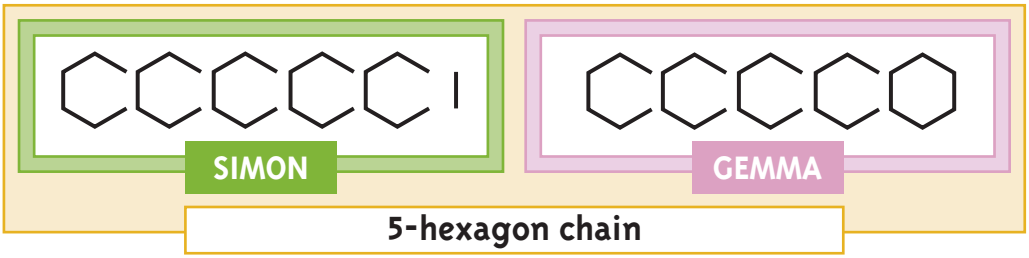
Straw Chains

ACTIVITY

1. The storage cells that make up a honeycomb are hexagon shaped.

Simon and Gemma have seen a picture of a honeycomb. It gives them the idea of making chains by cutting drinking straws and threading string through the pieces to make hexagon shapes.

They each arrange the pieces of straw in a different way to work out the number of pieces they need to make different-sized chains.



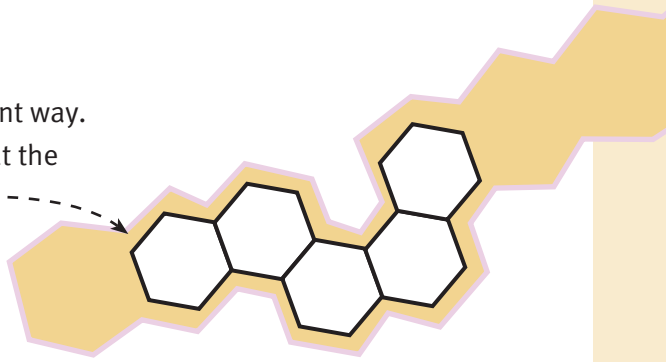
a. Simon writes 5 x 5 + 1 as a short cut for the total number of straw pieces in his chain. Write the short cut for Gemma's arrangement.
b. Explain how each short cut works.
c. Complete the table below.

Number of hexagons	Number of straw pieces	
	Simon's rule	Gemma's rule
5	5 x 5 + 1 = 26	
10		
37		
96		
150		
497		

2. Gemma decides to join the hexagons in a different way.

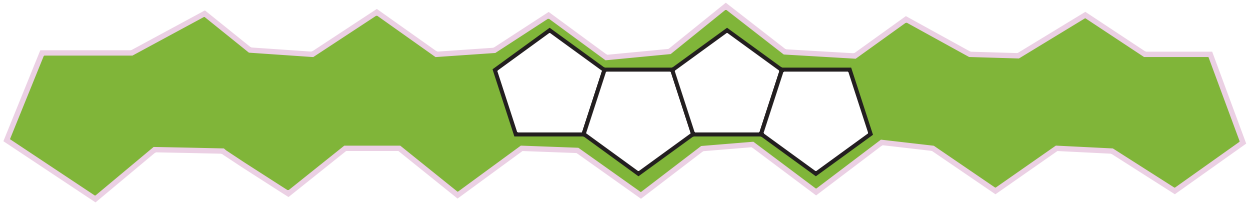
   a. See if you can find a short cut for working out the number of straw pieces in this chain. Explain the short cut.

   b. Complete the table below.



Number of hexagons	Number of straw pieces
6	31
	46
	61
	76
	101
	366

3. Simon and Gemma now decide to make a pentagon chain.



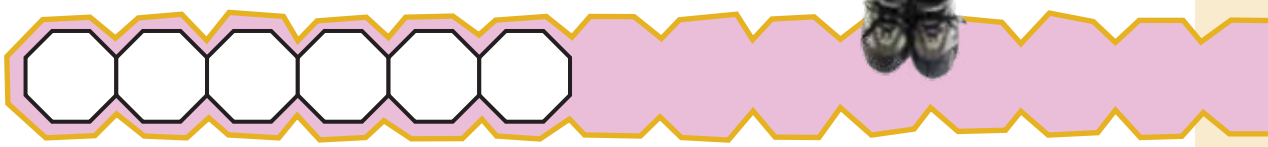
   a. See if you can work out a short cut for predicting the number of straw pieces in a chain with 100 pentagons.

   b. Now see if you can find a second short cut.

   c. Complete the table below.

Number of pentagons	Number of straw pieces
4	
8	
	57
37	
	369
265	

4 a. See if you can work out a short cut for predicting the number of straw pieces in a chain with 100 octagons.



   b. Explain how the short cut works.