

Module assessment – pattern hunt

MODULE 8 · 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 for x.** Do the OPPOSITE operation to both sides. + becomes -; $\times$ becomes $\div$.

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

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

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

★ STRETCH PROBLEMS

- 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 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, ___?

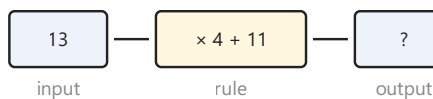
3



Find x so the scale balances.

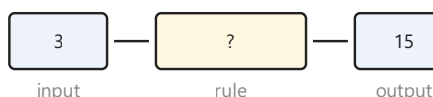
The 5th class library had x books on the shelves on Monday morning. During the week, 10 books were borrowed and the shelves were left with 9 books. How many books were on the shelves on Monday?

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



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 €15, 9 calves earns €33, and 10 calves earns €36. What is the rule?