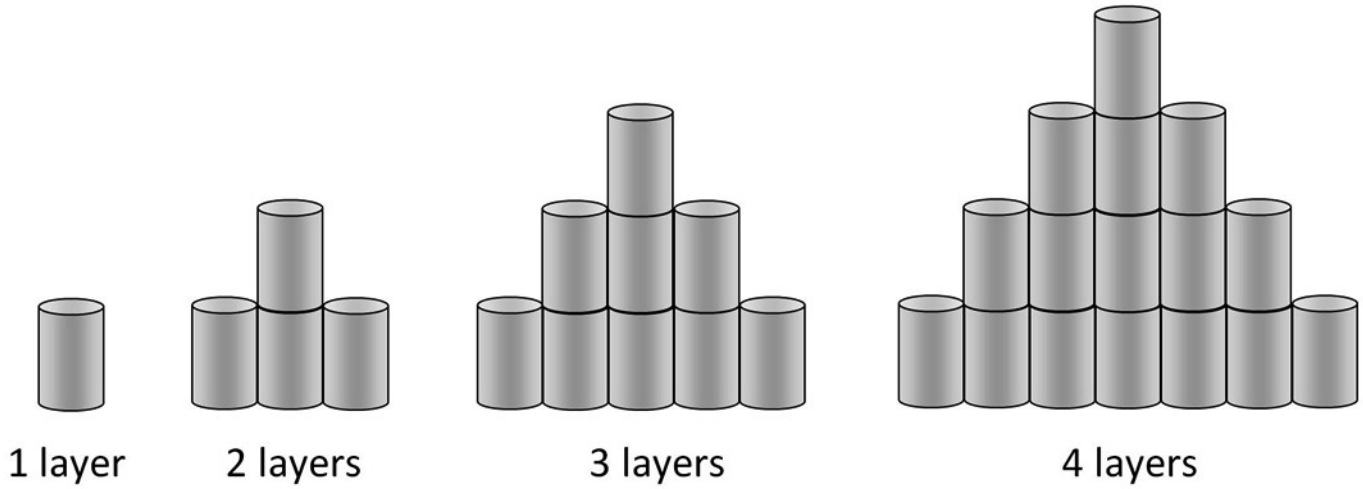
Mathematics hunt

Annotation

Annie solves the problem by drawing and using a table to show the connection between the elements in a sequential pattern. She can explain the relationship between the numbers in the pattern and uses her table to work out an unknown value given its ordinal position.

Problem: Mathematics hunt

Room 10 visits the supermarket where they have a “mathematics hunt”. One student notices that cans are stacked in the following way in a display:



The teacher asks:

How many cans would there be in a stack that was 10 layers high?

Student Response

Annie draws the following table:

Number High	Num. along bottom	Num. altogether
1	1	1
2	3	4
3	5	9
4	7	16
5	9	25
6	11	36
7	13	49
8	15	64
9	17	81
10	19	100

Annie: It's 100 'coz it grows quite fast.

Teacher: Tell me about what you have done.

Annie: I could see just by looking that each layer was two cans wider than the one on top of it – that's one each side. But that didn't really help me. So I wrote down what was happening on a chart so I could actually see the numbers. I got into the pattern of it as I filled it out. I added two each time to the number along the bottom and added the number in that new layer to the number already in the stack. That way, I could see how many cans it would be altogether.