

# Rules for patterns using words and tables

MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS

ALGEBRA

## HOW TO ANSWER TODAY

- **Function machine.** Do EACH step of the rule in order to the input.

Rule  $\times 4 + 2$ , input 5  $\rightarrow 5 \times 4 = 20, + 2 = 22$

- **Find the rule.** Look at how each input changes to its output. Try  $\times$  first, then  $+$  or  $-$ .

3  $\rightarrow$  6, 5  $\rightarrow$  10, 7  $\rightarrow$  14  $\rightarrow$  rule is  $\times 2$

## ★ STRETCH PROBLEMS

1



At break time, Tadhg shares biscuits using a rule: multiply the number of pupils by **4**, then add **4** extra biscuits for the teachers. If **16** pupils are in the group today, how many biscuits does he need in total?

2



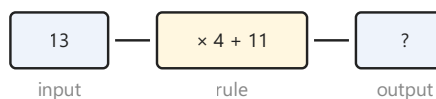
Mr Ó Broin is in the photocopier room getting worksheet packs ready for tomorrow. For each pupil, he prints a set number of sheets and then adds the same number of extra cover sheets to the pile. The pile sizes go **8**  $\rightarrow$  **32**, **3**  $\rightarrow$  **17** and **7**  $\rightarrow$  **29** pupils to total sheets. What is the rule that turns the number of pupils into the total number of sheets?

3



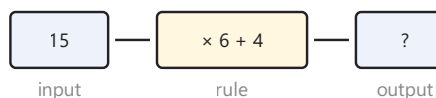
Cian is selling raffle tickets for the 5th class GAA fundraiser. Each book of tickets costs the same in euros, plus a fixed booklet fee added to every order. His sales notebook shows: **9** books  $\rightarrow$  **€58**; **6** books  $\rightarrow$  **€40**; **8** books  $\rightarrow$  **€52**. What is the rule linking the number of books to the total cost?

4



On the 5th class nature walk through the local park, Oisín spots a rule on a worksheet from his teacher: multiply the number of trees in each row by **4**, then add **11** birds resting nearby. If one row has **13** trees, what number does the rule give?

5



Saoirse has a function machine drawn in her maths copy with the rule  $\times 6 + 4$ . She puts the number **15** into the machine. What number comes out?