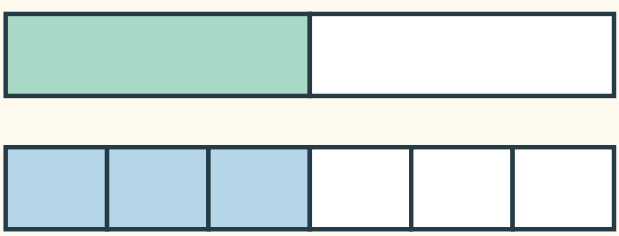
MATHS FIELD GUIDE · GRADE 4

Equivalent fractions rename the same amount

OPENING PROBLEM

Do the equal-length bars agree?



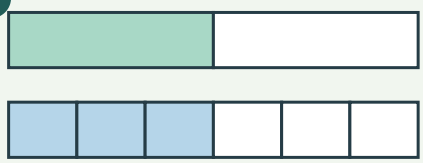
02 Name the fraction by its whole and its unit
03 Rules and worked cases
04 Two ways to cut the tray
05 Read a fraction as a number
06 Check your reasoning

ILLUSTRATED PROBLEM SHEET

Name the fraction by its whole and its unit

When numerator and denominator scale together, the represented fraction stays fixed.

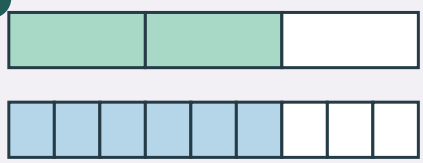
1



Do the equal-length bars agree?

Yes. Splitting each half into three pieces gives three shaded sixths.

2



Which multiplier connects the labels?

Multiply both numbers by three. The strip keeps the same length.

3

18/24
↓
divide both by 6
↓
3/4

Why divide by their greatest common factor?

It reaches lowest terms in one step. Three and four share no positive factor beyond one.

4

3/5 and 5/8
↓
3 × 8 = 24
↓
5 × 5 = 25

Which is larger?

Write both in fortieths. 25/40 exceeds 24/40, so 5/8 is larger.

6/8 = 3/4
divide numerator and denominator by 2.

6/10 = 3/5
the same numerator did not guarantee the same fraction.

CHAPTER PROBLEM

Why is 2/5 equal to 6/15?

Each fifth is split into three equal pieces. Two selected fifths become six fifteenths.

MATHS REFERENCE · GRADE 4

Equivalent fractions rename the same amount

Equivalent fractions are different fraction names for the same number. They occupy the same point on a number line.

Changing the name can help us compare or combine fractions using the same-sized units.

Four cases to recognise

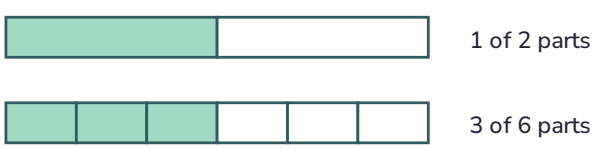
Situation	What to do and why
Rename 3/5 in twentieths	Four parts replace each fifth: 12/20.
Reduce 15/21	Divide both parts by three to get 5/7.
Compare 5/8 with 2/3	Use twenty-fourths. 15/24 is less than 16/24.
Is 4/6 equal to 5/7?	Cross-check: $4 \times 7 = 28$ but $5 \times 6 = 30$. They differ.

Read the model

Build the idea

Shade one half of a whole bar. Split each half into three equal parts. The bar now has six parts, and three are shaded.

The shaded amount stays fixed. It is both 1/2 and 3/6. Only the partition has changed.



Why it works

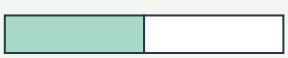
Splitting every part into the same number of pieces multiplies the denominator and the numerator by the same positive whole number.

The numerator counts more pieces because the pieces are smaller. Those two changes balance, so the value is preserved.

equivalent Different forms with the same value.

partition Divide into parts.

simplify Rename a fraction using smaller numerator and denominator with equal value.



How could you check the green part?

The unshaded part is the same size. The two parts remake the strip.

WORKED INVESTIGATION

Two ways to cut the tray

Divide a tray into three equal strips and shade two. Cut every strip in half without changing the shading.

Look at this part	What it tells you
Before cutting	2 of 3
After cutting	4 of 6
After cutting again	8 of 12

Work it through

Each old third now contains two sixths. Multiplying both the shaded count and total count by two preserves the fraction.

Catch the mistake

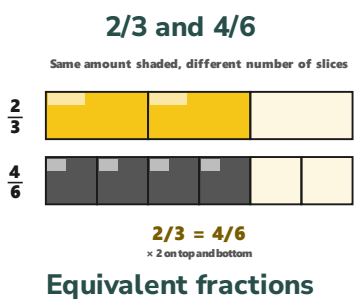
Adding one to both numbers turns 2/3 into 3/4. On twelve equal squares those shade eight and nine squares, so they differ.

Compare the cases

Follow an example

To rewrite 2/3 in sixths, split each third into two equal parts. The whole now has six parts and four are selected.

Therefore 2/3 = 4/6. A reverse grouping can rename four sixths as two thirds.



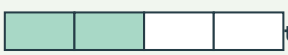
What changes? What stays true?

Adding the same number to numerator and denominator does not describe this splitting. It usually changes the value.

Use the same whole for both diagrams. Two equally shaded drawings of different-sized wholes do not establish equal numerical fractions by appearance alone.

Change one condition

To simplify 8/12, group the twelfths in fours. Two groups are shaded out of three groups in total.



Can a half have a line inside it?

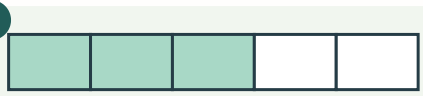
Yes. Two of four equal pieces cover one half.

ILLUSTRATED PROBLEM SHEET

Read a fraction as a number

Equal parts of one whole set the unit. Count those units from zero.

1

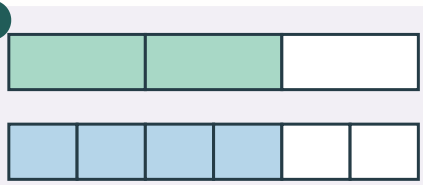


3 fifths

How much is shaded?

Three fifths. The five describes the pieces in the whole.

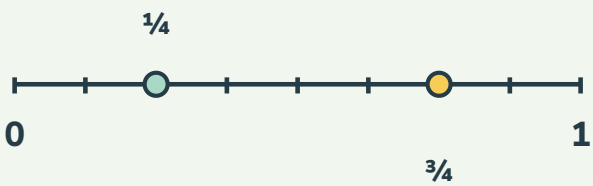
2



Which strip has more shaded?

They cover the same length. Each third splits into two sixths.

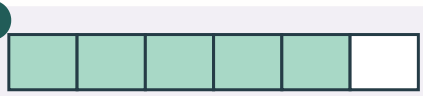
3



How far apart are the marks?

Two quarter-steps, or one half.

4



How much more makes one whole?

One sixth. Five sixths and one sixth fill the strip.

Four fifths and one fifth
one whole.

Four fifths minus one fifth
three fifths.

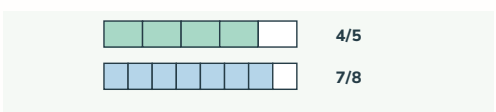
CHAPTER PROBLEM

A strip has 3 of its 4 equal parts shaded. Cut each part in two. What fraction is shaded now?

6 of 8 equal parts. The shaded area stays the same, so 3/4 = 6/8.

QUESTION BANK · FOLD OR COVER THE RIGHT COLUMN

Check your reasoning

Try the problem	Solution and reasoning
01 If half a small cake and half a big cake have the same fraction label, must the pieces weigh the same?	No. Equal fractions describe shares of their own wholes.
02 Which is larger for the same whole, one third or one sixth?	One third covers two sixths, so it is larger.
03 How many tenths cover the same part of a strip as three fifths?	Six tenths. Split each fifth into two equal parts and the three shaded fifths become six shaded tenths.
04 Complete 5/6 = __/18.	Sixths split into three equal pieces each. Multiply five by three to get fifteen.
05 Which is closer to one, 4/5 or 7/8? 	The gaps are 1/5 and 1/8. A smaller missing piece makes 7/8 closer.



Half of six buttons goes into each box. How many in one box?

Three. Both shares are equal.

BANANALEARN LEARNING LIBRARY

Where will your maths take you next?

GRADE 4 MATHS

Choose your next problem.

Explore more illustrated guides and practise a related topic.

Browse Grade 4 guides →

Keep exploring

GRADE 4 · TOPIC GUIDE

Decimals extend place value

Open guide →

GRADE 4 · TOPIC GUIDE

Patterns and rules describe change

Open guide →

Visit bananalearn.com →