Patterns in the tables and multiples

MODULE 10 · ALGEBRA — PATTERNS, RULES AND NUMBER SENTENCES ALGEBRA

HOW TO ANSWER TODAY

- **Find the rule.** Look at how each input changes to its output. Try × first, then + or −.
  3 → 6, 5 → 10, 7 → 14 → rule is × 2

STRETCH PROBLEMS

1. Tadhg is painting a banner for GAA finals day at the club. He paints **7** rows of stars on the banner, with **9** stars in each row. How many stars does he paint altogether?

2. Tadhg is planting bean seeds in rows in the school polytunnel. The first row has **14** seeds, the next has **11**, then **8**, then **5**. Following the same pattern, how many seeds are in the next row?

   > What comes next in the sequence: 14, 11, 8, 5, ___ ?

3. | input | rule | output |
   |---|---|---|
   | 8 | ? | 32 |

   Mr Ó Briain pins a number-rule chart on the 4th class noticeboard with three input-output pairs: **8** → **32**, **3** → **17**, and **7** → **29**. What is the rule that turns each input into its output?

4. | input | rule | output |
   |---|---|---|
   | 8 | ? | 18 |

   Sean and his friends play a soccer match in the schoolyard at lunchtime. Each team starts with **10** bonus points before the match begins, then adds the goals they score. The scoreboard shows: **8** goals → **18** points, **3** goals → **13** points, **7** goals → **17** points. What is the rule that turns the number of goals into the team's points?

5. | input | rule | output |
   |---|---|---|
   | 6 | ? | 17 |

   Tadhg's mam adds the same number of grapes to his lunchbox each day, on top of whatever crackers he packs. On Monday he packs **6** crackers and ends up with **17** items; on Tuesday he packs **8** crackers and has **19** items; on Wednesday he packs **1** cracker and has **12** items. What is the rule that takes the number of crackers to the total number of items?