

Representing situations as equations

MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS

ALGEBRA

HOW TO ANSWER TODAY

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

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

- **Solve in two steps.** Undo the + or - first, then undo the $\times$ or $\div$.

$$2x + 5 = 13 \rightarrow 2x = 8 \rightarrow x = 4$$

- **Solve for x.** Do the OPPOSITE operation to both sides. + becomes -; $\times$ becomes $\div$.

$$x + 7 = 15 \rightarrow x = 15 - 7 = 8 \quad 3x = 21 \rightarrow x = 21 \div 3 = 7$$

STRETCH PROBLEMS

- 1 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 $3(n - 1) + 4$?

- 2 Mr Ó Briain hands out pencils from the classroom store. Each table gets $3(n - 1) + 4$ pencils, where n is the number of pupils at the table. If $n = 6$, how many pencils does the table get?

If $n = 6$, what is the value of $3(n - 1) + 4$?

- 3 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 $3(n - 1) + 4$?

4



Find x so the scale balances.

Cian opens a packet of biscuits at break and shares them equally onto 5 plates for his table group. There were already 19 biscuits on the tray from yesterday, so the tray now holds 69 biscuits in total. If x is the number of biscuits Cian put on each plate, solve $5x + 19 = 69$ to find x .

5



Find x so the scale balances.

When Ms Murphy takes the roll on Monday morning in 5th class, 12 pupils are out on a hurling match. That leaves 14 pupils in the classroom. If x stands for the total number of pupils on the roll, solve $x - 12 = 14$ to find how many pupils are in 5th class altogether.