

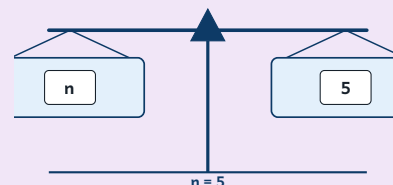
Introducing letter-symbols as variables

MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS

ALGEBRA

A **letter** can stand for an unknown or changing number — a **variable**. $3n$ means 'three times n '.

→ If $n = 5$, then $n + 2 = 7$ and $3n = 15$.



HOW TO ANSWER TODAY

- **Letter expressions.** A letter stands for a number. Swap the letter for its value, then work out the answer.

If $n = 3$, then $2n + 5 = 2 \times 3 + 5 = 11$

WARM-UP

- 1 Aoife is hosting a sleepover for n friends in her sitting room. Each friend brings 4 biscuits to share. If $n = 5$, how many biscuits do the friends bring altogether ($4n$)?
If $n = 5$, what is the value of $4n$?
- 2 Saoirse is hosting a sleepover for her 5th class friends. She works out that she needs $n + 5$ biscuits so everyone gets enough, where n is the number of friends staying over. If $n = 9$ friends come along, how many biscuits does Saoirse need?
If $n = 9$, what is the value of $n + 5$?

PRACTICE

- 1 On the sponsored cycle around the school cycle path, Tadhg cycles $2n + 7$ laps, where n is the number of laps his younger sister completes. If $n = 5$, how many laps does Tadhg cycle?
If $n = 5$, what is the value of $2n + 7$?
- 2 On the sponsored cycle, Tadhg plans to do 3 laps of the cycle path at n kilometres per lap, but he stops 1 kilometre short on his final lap. The total distance he cycles is $3n - 1$ kilometres. If $n = 7$, how many kilometres does Tadhg cycle?
If $n = 7$, what is the value of $3n - 1$?

CHALLENGE

- 1 Saoirse is setting up a sleepover and lays out biscuits on plates for her friends. Each plate gets 3 biscuits for every guest except herself, plus 4 extra biscuits on a sharing plate in the middle. If $n = 5$ is the total number of friends at the sleepover, how many biscuits are there in total when you work out $3(n - 1) + 4$?
If $n = 5$, what is the value of $3(n - 1) + 4$?
- 2 5th class are planting seedling trays in the school polytunnel. Each row holds $3(n - 1) + 4$ seedlings, where n is the number of pupils planting in that row. If $n = 7$, what is the value of $3(n - 1) + 4$?