

Lesson 1 :

Spreadsheet warm-

up

National
Centre for
Computing
Education



Raspberry Pi



Lesson 1: Spreadsheet warm-up

In this lesson, you will:

- Create a spreadsheet model for a given scenario
- Demonstrate how to utilise formulae to calculate income
- Apply cell formatting




Starter

- How much do you remember about spreadsheets?
The Starter activity is a labelling exercise to help you remember common spreadsheet terminology. There is also a fault-finding task.
- Open and complete the Starter activity: **A0 Resource – Lesson 1 starter**
- Answers here: **A0 Solutions – Lesson 1 starter**



Open the spreadsheet

Open the spreadsheet **A1 Resource – RSC voting**

	A	B	C	D	E	F	G	H	I
1	Rock Star Challenge Voting								
2									
3	Charges for voting								
4	Telephone	1.2							
5	Text	0.5							
6									
7	Total Votes and Income		Telephone Votes			Text Votes			
8			Week	Votes	Income		Week	Votes	Income
9			1				1		
10			2				2		
11			3				3		
12			4				4		
13			5				5		
14			6				6		

Enter data

Enter the data from **A1 Worksheet – Voting data**

Telephone Votes			Text Votes		
Week	Votes	Income	Week	Votes	
1	189034		1	134789	
2	195754		2	159348	
3	201456		3	205267	
4	212674		4	219169	
5	176432		5	159438	

Enter formula

In cell E9 enter a formula to calculate income from telephone votes, then use the **fill handle** to populate the cells below

Telephone Votes		
Week	Votes	Income
1	189034	226840.8
2		97877
3		0
4	212674	0
		0
		0

What's gone wrong?

The formula has been changed RELATIVE to each row so it quickly goes 'wrong'

Change the formula to ABSOLUTE: cell E9 should look like this:

=D9*\$B\$4

Telephone Votes		
Week	Votes	Income
1	189034	226840.8
2	195754	234904.8
3	201456	241747.2
4	212674	255208.8
5	176472	211718.4

See **A1 Worksheet - Voting data**

Note

	A	B
3	Charges for voting	
4	Telephone	1.2
5	Text	0.5
6		

The cost of a telephone vote can be broken down like this:

- RSC is charged to set up this kind of call – they pass this on to the user
- BT charge a setup fee too
- Then there is the amount which goes to RSC

All this gives a total of £1.20 for a telephone vote

Enter formula

Enter a formula in cell E19 to calculate the total income from telephone calls

9	231109	277330.8
10	187654	225184.8
Total Income (Telephone)		2124628.8

Charity donation

Just like *I'm A Celebrity*, RSC wants to make a donation to a charity for every vote cast.

	J	K	L	M
2				
3	Charity donation			
4	Amount per vote			
5				
6				
7		Donation to charity		
8		Telephone votes		
9		Text votes		
10		Total		
11				
12				
13		Profit		
14				
15				
16				
17				

Cell K4 – enter an amount to donate

Cell L8 – enter a formula to calculate the amount to be donated from telephone votes

Cell L9 – enter a formula to calculate the amount to be donated from text votes



Cell L10 – calculate the total donated to charity

Cell L13 – calculate the profit: add together income from telephone and text votes then subtract the donation

See **A2 Worksheet – Charity donation and profit**

Formatting

Formatting makes data more readable. Cells containing money should be formatted as currency. Some headings which cover multiple columns could be merged and it might help to add a background fill colour to headings. Example below:

  Rock Star Challenge Voting										
Charges for voting				Charity donation						
Telephone	£1.20			Amount per vote		0.15				
Text	£0.50									
Total Votes and Income		Telephone Votes			Text Votes			Donation to charity		
	Week	Votes	Income	Week	Votes	Income	Telephone votes	Text votes	Total	
	1	115000	£138,000.00	1	25000	£12,500.00	£38,400.00	£3,750.00		
	2	21000	£25,200.00	2	25000	£12,500.00				
	3	15000	£18,000.00	3	50000	£25,000.00				
	4	15000	£18,000.00	4	25000	£12,500.00				
	5	15000	£18,000.00	5	25000	£12,500.00				
	6	15000	£18,000.00	6	25000	£12,500.00				
							Profit		£402,550.00	

Scenarios

By changing the values in **B4**, **B5**, and **K4** you can affect the amount of income from votes and how much will be donated to charity.

Spend a short time changing these values to see what happens.

What value does **K4** have to be so that RSC donates £500,000 to charity?

What values would **B4** and **B5** have to be so that the total income was £1 million?

Plenary

Question

What is the difference between a RELATIVE formula and an ABSOLUTE formula? Can you give an example?

Answer

A RELATIVE formula looks similar on each row in a column, but each time the row will change. Example: `=A1+B1`, `=A2+B2`, etc.

An ABSOLUTE formula always refers to the same cell, for example if a cell holds the VAT rate or interest rate. Example: `=A1*J1`, `A2*$J1$1`, etc.

Next lesson

In this lesson, you...

Created a spreadsheet model for a given scenario

Demonstrated how to use formulae to calculate income

Applied cell formatting

Next lesson, you will...

Use common formulae to model seat sales and income from an event

Use formatting to make the spreadsheet readable and to highlight different areas, e.g. seats available, income

Use data validation when entering data in order to reduce user error