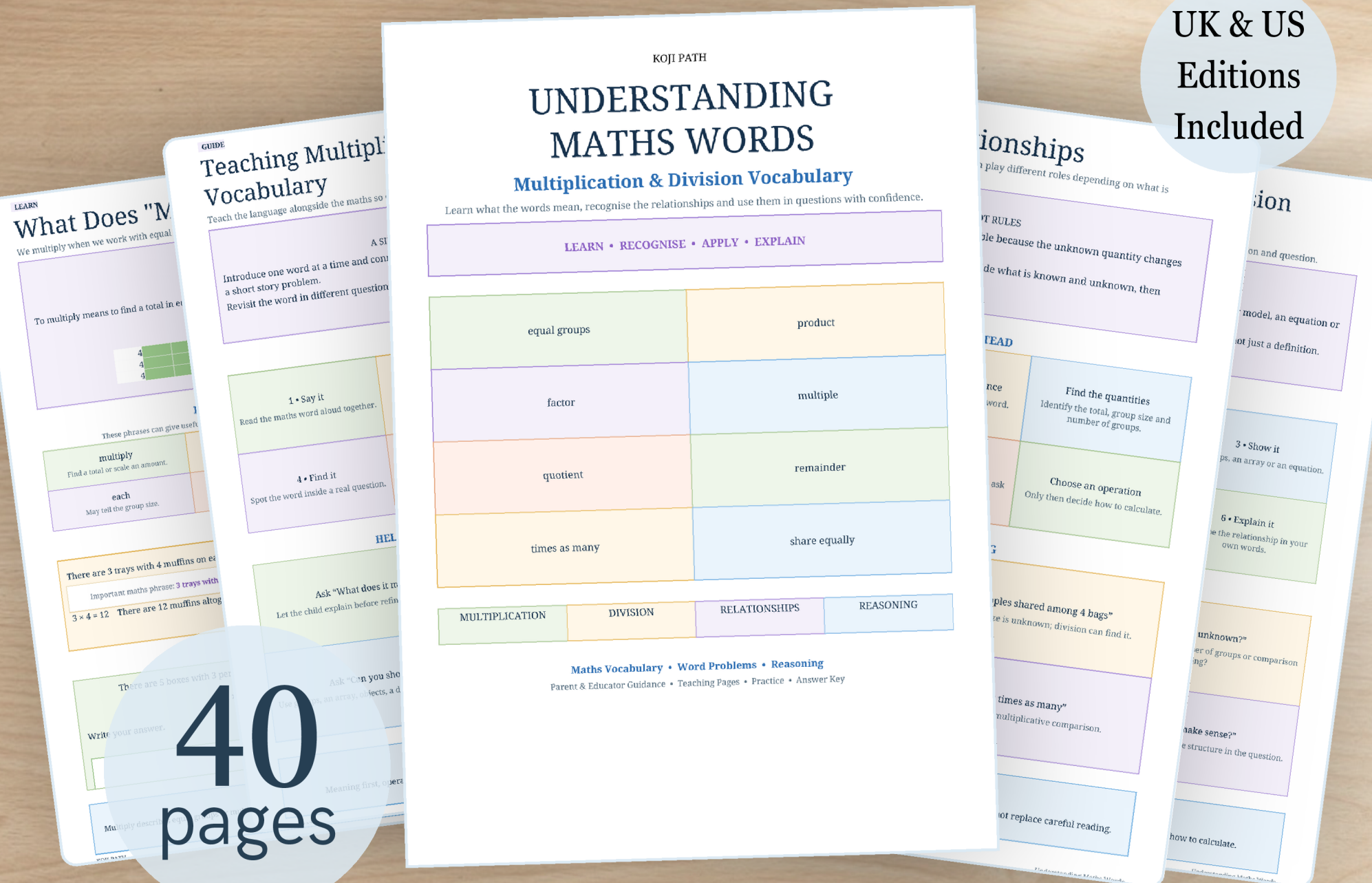


Understanding Maths Words

Multiplication & Division Vocabulary

Maths vocabulary • Equal groups • Word-problem language

UK & US
Editions
Included



Teach • Practise • Apply • Review • Answer Keys

What's Included

A look inside this 40-page resource

- Teaching Pages
- Practice Activities
- Word-Problem Language
- Multiplication & Division Vocabulary
- Factors, Multiples & Equal Groups
- Quick Reference Pages
- Answer Keys
- UK & US English Editions Included

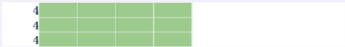
LEARN

What Does "Multiply" Mean?

We multiply when we work with equal groups or compare one amount as a number of times another.

DEFINITION
MULTIPLY

To multiply means to find a total in equal groups. It can also compare one amount as a number of times another amount.
 $3 \times 4 = 12$



LOOK FOR THESE CLUES

These phrases can give useful clues. Read the whole question before you decide what to do.

multiply Find a total or scale an amount.	times Shows multiplication.	groups of Look for equal groups.
each May tell the group size.	equal groups Same number in each group.	times as many Compare amounts multiplicatively.

SEE IT IN A QUESTION

There are 3 trays with 4 muffins on each tray. How many muffins are there altogether?

Important maths phrase: 3 trays with 4 on each	Important numbers: 3 and 4
---	-----------------------------------

$3 \times 4 = 12$ There are 12 muffins altogether.

TRY IT

There are 5 boxes with 3 pencils in each box. How many pencils are there altogether?

$5 \times 3 = \square$

Write your answer.

REMEMBER

Multiply describes equal groups or multiplicative comparison. Read the whole question to see what each number represents.

KOP PATH Understanding Maths Words

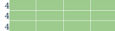
LEARN

What Are "Equal Groups"?

Equal groups have the same number of objects or the same quantity in every group.

DEFINITION
EQUAL GROUPS

Equal groups are groups with the same number in each group. Multiplication can describe the total when the number of groups and the size of each group are known.
 $3 \text{ groups of } 4 = 12$



LOOK FOR THESE CLUES

These phrases can give useful clues. Read the whole question before you decide what to do.

equal groups Same number in every group.	each group Look at the size of one group.	groups of Describes the group structure.
each May tell what is in every group.	every group The group size stays the same.	same number Check that the groups are equal.

SEE IT IN A QUESTION

There are 4 baskets. Each basket has 3 oranges. How many oranges are there altogether?

Important maths phrase: each basket has 3	Important numbers: 4 and 3
--	-----------------------------------

$4 \times 3 = 12$ There are 12 oranges altogether.

TRY IT

There are 5 boxes with 3 counters in each box. How many counters are there altogether?

LEARN

What Is the "Divisor"?

The divisor is the number we divide by — but its meaning depends on the division situation.

DEFINITION
DIVISOR

The divisor is the number we divide by. In sharing, it can represent the number of equal shares. In grouping, it can represent the size of each group.
 $24 \div 6 = 4$

24 DIVIDEND	6 DIVISOR	4 QUOTIENT
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LOOK FOR THESE CLUES

The divisor has one position in the equation, but its meaning changes between sharing and grouping.

divisor the number we divide by	number of shares possible sharing meaning	group size possible grouping meaning
divide by names the divisor	$24 \div 6$ is the divisor	context matters meaning depends on the story

SEE IT IN A QUESTION

In the equation $32 \div 4 = 8$, which number is the divisor?

Important maths word: divisor	Important numbers: 32, 4 and 8
--------------------------------------	---------------------------------------

$32 \div 4 = 8$ The divisor is 4.

TRY IT

Identify the divisor in $45 \div 5 = 9$.

PRACTISE

Sharing or Grouping?

Read each problem. Write S for sharing or G for grouping. Then identify what the quotient represents.

1) 24 sweets are shared equally among 6 children. How many sweets does each child receive?

S OR G	WHAT DOES THE QUOTIENT REPRESENT?
--------	-----------------------------------

2) 24 sweets are packed into bags of 6. How many bags are needed?

S OR G	WHAT DOES THE QUOTIENT REPRESENT?
--------	-----------------------------------

3) 36 counters are shared equally among 4 pupils. How many counters does each pupil receive?

S OR G	WHAT DOES THE QUOTIENT REPRESENT?
--------	-----------------------------------

4) 36 counters are arranged in groups of 4. How many groups can be made?

S OR G	WHAT DOES THE QUOTIENT REPRESENT?
--------	-----------------------------------

NOTICE THE QUOTIENT

$24 \div 6 = 4$ can describe two different unknowns.
In sharing, 4 is the amount in each share. In grouping, 4 is the number of groups.

PRACTISE

Explain Your Thinking

Use the large boxes to explain each idea clearly. Mathematical reasoning matters as much as the final answer.

1) Explain the difference between a factor and a multiple. Use 6 and 24 in your example.

2) How are sharing division and grouping division different, even when they use the same division equation?

3) Why must a remainder always be smaller than the divisor?

4) Explain how $6 \times 4 = 24$ and $24 \div 6 = 4$ are related.

Teach the Meaning First

What Is a
"Factor"?



What Is a
"Multiple"?



Sharing or
Grouping?



LEARN

What Is a "Factor"?

Factors are numbers that multiply together to make a product.

DEFINITION
FACTOR

A factor is a number that is multiplied by another number to make a product. A factor of a whole number divides it exactly, with no remainder.

$4 \times 6 = 24$
4 and 6 are factors of 24.

1	2	3	4
24	12	8	6

LOOK FOR THESE CLUES

Factor questions often ask what numbers make or divide a given whole number exactly.

factor of divides exactly	factor pair two factors with one product look for a factor pair	what multiplies to...? look for a factor pair
divides exactly no remainder	product the number factors make	whole number the number being factored

SEE IT IN A QUESTION

Which pair are factors of 30: 5 and 6, or 4 and 7?

IMPORTANT MATHS WORD / PHRASE factors of 30	IMPORTANT NUMBERS 30
--	-------------------------

$5 \times 6 = 30$ So 5 and 6 are factors of 30.

TRY IT

Write one factor pair for 36.

Write the two factors.

REMEMBER

Factors work toward a product. A whole number's factors divide it exactly, with no remainder.

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LEARN

What Is a "Multiple"?

A multiple is a number made by multiplying a given number by a whole number.

DEFINITION
MULTIPLE

A multiple of a number is made by multiplying that number by a whole number. Positive multiples continue without ending.

Positive multiples of 4

4	8	12	16	20	24
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$4 \times 1, 4 \times 2, 4 \times 3, 4 \times 4, \dots$

LOOK FOR THESE CLUES

Multiple questions usually start from one number and look forward through its multiplication facts.

multiple of made from multiplication	next multiple continue the sequence	times table list positive multiples
skip-count can generate multiples	divisible by can test a multiple relationship	continues there are infinitely many multiples

SEE IT IN A QUESTION

Is 35 a multiple of 5?

IMPORTANT MATHS WORD / PHRASE multiple of 5	IMPORTANT NUMBERS 35 and 5
--	-------------------------------

$5 \times 7 = 35$ Yes, 35 is a multiple of 5.

TRY IT

Write the next two positive multiples of 6 after 24.

Write both multiples.

REMEMBER

A multiple moves outward from a number through its multiplication facts. Multiples keep going.

ROB PATH Understanding Maths Words

PRACTISE

Sharing or Grouping?

Read each problem. Write S for sharing or G for grouping. Then identify what the quotient represents.

1) 24 sweets are shared equally among 6 children. How many sweets does each child receive?

S OR G	WHAT DOES THE QUOTIENT REPRESENT?
--------	-----------------------------------

2) 24 sweets are packed into bags of 6. How many bags are needed?

S OR G	WHAT DOES THE QUOTIENT REPRESENT?
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3) 36 counters are shared equally among 4 pupils. How many counters does each pupil receive?

S OR G	WHAT DOES THE QUOTIENT REPRESENT?
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4) 36 counters are arranged in groups of 4. How many groups can be made?

S OR G	WHAT DOES THE QUOTIENT REPRESENT?
--------	-----------------------------------

NOTICE THE QUOTIENT

$24 \div 6 = 4$ can describe two different unknowns.
In sharing, 4 is the amount in each share. In grouping, 4 is the number of groups.

REMEMBER

Sharing asks for the size of each share. Grouping asks how many groups of a known size can be made.

ROB PATH Understanding Maths Words

Explicit teaching pages help children understand multiplication and division language, relationships and word problems — not just memorise keyword tricks

Practise & Apply

Multiplication & Division ARE
Multiplication and division can describe the same equal-group relationship from different points of view.

ONE RELATIONSHIP • FOUR EQUATIONS

3 groups of 4 make 12
The same three numbers can be connected by multiplication and division.

$3 \times 4 = 12$	
$12 \div 3 = 4$	

Sharing or Grouping?
Read each problem. Write S for sharing or G for grouping. Then identify what the quotient represents.

1) 24 sweets are shared equally among 6 children. How many sweets does each child receive?

S OR G	WHAT DOES THE QUOTIENT REPRESENT?

2) 24 sweets are packed into bags of 6. How many bags are needed?

PRACTISE

• Solve
calculating. Then work it out and write the answer in context.
How many notebooks are ordered altogether?

PHASE	IMPORTANT NUMBERS
	OPERATION
WRITE THE ANSWER IN A SENTENCE	

Equal Groups or Not?
Decide whether each situation shows equal groups. Write F for factor or M for multiple.

1) 4 bags with 6 counters in every bag

2) 3 boxes containing 5, 5 and 4 pencils

3) 5 rows with 3 stars in every row

4) 4 teams with 7, 6, 7 and 7 players

5) 5 trays with 8 muffins on each tray

6) 2 jars containing 12 beads each

EXPLAIN
Choose one situation and explain how you decided.

REMEMBER
Multiplication and division with whole-number equal groups.

PRACTISE

Factor or Multiple?
Read each relationship carefully. Write F if the missing word is factor or M if it is multiple.

USE THE RELATIONSHIP

1) $4 \times 5 = 20$. 4 is a ____ of 20.	
2) $4 \times 5 = 20$. 20 is a ____ of 4.	
3) $6 \times 7 = 42$. 6 is a ____ of 42.	
4) $3 \times 9 = 27$. 27 is a ____ of 9.	
5) $5 \times 8 = 40$. 5 is a ____ of 40.	
6) $8 \times 4 = 32$. 32 is a ____ of 8.	

EXPLAIN ONE RELATIONSHIP

Explain why 6 is a factor of 42 but 42 is a multiple of 6.

PRACTISE

Operation Might Help?
First write $\times$ or $\div$ in the operation box. Then explain what the question is asking you to find.

6 muffins on each tray. How many muffins are there altogether?

OPERATION	WHAT AM I FINDING?

equally among 7 trays. How many muffins go on each tray?

OPERATION	WHAT AM I FINDING?

each tray. How many trays are needed?

OPERATION	WHAT AM I FINDING?

red ribbon. How long is the blue ribbon?

OPERATION	WHAT AM I FINDING?

REMEMBER
equal-group relationship and what the question asks you to find.

Recognise • Match • Compare • Solve • Explain