



You need: sticks

Bailey bridges were once common in New Zealand. They were quick and cheap to build. They are now built as temporary bridges.



Sali uses sticks to show how to build a Bailey bridge. 1.



He joins the sticks to make a bridge with 9 triangles.

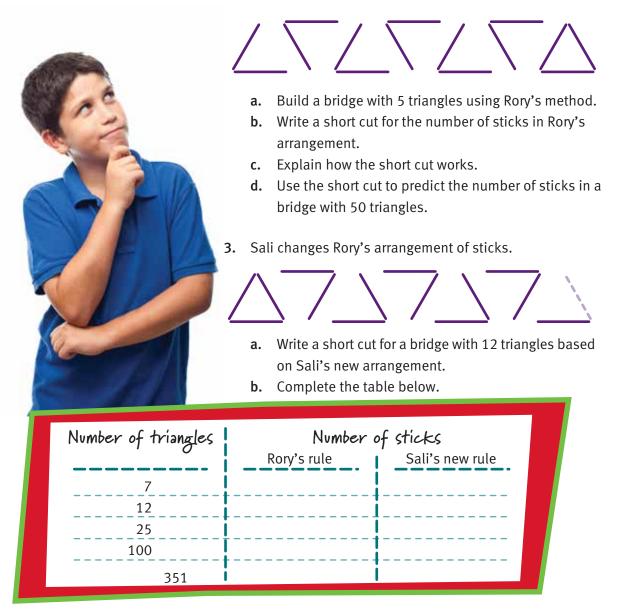


- Sali uses 9 x 2 + 1 as a short cut for the number of a. sticks in his bridge. Build a bridge with sticks for the short cut $5 \times 2 + 1$.
- **b.** Explain how Sali's short cut works.
- Complete the table below. c.

Number of triangles	Number of sticks
9	9 x 2 + 1 = 19
	5 x 2 + 1 = 11
90	
	201
1 563	



2. Sali's friend, Rory, shows a different way to build a Bailey bridge.



c. Explain how the two short cuts are different.

4. Sali thinks he can see another way to show how to build Bailey bridges.



He uses 6 additional sticks of a different colour for a bridge with 7 triangles.

- **a.** Explain why $7 \times 3 6$ is the short cut for this arrangement.
- **b.** Write the short cut for a bridge with 10 triangles.
- c. Complete the table below using this new short cut.

Number of sticks
7 x 3 – 6 = 15