

Introduction to Google Spreadsheets

Google Spreadsheets essentially works in the same way as Microsoft Excel. Both use a format that is similar to that of an accounting worksheet (i.e. a row and column arrangement) with individual 'cells' normally being identified by a column letter and a row number (e.g. B3 refers to the cell at the intersection of the second column and the third row). Each cell of a spreadsheet may contain text, a number or an expression to perform a calculation.

Excel (like most spreadsheet software) must be bought and installed locally on a machine. Google Spreadsheets however, is an example of a new kind of software that is browser based. When a spreadsheet is edited, the spreadsheet program is downloaded at that moment to the users machine (for free).

Small and medium size models work well in Google spreadsheets.

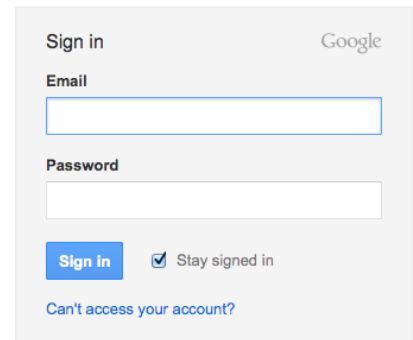
Starting to use Google Documents

To use Google's on-line applications you must first register / create a Google account. Open a browser and navigate to

<http://drive.google.com>

Click on Create a new Google Account and follow the instructions.

You will need a valid e-mail address – your email address will become your account name. You will have to authenticate your account by logging into the mail system and clicking on the emailed link.



Sign in Google

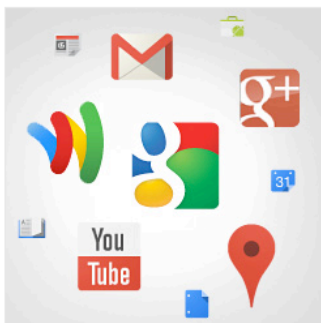
Email

Password

Stay signed in

[Can't access your account?](#)

Create a new Google Account



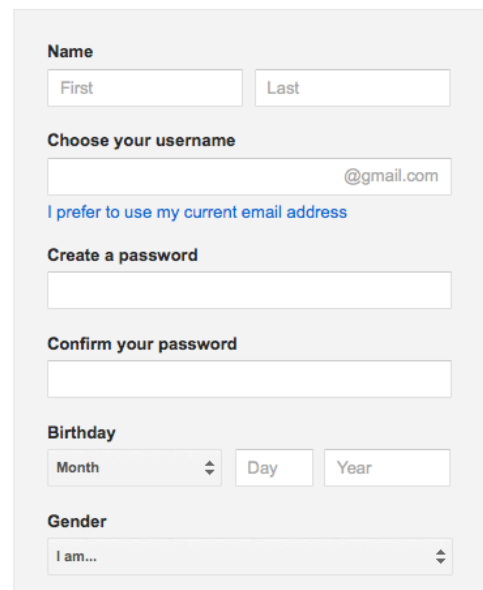
Your Google Account is more than just Google Docs.

Talk, chat, share, schedule, store, organize, collaborate, discover, and create. Use Google products from Gmail to Google+ to YouTube, view your search history, all with one username and password, all backed up all the time and easy to find at (you guessed it) Google.com.



Take it all with you.

A Google Account lets you access all your stuff — Gmail, photos, and more — from any device. Search by taking pictures, or by voice. Get free turn-by-turn navigation, upload your pictures automatically, and even buy things with your phone using Google Wallet.



Name

Choose your username

[I prefer to use my current email address](#)

Create a password

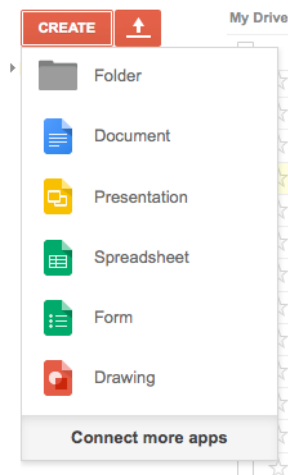
Confirm your password

Birthday

Gender

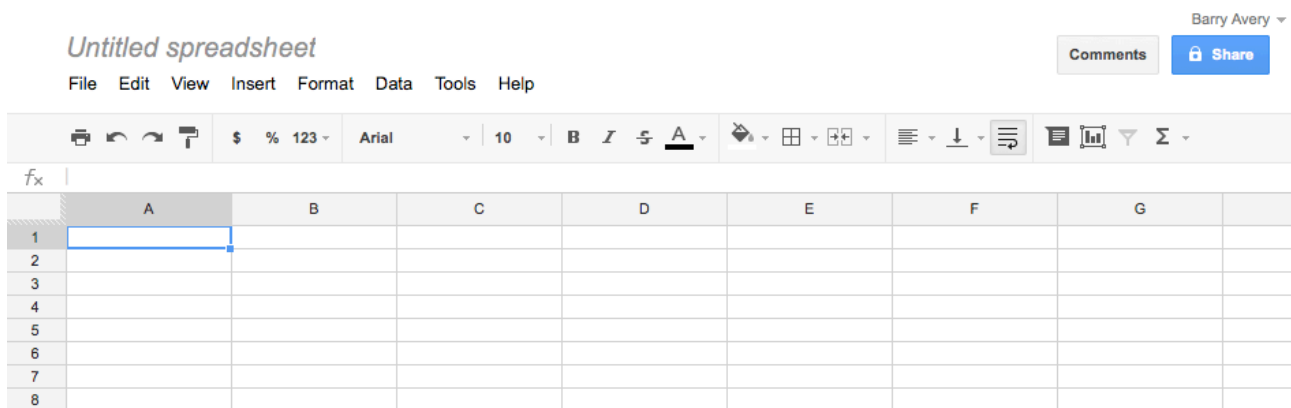
Creating a new spreadsheet

Once you have registered and signed in, you will see the area where your documents and spreadsheets are listed (it should be empty). Click on Create - Spreadsheet.



Moving around the spreadsheet

Google Spreadsheets (from here on referred to as GS) uses the traditional highlighted cell, cursor and cursor key paradigm. The currently edited (or editable) cell is highlighted and using the arrow keys changes the position of the cursor.



Developing a Model

The following sections will develop a basic cash-flow model and in doing so, will introduce the main features and techniques GS offers.

Data Entry

The spreadsheet recognises an entry placed in a cell as either a **'label'** (i.e. text), **'Value'** (i.e. Number) or **'Formula'** (i.e. calculation). To finish entering the data, press the **Enter** key ↵, which moves the cursor to the cell below.

If any mistakes are made after pressing the **Enter** key, simply retyping the entry will 'overwrite' the current cell content, or pressing the **Delete** key will remove the entry.

Activity 1: Entering labels and values

Enter the following labels and values on a blank spreadsheet:

	A	B	C	D	E
1			Jan	Feb	Mar
2	Cash Sales		50	55	60
3	Credit Sales		35	32	20
4	Total receipts				

Note how GS wraps the text if the entry is longer than the given cell width (leave this for the moment as it will be adjusted later).

Entering Calculations

As is traditional in spreadsheets, cells can also be used to display the results of calculations based on values in other positions. A calculation (or 'Formula') in GS, must be preceded by the = sign.

Activity 2: Entering a formula

With the cursor at cell C4 type the following formula

=C2+C3 and press the *enter* key ↵

This should display the correct total for the figures above.

Activity 3: Adding other formulas

Enter equivalent expressions for the other two months (i.e. in cells D4 and E4).

Once formulae have been entered into a spreadsheet, by clicking the cursor on an existing number entry then typing in alternative values, the worksheet is immediately recalculated. In other words you now have a 'model' which will work for any range of values.

Activity 4: Demonstrating recalculation

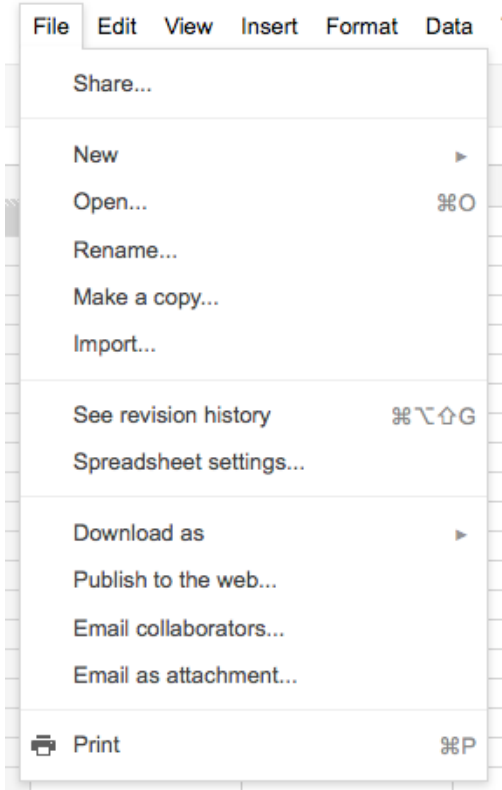
Replace the Credit sales figure for March with the value 32. You should be able to see an immediate recalculation taking place.

	A	B	C	D	E
1			Jan	Feb	Mar
2	Cash Sales		50	55	60
3	Credit Sales		35	32	32
4	Total receipts		85	87	92
5					

Accessing the Command Menu

Many operations in spreadsheets are performed by accessing the menu options.

Untitled spreadsheet



To see the full list of available menu items, click on the File button. Note that some items may not be immediately available.

Saving and Retrieving Worksheets

The standard options are accessible through the File item (creating, renaming, importing), but note that you can also download the spreadsheet (to use locally in software such as Excel), or share the file with others.

Note how there is no 'file - save' menu item

Google Docs saves the file regularly in the background so there is no requirement to save the file like in Excel.

Activity 5: Extending the model

Extend the current model by adding in entries for Payments and headings for cash flow and balances as in the illustration below.

	A	B	C	D	E
1			Jan	Feb	Mar
2	Cash Sales		50	55	60
3	Credit Sales		35	32	32
4	Total receipts		85	87	92
5					
6	Wages and salaries		53	53	53
7	Services		32.5		
8	Rates				15.3
9	Materials		22.5	23	24
10	Total Payments				
11					
12	Net cash flow				
13	Opening Balance		20		
14	Closing Balance				

Activity 6: Creating Totals

Create calculations for the Total Payments in cells C10 to E10. Note: the formula for C10 would be =C6+C7+C8+C9 (i.e. include any blank cells which may require data at a later stage).

Wages and salaries		53	53	53
Services		32.5		
Rates				15.3
Materials		22.5	23	24
Total Payments		108	76	92.3

Enter formula for Net Cash Flow calculations (i.e. Total Receipts minus Total Payments) in cells C12 to E12.

Net cash flow		-23	11	-0.3
---------------	--	-----	----	------

The Balance calculations now need to be entered. Assuming the January Opening Balance (at C13) is 20, the January Closing Balance (at C14) is simply created by entering the formula

$$=C12+C13$$

This figure needs to be carried forward as the Opening Balance for February. To do this simply enter (at D13) the expression

$$=C14$$

Net cash flow		-23	11	-0.3
Opening Balance		20	-3	8
Closing Balance		-3	8	7.7

This will ensure that any result in cell C14 is also displayed in D13. Enter the equivalent formulae in columns D and E to complete the calculations for the three months.

Inserting and Deleting Rows and Columns

	A	B	C	D	E
1			Jan	Feb	Mar
2	Cash Sales		50	55	60

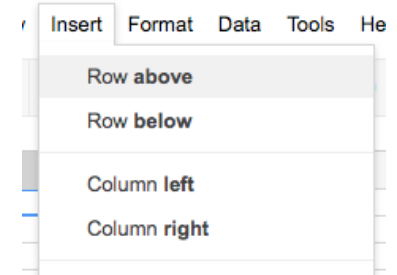
Click here to select the entire row

	C	D
	Jan	Feb
	50	55
	35	32
	85	87
	53	53
	32.5	
	22.5	23

Click here to select the entire column

Basic changes to layout can be made by inserting or deleting rows and columns

- Click on the row or column heading (above or left of the sheet - this will highlight the entire row or column)
- Use the *Insert* button on the menu bar to either insert a column/row on the left/right as required.
- Click on any cell to de-select the highlighted column or row



Activity 7: Inserting rows and columns

Click on the row 1 heading and then insert a blank row at the top of the spreadsheet - enter a title **Cash Flow Forecast (£000)** in cell A1.

Click on the row 3 heading, insert a row above and enter the heading **Receipts** in A3.

Click on the row 8 heading, insert another row above and enter the heading **Payments** in A8.

Click on the column B heading, then delete the 'empty' column.

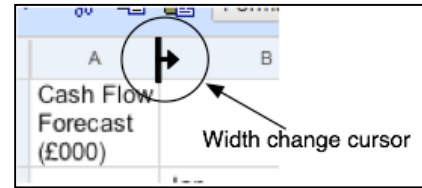
	A	B	C	D
1	Cash Flow Forecast (£000)			
2		Jan	Feb	Mar
3	Receipts			
4	Cash Sales	50	55	60
5	Cash Sales	35	32	32
6	Total receipts	85	87	92
7				
8	Payments			
9	Wages and salaries	53	53	53
10	Services	32.5		
11	Rates			15.3
12	Materials	22.5	23	24
13	Total Payments			

Changing Column Widths

Any or all of the columns on a worksheet may be adjusted to have different widths.

An individual column can be changed by:

1. Positioning the mouse pointer between two column headings (e.g. A and B), to call up the width change cursor
2. dragging the column width cursor to right or left, to change the column width



Activity 8: Changing Widths

Increase the width of column A, and reduce the widths of columns B, C and D.

Ranges

A group of cells in a contiguous rectangular block is referred to as a Range in spreadsheets. They can be defined by typing in their cell references, which is normally the top left corner address followed by the bottom right corner address separated by a full stop (e.g. B2.D2).

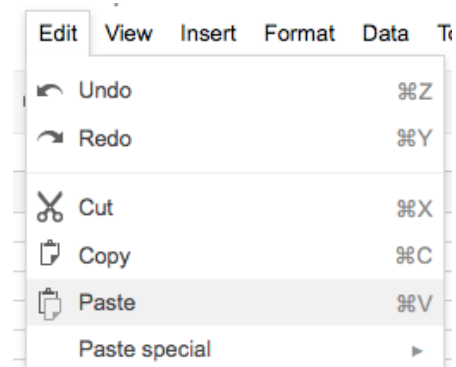
Activity 9: New Month headings

Enter new month headings from *April* through to *June* on the second row, (columns E to G).

Using Copy and Paste

Where 'blocks' of data need to be copied it is best to use the **Copy** and **Paste** buttons from under the Edit menu option. To do this you would:

1. Highlight the block of cells to be copied
2. Select the *Copy* button from the menu bar
3. Click on the point where the copy is to be placed
4. Select the *Paste* button from the menu bar



Activity 10: Copy / Paste

Copy the *Total Receipts* formula for March (in D6), to the next three cells across. This will result in 0 entries as there is no data yet for April to June (e6 to g6).

Copy the *Total Payments*, *Net Cash Flow*, *Opening Balance* and *Closing Balance* calculations (at D13,D15,D16,D17) using similar sequences to that above.

Enter these extra values: Cash Sales for April, May, June were 50, 55, 60. Credit sales for April, May, June were 35, 32, 32. Wages were 53 for every month, 32.5 was services for April, with 15.3 as the value for rates in June. Finally materials for April, May, June were 22.5, 23 and 24.

Functions

To complete the model it is necessary to include Totals for the six months. A simple formula could be constructed like $=B4+C4+D4+F4+G4$

However this is rather laborious, especially so for a 12 month cash flow. To simplify repetitive or complex calculations, spreadsheets provide a number of built-in Functions. These provide access to a huge range of financial, statistical and mathematical operations.

Each function is entered with the = sign followed by a descriptive word or abbreviation with data or range information between brackets. The syntax is normally $=functionname(data\ or\ range)$

The previous total could be entered as:

$=SUM(B4:G4)$ i.e. sum the range from B4 to G4

Activity 11: Adding functions

Enter the heading **Total** in H2 (alongside the month Headings) and then enter the appropriate sum function into cell H4.

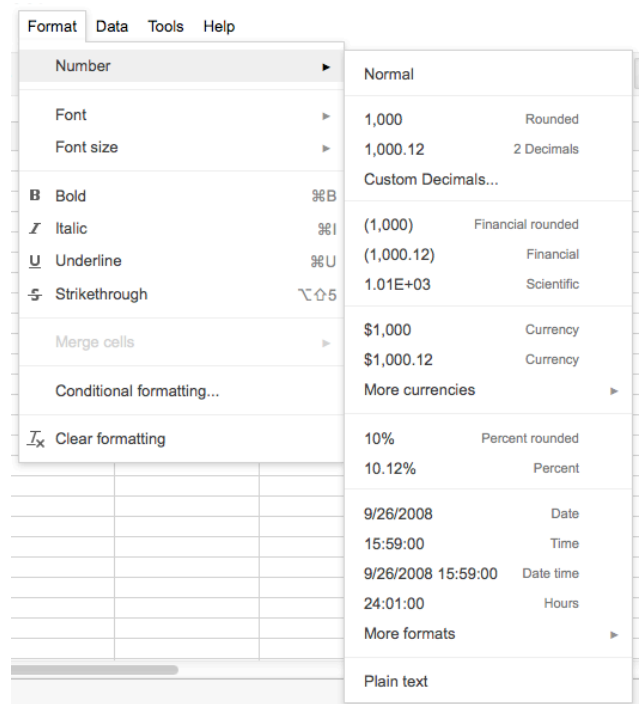
Use the Copy / Paste technique to copy this formula down from H3 down to H15.

Remove the superfluous functions in rows 7, 8 and 14 by moving to each cell then pressing the Delete Key.

Selecting Number Formats

A worksheet may display value data in different ways using the *Format* menu button. Formatting changes the appearance of the number only, not the value stored in the cell. Commonly used ones are:

- **Normal** – this is usually the default displayed. Whole numbers are shown without decimal places, numbers that have fractional parts are shown with as many places as room permits.
- **Numbers** – Permits choice of decimal places and how negative figures are displayed.
- **Currency** – Provides a currency symbol, along with a ‘,’ delimited thousands separator and choice of fixed decimal places.



Activity 12: Formatting cells

Highlight all the values (e.g. in the range B4.H17). Select the *Format* button to call up the Format choices. Choose two decimal places for all the cells.

To set the Total column differently (e.g. to be rounded up to whole numbers), highlight the Total values (in the range H4.H15), select the Format button again and choose *rounded*.

The Tool Bar

Standard spreadsheet functionality is available through the buttons on the Tool Bar. Select the area or range of cells to be affected and then click on the appropriate button.



Hover the mouse pointer over each item in turn to see a pop up explaining the purpose of each button. You will use the **Align** and **Borders** buttons in the next activities

Aligning Cell Entries

Alignment in a cell may be chosen to be *Left*, *Centre* or *Right* by simply clicking on the *Align* button.

Activity 13: Align the headings

Use the tool bar to 'Right' align the month headings.

Borders

The Borders facility which makes it easy to create 'boxed' tables in all or part of a spreadsheet.

Activity 14: Placing borders

To Emphasise the Receipts figures and calculations place the cursor at A4 (the Cash Sales line) then highlight to cell H6. Click on the *Borders* button and select the 'borders-round-all-cells' option.

Place borders around the Payments figures (rows 9 to 13) and the final three rows of calculations (rows 15 to 17).

	A	B	C	D	E	F	G	H
1	Cash Flow Forecast (£000)							
2		Jan	Feb	Mar	April	May	June	Totals
3	Receipts							
4	Cash Sales	50.00	55.00	60.00	50.00	55.00	60.00	330
5	Credit Sales	35.00	32.00	32.00	35.00	32.00	32.00	198
6	Total receipts	85.00	87.00	92.00	85.00	87.00	92.00	528
7								
8	Payments							
9	Wages and salaries	53.00	53.00	53.00	53.00	53.00	53.00	318
10	Services	32.50			32.50			65
11	Rates			15.30			15.30	31
12	Materials	22.50	23.00	24.00	22.50	23.00	24.00	139
13	Total Payments	108.00	76.00	92.30	108.00	76.00	92.30	553
14								
15	Net cash flow	-23.00	11.00	-0.30	-23.00	11.00	-0.30	-25
16	Opening Balance	20.00	-3.00	8.00	7.70	-15.30	-4.30	13
17	Closing Balance	-3.00	8.00	7.70	-15.30	-4.30	-4.60	-12

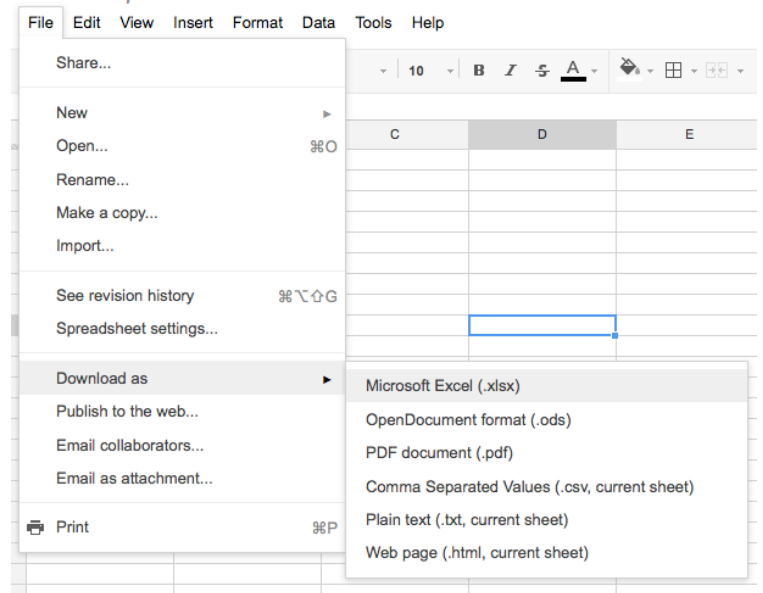
Importing, exporting and collaborating

Two important features offered by Google Spreadsheets are importing/exporting and collaboration.

Exporting

Google Spreadsheets can export files in a variety of different forms, including PDF, HTML and the native Excel format XLSX.

To do this select the *File* menu button followed by *Download as* and the export form of your choice.



Activity: Exporting to Excel

Use the export functionality to export the completed spreadsheet to your local network area as an Excel spreadsheet.

Next, load the spreadsheet into Excel and change the format so that it looks like the following:

Cash Flow Forecast (£000)							
	Jan	Feb	Mar	April	May	June	Totals
Receipts							
Cash Sales	50	55	60	50	55	60	330
Credit Sales	35	32	32	35	32	32	198
Total receipts	85	87	92	85	87	92	528
Payments							
Wages and salaries	53	53	53	53	53	53	318
Services	32.5			32.5			65
Rates			15.3			15.3	31
Materials	22.5	23	24	22.5	23	24	139
Total Payments	108	76	92.3	108	76	92.3	553
Net cash flow	-23	11	-0.3	-23	11	-0.3	-25
Opening Balance	20	-3	8	7.7	-15.3	-4.3	13
Closing Balance	-3	8	7.7	-15.3	-4.3	-4.6	-12

Hints: Change the background colour of the cells to be a light grey colour, and use Bold/Italic as required. Save the spreadsheet

Importing

Some formatting features from Excel may be lost during the import process.

Activity: Importing back into Google Drive

In Google documents, Select *New Spreadsheet* and then use *File – Import* to load in the Cash Flow spreadsheet. How much of the formatting has survived the import process?

Collaboration

An Google spreadsheet can be shared with another user. For this next activity you will need to work in pairs, with someone who has also got this far in the activity. You will need to know each others email address.



Activity: Share a spreadsheet online

In Google Spreadsheets, with the Cash Flow spreadsheet open, use the *share* button item (on the right) to invite someone to collaborate on the document. One of you should share the spreadsheet, the other should follow the invite from the email.

Follow the email link (and look in Google Spreadsheets) for the shared file.

You should now both be able to Discuss and change the file (using the Discuss option on the right).

Activity: Make changes collaboratively

With both of you viewing the same spreadsheet, try out the Discuss option, and then (between you) change the figures so that:

The Cash Sales for May are 65

The Credit Sales for June are 64

Wages and salaries go up to 60 in May and June

Materials costs increase in May and June (add on 10 to the two existing values).