

Generalising number patterns and sequences

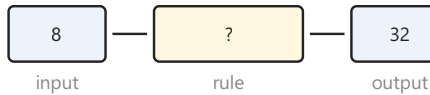
MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS ALGEBRA

HOW TO ANSWER TODAY

- **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 $\times 2$

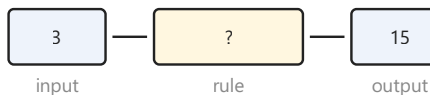
STRETCH PROBLEMS

1



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?

2



Granny pays Niamh pocket money for helping with the calves at the farm. She uses a rule based on the number of calves Niamh feeds: 3 calves earns $\text{€}15$, 9 calves earns $\text{€}33$, and 10 calves earns $\text{€}36$. What is the rule?

3

The school canteen starts the week with 42 cartons of milk in the chiller. Each day the same number of cartons is sold, leaving 35 on Tuesday, 28 on Wednesday and 21 on Thursday. How many cartons will be left on Friday?

What comes next in the sequence: $42, 35, 28, 21, \underline{\quad}$?

4

Oisín brings a bag of bread to the pond in Wicklow to feed the ducks. After feeding them for 1 minute he has 14 pieces left, after 2 minutes he has 9 pieces, after 3 minutes he has 4 pieces, and after 4 minutes he has -1 pieces (he had to borrow one from his sister). Following the same pattern, how many pieces will he have after 5 minutes?

What comes next in the sequence: $14, 9, 4, -1, \underline{\quad}$?

5

Mr Ó Briain pins up the weekly star chart on the 5th class noticeboard. The total stars after each week so far are 5 , 17 , 29 and 41 . If the pattern continues, how many stars will be on the chart after the next week?

What comes next in the sequence: $5, 17, 29, 41, \underline{\quad}$?