

Helping Your Child with Multiplication

Number · Foundation to Year 6 · Australian Curriculum Mathematics

Multiplication is about **equal groups**. It starts with sharing things fairly and counting in groups. By Year 6 your child can multiply large numbers and decimals. Each step builds on the last. You do not need to know all the answers — your questions help your child think!

Year level	What your child learns	What this looks like
Foundation	Equal groups and sharing Your child learns to share things equally — making sure everyone gets the same amount. This is the very first idea behind multiplication and division. equal group — a group where everyone has the same number sharing — giving out items so each person gets the same subitising — seeing how many without counting one by one	Share 8 grapes between 4 people. "Does everyone have the same?" Put 10 blocks into groups of 2. "How many groups did you make?"
Year 1	Counting in groups — skip counting Your child learns to count in equal groups — by 2s, 5s, and 10s. This is called skip counting and it is a big shortcut! Instead of counting 2, 3, 4, 5, 6 — count 2, 4, 6. repeated addition — adding the same number over and over $2 + 2 + 2 = 6$ means 3 groups of 2	Count fingers in 5s together. 5, 10, 15, 20, 25... "How many wheels on 3 cars?" Count: 4, 8, 12 Count in 10s to 100 and back.
Year 2	Arrays — rows and columns Your child uses arrays to show multiplication. An array is objects arranged in rows and columns . 3 rows of 4 = 12 → $3 \times 4 = 12$ They also learn that order does not matter: $3 \times 4 = 4 \times 3 = 12$ This is called the commutative property of multiplication.	Make a 3×4 array with coins or buttons. "How many rows? How many in each row?" "How many all together?" Try flipping the array. "Is it still 12?"
Year 3	Times tables and strategies Your child learns multiplication facts — the times tables from 1 to 10. A useful strategy is doubling — if you know $4 \times 3 = 12$, then 8×3 is double that = 24. product — the answer when you multiply factor — the numbers you multiply together In $4 \times 3 = 12$: 4 and 3 are factors, 12 is the product	"What is 6×4?" Try: I know $3 \times 4 = 12$, so $6 \times 4 = 24$ "What two numbers multiply to make 20?" Practise one times table per week.
Year 4	Multiplying by 10, 100 and 1,000 Your child learns that multiplying by 10 makes digits move one place left . $6 \times 10 = 60$ $6 \times 100 = 600$ $6 \times 1,000 = 6,000$ They also use strategies like doubling and halving to make problems easier: $5 \times 18 = 10 \times 9 = 90$ multiple — a number you reach by skip counting, e.g. 3, 6, 9, 12	"What is 7×100?" Answer: 700 "How much for 5 packets at \$3 each?" $5 \times 3 = 15$, so \$15 Look for multiples on number charts.
Year 5	Multiplying larger numbers Your child multiplies numbers like 253×4 . One strategy is partitioning — break the big number into parts: $253 \times 4 = (200 \times 4) + (50 \times 4) + (3 \times 4)$ $= 800 + 200 + 12 = 1,012$ Another is to look for factors to make it simpler: $15 \times 16 = (5 \times 3) \times (2 \times 8) = 10 \times 24 = 240$	"Can you work out 34×5?" Try: $30 \times 5 = 150$, $4 \times 5 = 20$, total = 170 "Is 1,012 a reasonable answer for 253×4?" Estimate: $250 \times 4 = 1,000$ ✓ <i>Year 6 on next page</i>

Year 6	Multiplying decimals — and finding factors Your child multiplies and divides decimals by powers of 10. $3.6 \times 10 = 36$ $3.6 \times 100 = 360$ They also explore factors and prime numbers . prime number — only divisible by 1 and itself (e.g. 2, 3, 5, 7, 11) composite number — has more than 2 factors (e.g. $6 = 2 \times 3$) square number — a number $\times$ itself (e.g. $4 \times 4 = 16$)	"What is 4.5×100 ?" Answer: 450 "Is 15 prime or composite?" Answer: composite — $3 \times 5 = 15$ "What is 7×7 ? Can you see a pattern?"
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★ Three ways to show the same thing: $3 \times 4 = 12$

Equal groups	Array — rows $\times$ columns	Number sentence
3 groups with 4 in each group •••• •••• •••• "3 lots of 4"	3 rows 4 in each row •••• •••• •••• $4 + 4 + 4 = 12$	$3 \times 4 = 12$ 3 is a factor 4 is a factor 12 is the product $4 \times 3 = 12$ too! (order does not matter)

All three show the same multiplication. Use whichever way helps your child best!

Helping at Home — Multiplication

Worked examples and questions to ask · Foundation to Year 6

How it works — worked examples

Year 1 — Skip counting in groups

How many wheels on **3 cars**?

Each car has 4 wheels. Count in 4s:

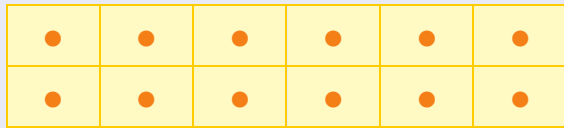
4 ... 8 ... 12

3 groups of 4 = **12 wheels**

We can also write this as: $3 + 3 + 3 + 3 = 12$ or $3 \times 4 = 12$

Year 2 — Using an array

Eggs in a carton: **2 rows of 6**



2 rows $\times$ 6 in each row = **12 eggs**

Turn it around: $6 \times 2 = 12$ as well! (commutative property)

Year 3 — Doubling to multiply faster

What is **8×6** ?

I know...	$4 \times 6 = 24$
Double it...	$8 \times 6 = 24 + 24$
Answer:	$8 \times 6 = 48$

Always double a fact you already know!

Year 5 — Breaking up big numbers

Work out **253×4**

Step 1 — Split	$253 = 200 + 50 + 3$
Step 2 — Multiply each	$200 \times 4 = 800$ $50 \times 4 = 200$ $3 \times 4 = 12$
Step 3 — Add together	$800 + 200 + 12 = 1,012$
Answer:	$253 \times 4 = 1,012$

Check: $250 \times 4 = 1,000$ so 1,012 is a reasonable answer.

Questions to ask your child

You do not need to know the answer. Just ask and let your child do the explaining!

F Foundation

- Can you share these 10 grapes equally between us?
- Put these buttons into groups of 2. How many groups?
- Does everyone have the same number?

1 Year 1

- Count in 5s with me — 5, 10, 15...
- How many legs on 3 dogs? (count in 4s)
- Can you show me 3 groups of 2 using blocks?

2 Year 2

- Make an array with these counters — 3 rows of 4.
- What is 3×4 ? What about 4×3 ? Are they the same?
- Can you draw an array to show 2×5 ?

3 Year 3

- What are the factors of 12?
- If $4 \times 6 = 24$, what is 8×6 ?
- What is the product of 7 and 3?

4 Year 4

- What is 6×10 ? What about 6×100 ?
- How much for 5 books at \$8 each?
- List the first 5 multiples of 6.

5 Year 5

- Can you work out 43×6 by splitting 43 into parts?
- About how big will the answer be? (estimate first)
- What two factors make 36? Can you find more than one pair?

6 Year 6

- What is 3.5×10 ? What about 3.5×100 ?
- Is 17 a prime number? How do you know?
- What is a square number? Can you give me three examples?

Things to try at home

Any age: Share food equally — snacks, grapes, or cards. Ask: Does everyone have the same number?	Year 1–2: Count objects in 2s, 5s or 10s around the house. Pairs of shoes, fingers, windows.
Year 2–3: Make an array with coins or buttons. Write the matching number sentence: $_ \times _ = _$	Year 3–4: Times table challenge — pick one table a week. Say it together in the car or at dinner.
Year 5: Work out shopping totals together. "3 items at \$4.50 each — how much all together?"	Year 6: Find prime and composite numbers. Is today's date prime? What about your house number?

Key words to learn together

equal groups: groups where each one has the same number	skip counting: counting in steps — 2, 4, 6, 8 or 5, 10, 15, 20
repeated addition: adding the same number again and again: $4+4+4 = 3 \times 4$	array: objects arranged in equal rows and columns
factor: a number you multiply: in $3 \times 4 = 12$, the factors are 3 and 4	product: the answer to a multiplication: $3 \times 4 = 12$, the product is 12
multiple: a number you land on when skip counting: 6, 12, 18 are multiples of 6	doubling: multiplying by 2 — if $4 \times 6 = 24$, then $8 \times 6 = 48$ (double 24)
commutative: order does not matter: $3 \times 4 = 4 \times 3 = 12$	partitioning: breaking a number into parts to make multiplying easier
prime number: only divisible by 1 and itself — e.g. 2, 3, 5, 7, 11, 13	composite number: has more than 2 factors — e.g. $6 = 1 \times 6 = 2 \times 3$