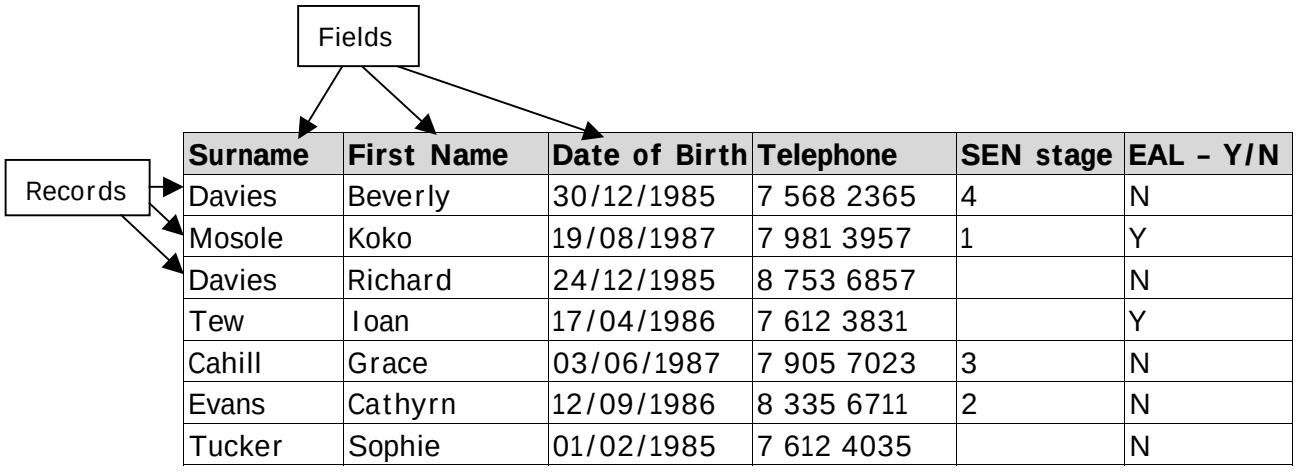
Using Excel to create a student database

Excel can be used to create spreadsheets or very simple databases.

The difference between a spreadsheet and a database
A spreadsheet is used primarily to record numerical data and perform calculations related to it whereas a database is used to store factual information and to sort it and analyse it according to given criteria. For example, you might use a spreadsheet to keep a record of examination marks for a class whereas you would use a database to store the names, dates of birth and telephone numbers of a class.

Terminology
The term **list** as used in Excel refers to a series of worksheet rows that contain related data, such as a set of contact names and phone numbers, or a set of student marks or data from a survey.

A list can be used as a database, in which rows are **records** and columns are **fields**. The first row of the **list** has labels for the columns.



Surname	First Name	Date of Birth	Telephone	SEN stage	EAL – Y/N
Davies	Beverly	30/12/1985	7 568 2365	4	N
Mosole	Koko	19/08/1987	7 981 3957	1	Y
Davies	Richard	24/12/1985	8 753 6857		N
Tew	Ioan	17/04/1986	7 612 3831		Y
Cahill	Grace	03/06/1987	7 905 7023	3	N
Evans	Cathyrn	12/09/1986	8 335 6711	2	N
Tucker	Sophie	01/02/1985	7 612 4035		N

Lists in Excel can be used for storing data that you might be tempted to set-up a database for in a specialized database application such as Access, or Information Workshop. The list below gives some pointers as to when Excel is appropriate to use for managing lists.

- Small amounts of data <500 records

- Little or no duplication of data. (For example you have don't have to enter the same address several times in lots of different records.)

- Data is only going to be used for simple reporting, eg. Mail-merging data with Word, simple calculations, or looking up information.

- Only one or two people are likely to be involved in inputting the data, and only ever one person at a time.

Sorting

When creating lists, especially long lists, it is useful to have the list organized into a particular order eg lists of people are usually organized alphabetically by surname.

It would be time-consuming and impractical when adding items to a list to have to find the correct place in the list and make a space for the new item before being able to type it in. It is far better to enter the details at the end of the list and then sort the whole list.

Sorting also has to be carried out before using other useful Excel tools such as sub-totals, which are described later.

A quick sort can be done from an icon on the toolbar, and provides a means to sort rows into ascending or descending order, based on the contents of one column such as 'surname'.
How to sort a single column at a time:

1. Click in a cell in the column you would like to sort by.

2. Click Sort Ascending/Descending.

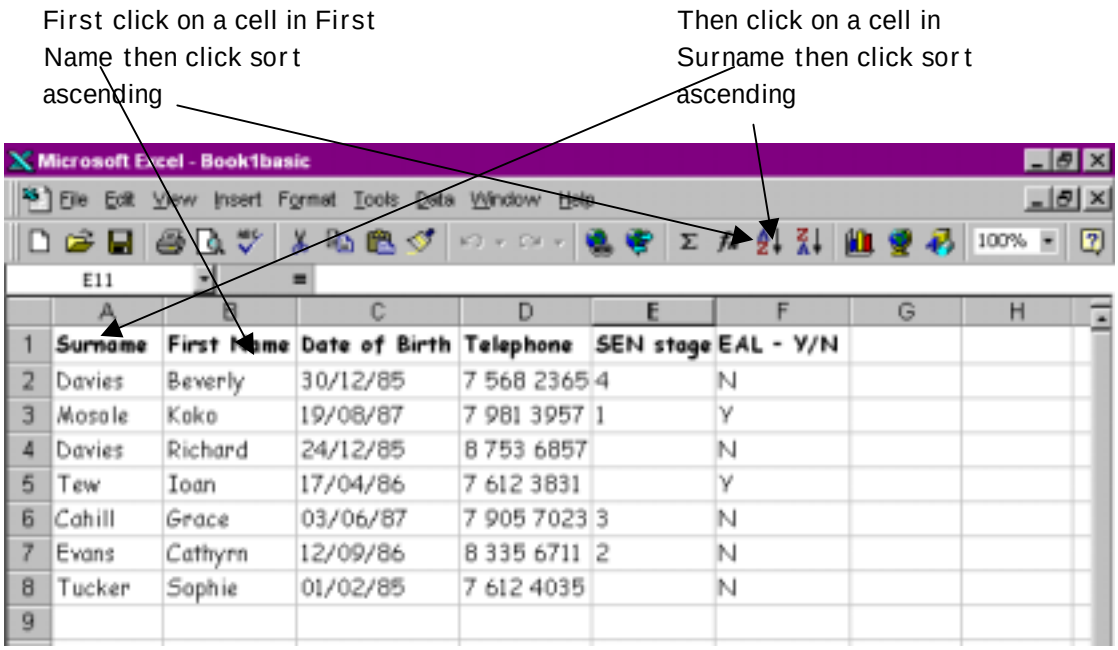
This method of sorting is usually used when sorting by one column only, but it is possible to sort on more than one column by carrying out several quick sorts one after another. The multiple sort method described later (see Bigger Sorts) is however a more sensible approach when the sort order depends on more than one column.

Each time a list is sorted on the same worksheet, Microsoft Excel "remembers" the previous order chosen (unless you specifically change that order).

Example:
To sort a list by “Surname” and then by “First Name” using quick sorts -

quick sort by **First Name**
then quick sort by **Surname**

This will leave the list in order by “Surname” and then by “First Name”. ie carry out the sorts in reverse order, the main item to be sorted is "Surname" so that is sorted last.



Bigger Sorts

This method is the best method to use when the sort order depends on several columns e.g. if you wanted to sort a list of students you might want to sort by "Surname" then "First Name"
For best results, the list you sort should have column labels ie. headings at the top of each column.

How to sort a list based on the contents of two or more columns:

1. Click in any cell within the list you want to sort.
2. On the **Data** menu, click **Sort**.
3. In the **Sort by** and **Then by** boxes, select the columns you want to sort.

Example: In the student records list above, to sort by Surname then by First Name Fill in the boxes as shown:

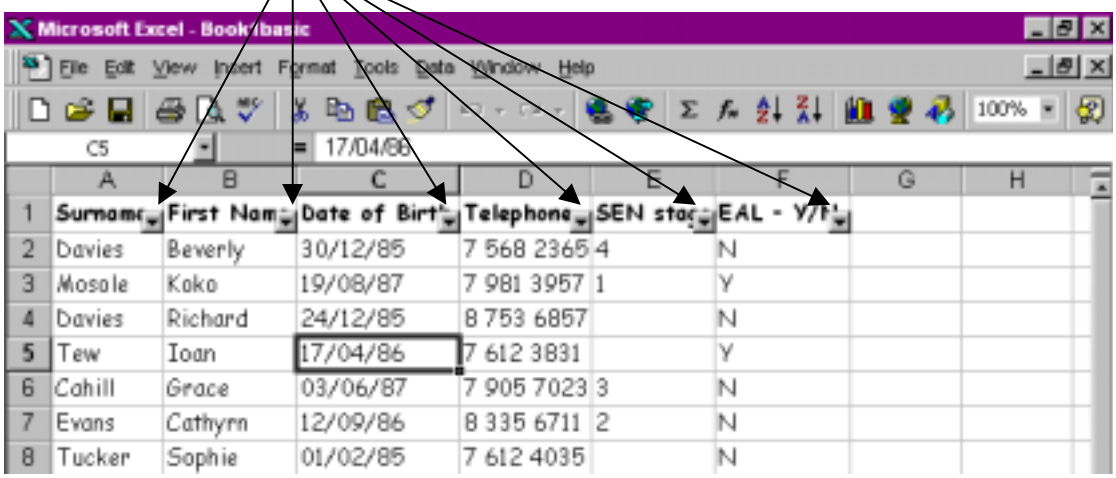
Auto Filters

Sometimes when using lists it isn't enough to have the items organized into a particular order, there may be a requirement to look at a number of items that can't be grouped together by a sort. In such cases filters should be used. Filters allow the temporary hiding of items that do not meet specified criteria.

BEFORE FILTERING ANY LIST, MAKE SURE THERE ARE HEADINGS ENTERED FOR EACH COLUMN.

How to filter a list:

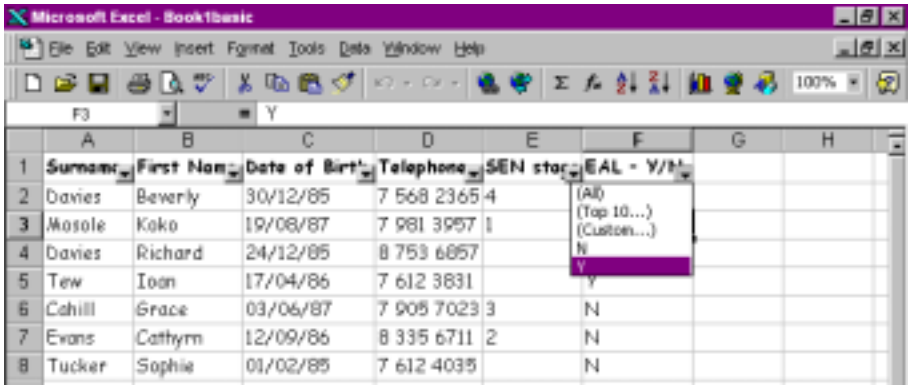
1. Click in a cell in the list you want to filter.
2. On the **Data** menu, point to **Filter**, and then click **AutoFilter**. This will turn the filters on for all the columns in the list.



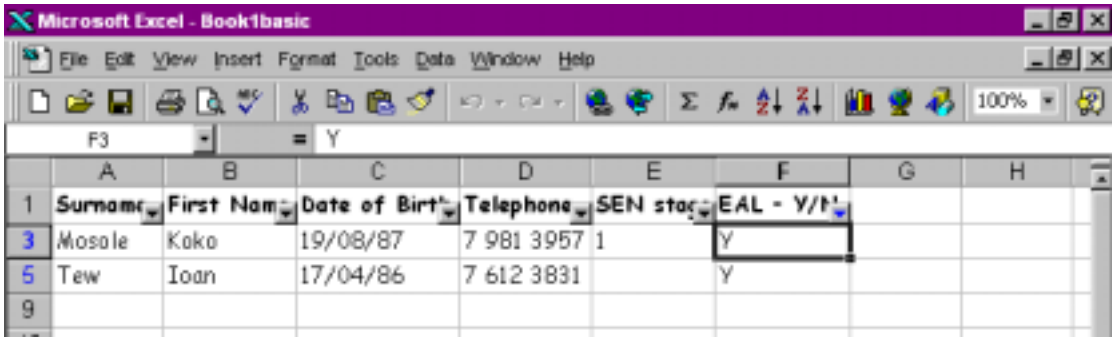
3. To display only the rows that contain a specific value, click the arrow in the column that contains the data you want to select by.

4. Click on the value being searched for.
5. To apply an additional condition(s) based on a value in another column, repeat steps 3 and 4 in the other column(s).

Example:
In the student list example, to show only those students with EAL follow the instructions above and select **Y** as the value to click on in step 4.



You should then have a list with the following records (only those which show students with EAL):



When clicking on the filter arrow at the top of the column a drop down menu will appear. This will show the list of all values available for that column, plus the options shown in the table below

To	Click
Display all rows	All
Display all rows that fall within the upper or lower limits you specify, either by item or percentage; for example, the amounts within the top 10 percent of sales	Top 10
Apply two criteria values within the current column, or use comparison	Custom

operators other than AND, the default operator. (See **More About Filters**)	
Display only rows that contain a blank cell in the column.	Blanks
Display only rows that contain a value in the column	NonBlanks

Filters can be carried out on the contents of one or more columns at a time, but the order that filters are applied is important.

Once a row is hidden by a filter(s), it will not be reappear in subsequent filters until the filter that hid it is removed. This means that when applying a second or third filter to a list, the only filter values available are the values that are still visible in the filtered list.

For example, if you perform a filter in the SEN Stage column to find all non-blanks *after* you have filtered for EAL students, you will only be filtering through 2 records : Koko Masole and Ioan Tew, so your result will only give you the record for Koko Masole.

More About Filters

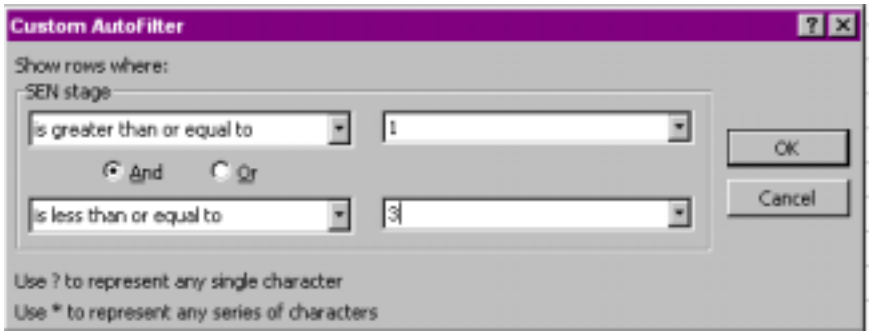
It is possible to filter by two values in the same column, relationships such as AND, OR, BETWEEN, IS GREATER THAN etc.

How to filter by more than one value in the same column:

1. Follow the steps 1-3 above
2. In step 4, instead of clicking on a particular value choose **CUSTOM.**
3. Enter the appropriate selection criteria and click **OK.**

Example:

To find everyone on stages 1-3 of the SEN register, follow the instructions above, and in step 3 fill in the selection criteria as shown below.



You should then have a list just showing the records for Koko Masole, Grace Cahill and Cathryn Evans.

Data input forms

Rather than typing the items for a list directly into a spreadsheet, it is possible to create a simple data-input form to use instead.

As well as providing an input method data-input forms also allow you to flick through the items of a list one at a time, and to search for particular entries.

How to create a data-input form:

1. Type in the labels (field names) at the top of each column. (If a list already exists you can skip this step)
2. For a new list click into any one of the heading cells and on the **Data** menu click on **Forms…** OR for an adding to an existing list click into any cell within the list and on the **Data** menu click on **Forms**.
3. Enter the data in each of the fields.
4. Once you have finished entering the data click on **CLOSE.**
5. To use the form again you must click onto any cell containing data or a label, then on the **Data** menu click on **Forms…**

Data Protection

Schools of course keep records of student information. You need to be aware that the information you hold about students is sensitive and confidential. The principles of the data protection act are outlined at http://www.dataprotection.gov.uk/principl.htm and more detailed information is available from the rest of this web site.