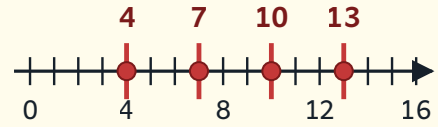


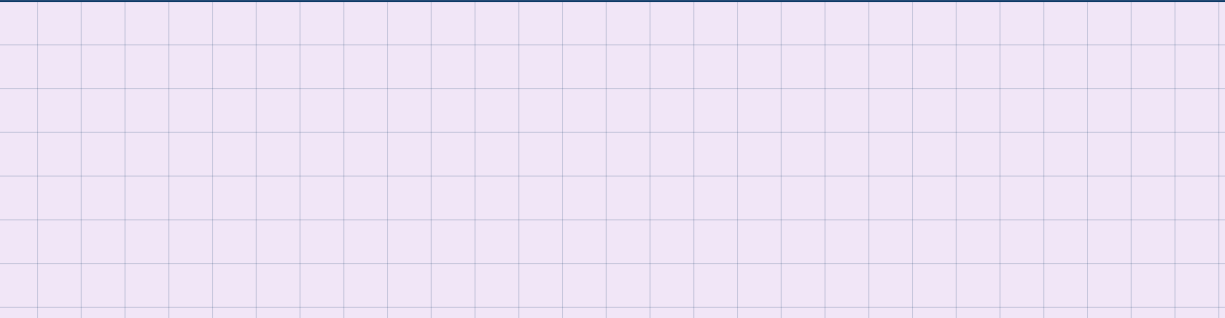
FINDING THE RULE FOR STICKS

- 1 The counts marked on the line are **4**, **7** and **10**.
- 2 Each jump is the same: $7 - 4 = \mathbf{3}$ and $10 - 7 = \mathbf{3}$.
- 3 The rule is start at **4** and add **3** each time, so the next count is **13**.



 WARM-UP

Use the squared space to draw the matchstick square pattern and work out its counts.

A large rectangular area filled with a light purple grid pattern, intended for drawing a picture. The grid consists of small squares, with a slightly thicker border around the perimeter.

1. Draw the first four steps of the 'add 3 sticks' pattern: one square, two joined, three joined, then four joined.
2. Under your drawing write the counts 4, 7, 10 and work out the fourth count by adding 3.
3. Keep adding 3 to reach the fifth and sixth counts and write both numbers down.

 PRACTICE

- 1 Sean builds a row of matchstick triangles. One triangle is 3 sticks, two triangles is 5, three triangles is 7. How many sticks does a row of four triangles need?
- 2 Aoife makes towers of blocks. Step 1 uses 2 blocks, step 2 uses 5, step 3 uses 8. How many blocks does step 4 need?
- 3 A fence pattern uses 6 posts for the first section, 10 for two, 14 for three. How many posts does the fourth section need?
- 4 Niamh builds triangle shapes with sticks: 5 sticks for one, 8 for two, 11 for three. How many sticks do the fourth and fifth shapes need?
- 5 A tiler starts a pattern at 22 tiles and adds 12 tiles at every step. Write down the tile counts for the first four steps.

REFLECT

How did you work out the rule for a growing pattern you had not built yet?