Patterns and Spreadsheets

You need: a computer spreadsheet, square grid or graph paper (optional)

ACTIVITY ONE

1. Mel records her savings in a table. She started with $5.

> **Mel's Savings**
> | | |
> |---|---|
> | After 1 week | $12 |
> | After 2 weeks | $19 |
> | After 3 weeks | $26 |

a. How much does Mel deposit each week?
b. What will Mel's savings be after 11 weeks?

2. Mel makes a spreadsheet to predict her future savings. She puts 12 in cell B2 and then the formula =B2+7 into cell B3. The formula automatically calculates Mel's savings for the week. You see only the amount saved in B3 because the formulae are normally hidden.

a. Explain how the formula =B2+7 works.
b. Mel uses the Fill Down command to put formulae into cell B4 onwards. The formulae automatically calculate Mel's savings for those weeks.
Write the formulae that the Fill Down command puts in cells B8, B11, B20, and B43.
c. Make a spreadsheet to show how much Mel saves after 52 weeks.

Mel's Savings (SS) — B3 =B2+7

Week	Savings ($)
1	12
2	19
3	26
4	33
5	40
6	
7	
8	
9	
10	

Mel's Savings (SS)

Week	Savings ($)
1	12
2	B2+7
3	B3+7
4	B4+7
5	B5+7
6	
7	
8	
9	
10	

ACTIVITY TWO

Jeff has $36 in his account. He decides to save $45 every month from his after-school job.

1. Make a spreadsheet for Jeff's savings.

2. Use the spreadsheet to work out when Jeff will have enough to buy a mountain bike worth $750.

Mārama makes a spreadsheet to keep track of her savings.

a. How much does Mārama withdraw from her savings each week?

b. Explain how the formula =B4−9 in cell B5 works.

c. Write the formulae that the Fill Down command puts in cells B6 and B8.

d. How much is left in Mārama's account in week 11?

	Mārama's Savings (SS)			
B5	fx X ✓	=B4-9		
	A	B	C	D
1	Week	Savings ($)		
2	1	87		
3	2	78		
4	3	69		
5	4	60		
6	5	51		
7	6			
8	7			
9	8			
10	9			
11	10			
12				
13				

Gerry designs pathways with square paving stones surrounding squares of lawn. Below are pathways with:

1 square of lawn   2 squares of lawn   3 squares of lawn
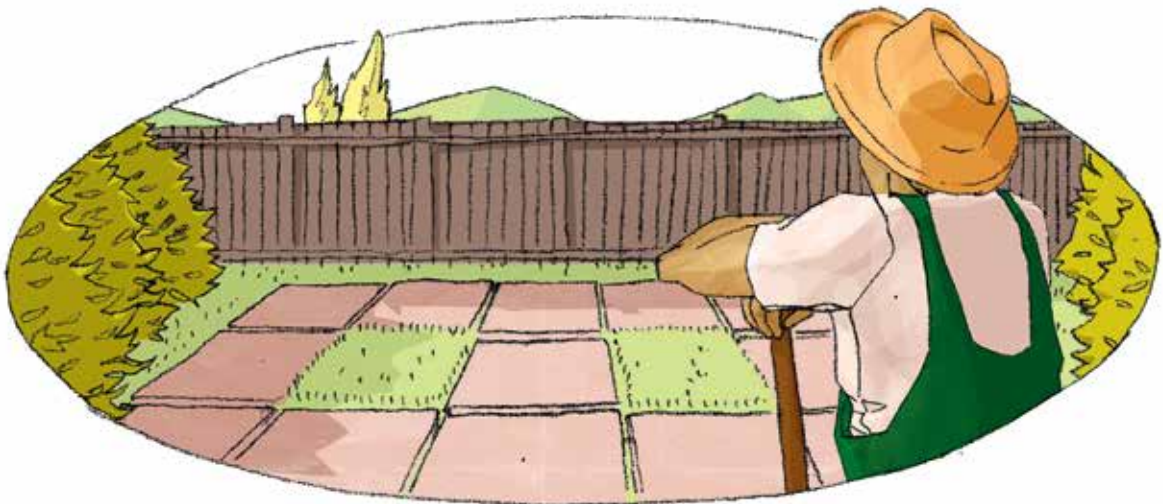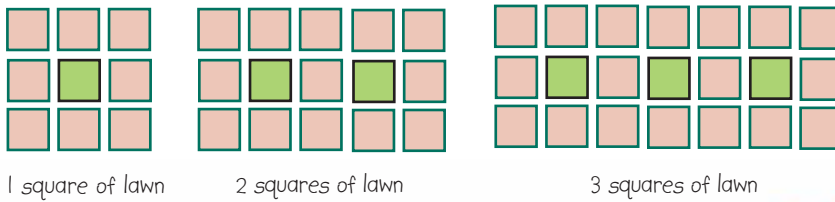
Gerry wants to draw up a spreadsheet to calculate the number of paving stones he needs for any of his pathways.

a. Make Gerry's spreadsheet.

b. Write the formulae that go in cells B7, B15, B63, and B75.

c. A pathway has 17 squares of lawn. How many paving stones are there?

d. A pathway has 183 paving stones. How many squares of lawn are there?

	Gerry's path (SS)			
	fx X ✓			
	A	B	C	D
1	Number of lawn squares	Number of paving stones		
2	1	8		
3	2	13		
4	3			
5	4			
6	5			
7	6			
8	7			
9	8			
10	9			
11	10			
12				
13				

Make spreadsheets for the number patterns below and find the numbers asked for.

1. 17, 23, 29, 35, 41, … Find the 18th and 36th number in the pattern.

2. 53, 73, 93, 113, 133, … Find the 27th and the 43rd number in the pattern.

3. 6, 9.5, 13, 16.5, 20, … Find the 24th and the 87th number in the pattern.