

10a Spreadsheets – 1 - Basics

This is the first in a number of guides which will introduce you to creating and using spreadsheets. It will not cover the more advanced features such as graphs. They will, however, cover basic arithmetic functions and display formatting. This first exercise will only use summation.

The guides all use "Open Office". If you have not installed Open Office you can find it in the folder "Software for workshops". Double click on "Apache_OpenOffice....." to install. If you wish to remain with Microsoft Excel it is very similar and you should be able to adapt the instructions.

1. Creating a spreadsheet

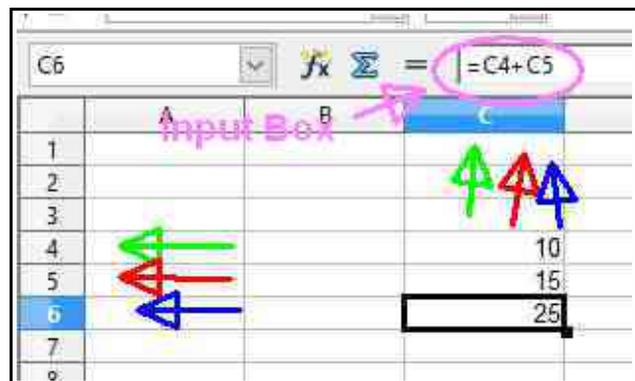
1. Use Windows/File Explorer to open your Computer Class Exercises folder or create one of your choice.
2. Select the folder. In the right hand side of the window move the cursor to an open space and right click. Select new and then "OpenDocument Spreadsheet". Change the name to Exercise 1 or similar. Note that the extension (characters after the last dot) will be "ods". Remember that Windows uses the extension to identify which application is required.
3. Double click on the newly created spreadsheet.

2. Structure of a spreadsheet

1. A spreadsheet consists of, for practical purposes, an unlimited number of cells.
2. The cells numbering from left to right are identified by letters starting at "A". Thus, "C" would represent the third **COLUMN** from the left.
3. After "Z" the columns continue "AA", "AB" up to "AZ". It then continues with "BA".
4. The cells numbering from top to bottom are identified by numbers starting at 1 and indicate the **ROW**.
5. Thus "C4" represents the cell in the third **COLUMN** and the fourth **ROW**.
6. Note that you can use upper or lower case when entering calculations.
7. **Clicking on a cell will always show its contents in the input box.**

3. A simple addition

1. In cell **C4** enter the number "10" – **do not type the quotes**
2. In cell **C5** enter the number "15"
3. Click in cell **C6** and move the cursor to the input box just above the "C" column header.



- Type `"=C4+C5"` and press enter. The number 25 should appear in cell C6. **Don't type the quotes**

4. Explanation

- Cells can contain numerics or text. Only if the contents are numeric in a valid format will the spreadsheet calculate correctly. This will be demonstrated in later exercises.
- The content of cell which calculates from other cells **MUST** start with `"=`". Entering `"C4+C5"` would display as such and not calculate.
- The biggest mistake that many beginners make is that they bring out the calculator and manually enter the result. Learn to do it properly. You should NEVER enter a result manually calculated from other cells into the spreadsheet.**

5. Another common mistake.

- In cell C3 enter "7".
Note that the total does not change to 32. This is because the calculation in C6 only refers to two cells.
Change the contents of C6 to `"=C4+C5+C3"`.
Note that the sequence of the cells is not important in this calculation so you could also enter `"=C3+C4+C5"`

	A	B	C	D	E
1					
2					
3			7	8	9
4			10	11	12
5			15	16	17
6			32		
7					

- In a later exercise we will use a different formula which will add a range of cells and we do not have to specify each individual cell. Then we only have to be cautious when adding before the first row/column or after the last row/column.

6. A self checking table.

- Enter the remaining columns as indicated in the diagrams
- Note that C6 contains the formula `"=C4+C5+C3"`

- We are now going to copy the formula used in column C to columns D and E.

	A	B	C	D	E
1					
2					
3			7	8	9
4			10	11	12
5			15	16	17
6			32	35	38
7					

4. In C6 click the right mouse and select "Copy".
5. Move the cursor to D6, right click and "Paste"
6. The formula in D6 has changed to from " $=C4+C5+C3$ " to " $=D4+D5+D3$ "
7. This is one of the great benefits of using a spreadsheet.
8. Repeat the process copying D6 to E6

7. Completing the spreadsheet.

	A	B	C	D	E	F	G
1							
2							Row Totals
3			7	8	9		24
4			10	11	12		33
5			15	16	17		48
6	Column totals		32	35	38	105	105
7							
8							

1. Enter the words "Column Totals" in cell "A6" and "Row Totals" in G2 – note you will have a blank column F.
2. In cell F6 enter the formula " $=C6+D6+E6$ ". You should have a total 105
3. We are now going to enter the row totals but doing it with less typing
4. **Do not type the formula in G3 – use the method described below**
5. Click on G3 and in the input box type "=". Click on cell C3. The input line will show C3 highlighted in reverse video. This is correct.
6. Then enter "+", click on cell D3, then "+", click on Cell E3 and press enter.
7. You should have the formula " $=C3+D3+E3$ ". If not click on G3 and backspace in the input box until it is clear. Repeat until you understand. **DO NOT** resort to the typing method as this technique will be a regular friend.
8. Click on G3, copy and paste into G4. Repeat copying G4 to G5.
9. In G6 enter the formula " $=G3+G4+G5$ " by using the method in 4 above.
10. You should now have the same totals in F6 and G6.

8. Why cross checking

1. In a later exercise we will use the same cross checking technique but rather than showing the totals twice we will display an error message if the totals do not agree.

2. As mentioned earlier, missing cells out of a calculation is easy to do and one of the most common errors.
3. Often it is not possible to set up a cross check so the initial design must be carefully checked.

Repeat this exercise from scratch a number of times until you fully understand the techniques and purpose. Try changing the numbers to larger figures. You can also use decimals such as 13.5. Note you cannot use "," as the decimal deliniator.

In later exercises we will use subtraction, multiplication and division.

Spreadsheets do not have to only be used for calculations. They can be very useful to simply storing text information in a column format and easier to use than columns in a document.