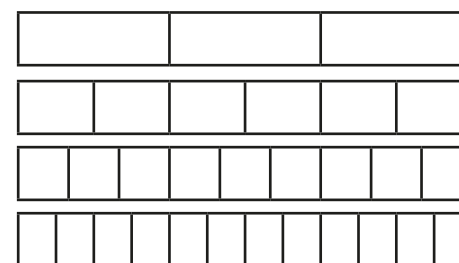


Split each part of this bar model into three equal parts and complete the equivalent fraction.



$$\frac{1}{3} = \frac{\square}{9}$$

- Use the bar models to find the equivalent fractions.



$$\frac{2}{3} = \frac{\square}{6} = \frac{6}{\square} = \frac{\square}{\square}$$

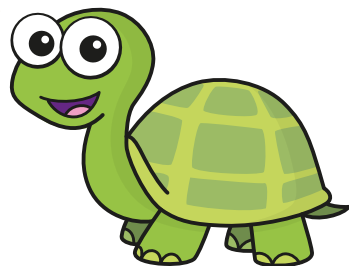
Equivalent fractions as bar models

Reasoning and problem solving

Tiny is finding equivalent fractions to $\frac{3}{4}$



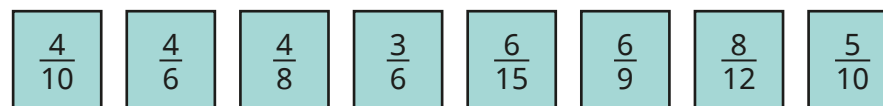
$\frac{6}{7}$ is equivalent to $\frac{3}{4}$



Do you agree with Tiny?
Explain your reasons.

No

Sort the fraction cards into the table.



Equivalent to $\frac{1}{2}$	Equivalent to $\frac{2}{3}$	Equivalent to $\frac{2}{5}$

How did you do it?

$$\frac{1}{2} : \frac{4}{8}, \frac{3}{6}, \frac{5}{10}$$

$$\frac{2}{3} : \frac{4}{6}, \frac{6}{9}, \frac{8}{12}$$

$$\frac{2}{5} : \frac{4}{10}, \frac{6}{15}$$