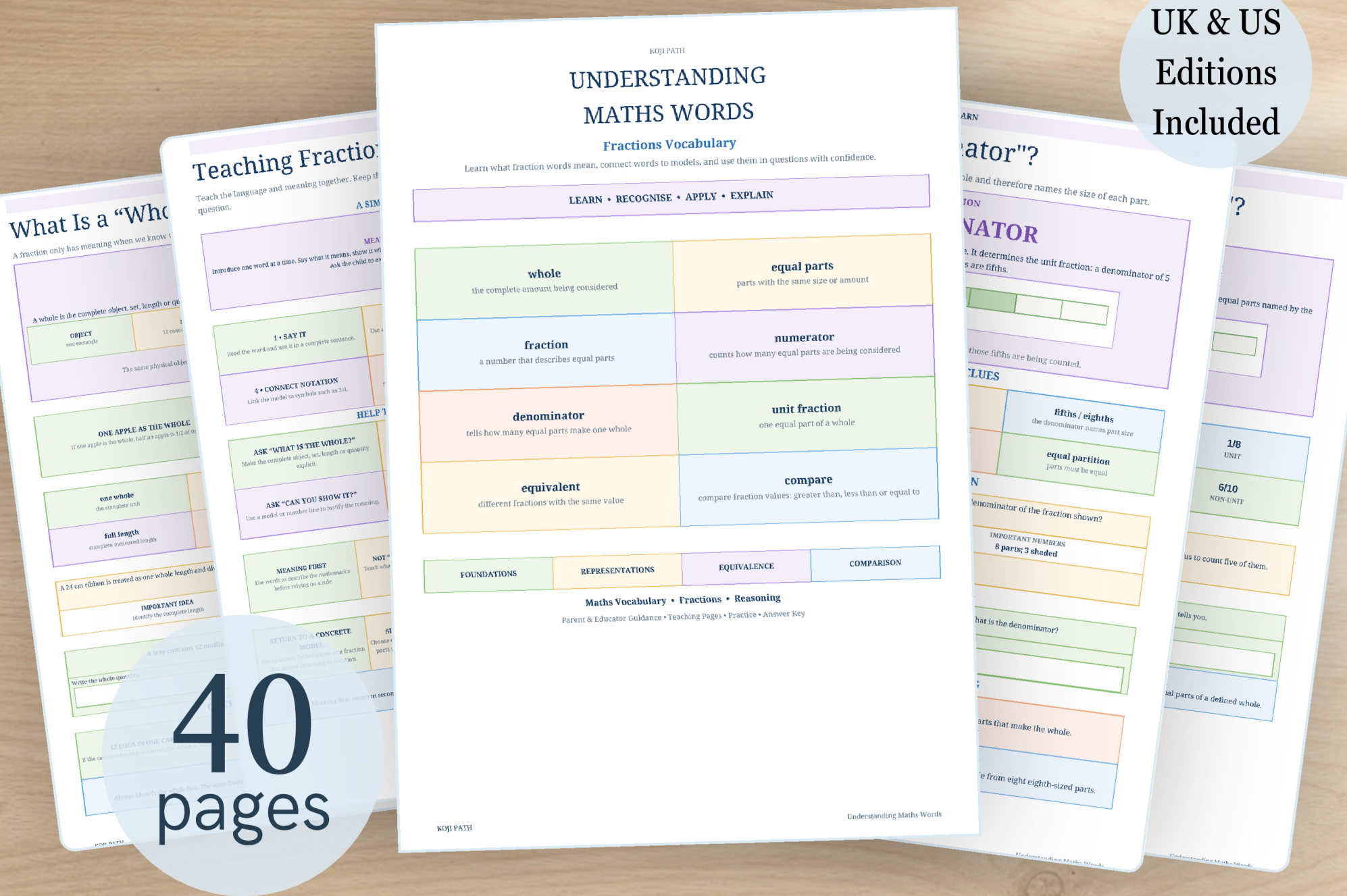


Understanding Maths Words

Fractions Vocabulary

Maths vocabulary • Fraction models • Number lines • Comparison

UK & US
Editions
Included



Teach • Practise • Apply • Review • Answer Keys

What's Included

A look inside this 40-page resource

- Teaching Pages
- Practice Activities
- Fraction Vocabulary
- Fraction Models & Number Lines
- Equivalent Fractions & Comparison
- Mixed Numbers & Fractions > 1
- Quick Reference Pages
- Answer Keys
- UK & US English Editions Included

LEARN

What Is a "Unit Fraction"?

A unit fraction represents one equal part of a whole or quantity.

DEFINITION
UNIT FRACTION

A unit fraction has a numerator of 1. It represents one of the equal parts named by the denominator.

$\frac{1}{5}$

1/5 is one fifth: one of five equal parts that make one whole.

UNIT FRACTIONS BUILD OTHER FRACTIONS

$\frac{1}{2}$ one half $\frac{1}{3}$ one third $\frac{1}{4}$ one fourth $\frac{1}{6}$ one sixth

BUILDING A FRACTION

$\frac{3}{4}$ can be understood as three copies of the unit fraction $\frac{1}{4}$. The denominator keeps the part size as fourths; the numerator counts three of them.

SEE IT IN A QUESTION

One of 8 equal parts of a strip is shaded. What unit fraction is shaded?

IMPORTANT IDEA
one equal part

IMPORTANT NUMBERS
8 equal parts

$\frac{1}{8}$ One eighth is shaded.

TRY IT

One of 10 equal parts of a whole is selected. Write the unit fraction.

Write the unit fraction.

REMEMBER

Every unit fraction has numerator 1. Its denominator tells the size of the one equal part.

KOPI PATH

Understanding Maths Words

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What Is a "Whole"?

A fraction only has meaning when we know what complete object, set, length or quantity counts as one whole.

DEFINITION
WHOLE

A whole is the complete object, set, length or quantity being considered as one. A fraction part is defined in relation to that whole.

OBJECT one mango **SET** 10 marbles together **LENGTH** one full bar **QUANTITY** one complete amount

The same physical objects can represent different fractions if the defined whole changes.

THE WHOLE CAN CHANGE

ONE APPLE AS THE WHOLE
If one apple is the whole, half an apple is $\frac{1}{2}$ of that whole.

FOUR APPLES AS THE WHOLE
If four apples are the whole, $\frac{1}{4}$ of the whole is $\frac{1}{4}$ of the set.

LOOK FOR THESE CLUES

one whole (if a complete set)
every (all the object or amount)
whole set (all objects belong to)

full length (complete measured length)
complete shape (one whole object or figure)
all of (the total amount being treated as one)

SEE IT IN A QUESTION

A 24 cm ribbon is treated as one whole length and divided into 4 equal parts. What is the whole?

IMPORTANT IDEA
Divide the complete length.

IMPORTANT NUMBER
4 cm

TRY IT

A key contains 12 needles and is treated as one whole set. What quantity is the whole?

Write the whole quantity.

PRACTICE

Match the Maths Word to Its Meaning

Write the matching letter in each box. The meanings are read as position does not reveal the answer.

WORDS

1) numerator 2) denominator
3) unit fraction 4) equivalent fractions
5) benchmark fraction 6) mixed number
7) fraction bar 8) compare

MEANINGS

A) a standard fraction used as a reference point B) the number that counts how many equal parts are being considered
C) fractions that have exactly the same value D) the line that separates numerator and denominator in fraction notation
E) a number made from a whole number part and a fractional part F) to decide whether one value is greater than, less than or equal to another
G) the number that tells how many equal parts make one whole H) a fraction with numerator 1

CHECK YOUR THINKING

Do not match by position, read the complete meaning and see what mathematician job the word performs.

USE THE WORDS IN MATHEMATICAL SENTENCES

Choose one word from the activity and write a sentence that explains its mathematical meaning.

Choose a different word and write an example that shows how it is used with fractions.

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one equal part

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$\frac{1}{8}$ One eighth is shaded.

TRY IT

One of 10 equal parts of a whole is selected. Write the unit fraction.

Write the unit fraction.

LEARN

Fractions With the Same Numerator

Fractions with the same numerator count the same number of equal parts. Compare the denominators to understand the size of those parts: fewer equal parts in the same whole means each part is larger.

DEFINITION
SAME NUMERATOR

Fractions with the same numerator count the same number of equal parts. Compare the denominators to understand the size of those parts: fewer equal parts in the same whole means each part is larger.

$\frac{3}{4}$

$\frac{3}{4}$ and $\frac{3}{8}$ both count three parts. Fourths are larger than eighths when the wholes are the same size, so $\frac{3}{4} > \frac{3}{8}$.

COMPARE THE PART SIZE

$\frac{3}{4} > \frac{3}{8}$ Both count 3 parts. Fourths are larger than eighths.

$\frac{2}{5} > \frac{2}{10}$ Both count 2 parts. Fives are larger than tenths.

$\frac{4}{10} < \frac{4}{5}$ Both count 4 parts. Eighths are smaller than fifths.

WHY THIS WORKS

For the same whole, increasing the denominator makes the equal parts smaller. Decreasing the denominator makes the equal parts larger.

TRY IT

Compare $\frac{5}{6}$ and $\frac{5}{10}$ using $<$, $>$ or $=$. Then explain which fraction has the larger-sized parts.

Write the comparison and a short reason.

VISUAL CHECK: SAME NUMERATOR

$\frac{3}{4}$ $\frac{3}{8}$

Three fourths (larger parts) Three eighths (smaller parts)

Teach the Meaning First

What Is a
"Numerator"?

What Is a
"Denominator"?

What Does
"Equivalent"
Mean?

LEARN

What Is a "Numerator"?

The numerator tells how many equal parts of the specified size are being counted.

DEFINITION
NUMERATOR

The numerator tells how many equal parts are being considered. It counts parts; it does not decide the size of each part.

$\frac{3}{5}$



In $\frac{3}{5}$, the denominator defines fifth-sized parts. The numerator 3 tells us to count three of those fifths.

LOOK FOR THESE CLUES

how many parts? the numerator counts them	counted parts the parts being considered	shaded / selected may show counted parts
numerator the counting number	above the bar its position is standard notation	same-sized parts the denominator sets their size

SEE IT IN A QUESTION

A bar is divided into 6 equal parts. Four parts are shaded. What is the numerator of the fraction shown?

IMPORTANT IDEA count the shaded equal parts	IMPORTANT NUMBERS 6 parts; 4 shaded
---	---

The numerator is 4.

TRY IT

A set is divided into 8 equal groups. Five groups are being counted. What is the numerator?

Write the numerator.

COMMON MISUNDERSTANDING

The numerator does not tell how large each part is. In $\frac{3}{8}$, the 3 counts three parts; the denominator 8 tells that the parts are eighths.

REMEMBER

Numerator = how many equal parts are being counted. Denominator = what-sized equal parts are being counted.

ROOF PATH Understanding Maths Words

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What Is a "Denominator"?

The denominator tells how many equal parts make one whole and therefore names the size of each part.

DEFINITION
DENOMINATOR

The denominator tells how many equal parts make one whole. It determines the unit fraction: a denominator of 5 means the equal parts are fifths.

$\frac{3}{5}$



In $\frac{3}{5}$, five equal fifths make one whole. Three of those fifths are being counted.

LOOK FOR THESE CLUES

how many equal parts? the denominator tells this	parts in one whole count all equal parts	fifths / eighths the denominator names part size
denominator defines the size fraction	below the bar its position is standard notation	equal partition parts must be equal

SEE IT IN A QUESTION

A rectangle is divided into 8 equal parts. Three parts are shaded. What is the denominator of the fraction shown?

IMPORTANT IDEA count all equal parts in the whole	IMPORTANT NUMBERS 8 parts; 3 shaded
---	---

The denominator is 8.

TRY IT

A whole is partitioned into 10 equal parts. Four parts are shaded. What is the denominator?

Write the denominator.

COMMON MISUNDERSTANDING

The denominator is not the number of unshaded parts. It counts all equal parts that make the whole.

REMEMBER

The denominator defines the equal-part size. If the denominator is 8, the whole is made from eight eighth-sized parts.

ROOF PATH Understanding Maths Words

LEARN

What Does "Equivalent" Mean?

Equivalent fractions look different but represent the same value.

DEFINITION
EQUIVALENT

Equivalent means equal in value. Equivalent fractions may use different numerators and denominators but still represent the same point on the number line or the same amount of the same whole.

$\frac{1}{2}$



$\frac{1}{2}$ and $\frac{2}{4}$ are equivalent because they describe the same amount of the same-sized whole.

SEE THE SAME VALUE

$\frac{1}{2}$



$\frac{2}{4}$



same value same value

LOOK FOR THESE CLUES

equivalent equal in value	same whole comparisons need the same whole	same point same location on a number line
same amount models cover equal amount	different notation numbers may look different	equal sign can connect equivalent fractions

TRY IT

HOW CAN WE VERIFY EQUIVALENCE?

MODEL same amount of the same whole	NUMBER LINE same point on the line	SCALE TOGETHER numerator and denominator change by the same factor
---	--	--

Complete the statement: $\frac{1}{3}$ and $\frac{2}{6}$ are _____ because they have the same value.

Write the maths word.

REMEMBER

Equivalent fractions are not merely similar-looking models. They must represent exactly the same mathematical value.

ROOF PATH Understanding Maths Words

Explicit teaching pages help children understand fraction language, models and relationships — not just memorise rules.

Practise & Apply

Label the Fraction

Use the word bank to label each part of the fraction. Then explain what each number represents.

WORD BANK

LABEL 5/8

numerator

fraction bar

Number above the bar:

Horizontal line:

Number below the bar:

5

Equal Parts or Not?

Write YES if the model is divided into equal parts. Write NO if not.

CHECK EACH PAIR

1) 

4 equal sections

YES / NO

3) 

6 equal sections

YES / NO

5) 

8 equal sections

YES / NO

EXPLAIN

Choose one YES model. Explain what makes its parts equal.

For a fraction model, equal parts must represent equal size.

Read • Think • Explain

Read each problem carefully. Use fraction vocabulary to explain the mathematical relationship before or after solving.

1) THE SAME DENOMINATOR

Mia drank $\frac{3}{8}$ of a bottle of water. Sam drank $\frac{5}{8}$ of an equal-sized bottle. Who drank more? Explain why the denominator matters.

PRACTISE

Equivalent or Not?

Decide whether each pair has the same value. Write YES or NO, then use the relationship or a model to justify one answer.

CHECK EACH PAIR

1) $\frac{1}{2}$ and $\frac{2}{4}$

2) $\frac{2}{3}$ and $\frac{4}{6}$

3) $\frac{3}{4}$ and $\frac{3}{8}$

4) $\frac{2}{5}$ and $\frac{4}{10}$

5) $\frac{3}{6}$ and $\frac{4}{8}$

6) $\frac{2}{4}$ and $\frac{3}{5}$

EXPLAIN ONE ANSWER

Choose one pair. Explain how you know the fractions are equivalent or not equivalent.

LEARN

Different Fraction

same number. Models and number lines help us verify that the value is the same.

TWO NAMES FOR ONE VALUE

$\frac{2}{4}$

$\frac{4}{8}$

same value

same value

HOW CAN WE CHECK?

RELATIONSHIP

LEARN

Numbers as Fractions

Any whole number can be written as a fraction in many equivalent ways.

DEFINITION

WHOLE NUMBER AS A FRACTION

A whole number can be expressed with a denominator of 1, or with any positive whole-number denominator. The numerator is adjusted so the fraction has the same value.

1 whole

1 whole

1 whole

It is also equal to $\frac{6}{2}$, $\frac{9}{3}$ and $\frac{12}{4}$ because each fraction has value 3.

WHOLE NUMBER • DIFFERENT FRACTIONS

$2 = \frac{4}{2}$

four halves make two wholes

$2 = \frac{8}{4}$

eight fourths make two wholes

THE DENOMINATOR CAN CHANGE

The numerator changes with it so that the total number of whole units remains the same.

TRY IT

1) Complete: $3 = \frac{\quad}{5}$

2) Complete: $3 = \frac{\quad}{5}$

4) Is $\frac{15}{5}$ equal to 3? Write YES or NO.

NUMBERS FROM FRACTIONS

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

six thirds make two wholes

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

twelve fourths make three wholes

REMEMBER

Fractions can name values below, equal to or above 1.

Recognise • Label • Compare • Reason • Explain