Using Excel in BGE

Using Hooke's Law to Practice Graphing

2017

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USING EXCEL TO MAKE TABLES & PLOT GRAPHS

SYMBOL FOR EXCEL 2010
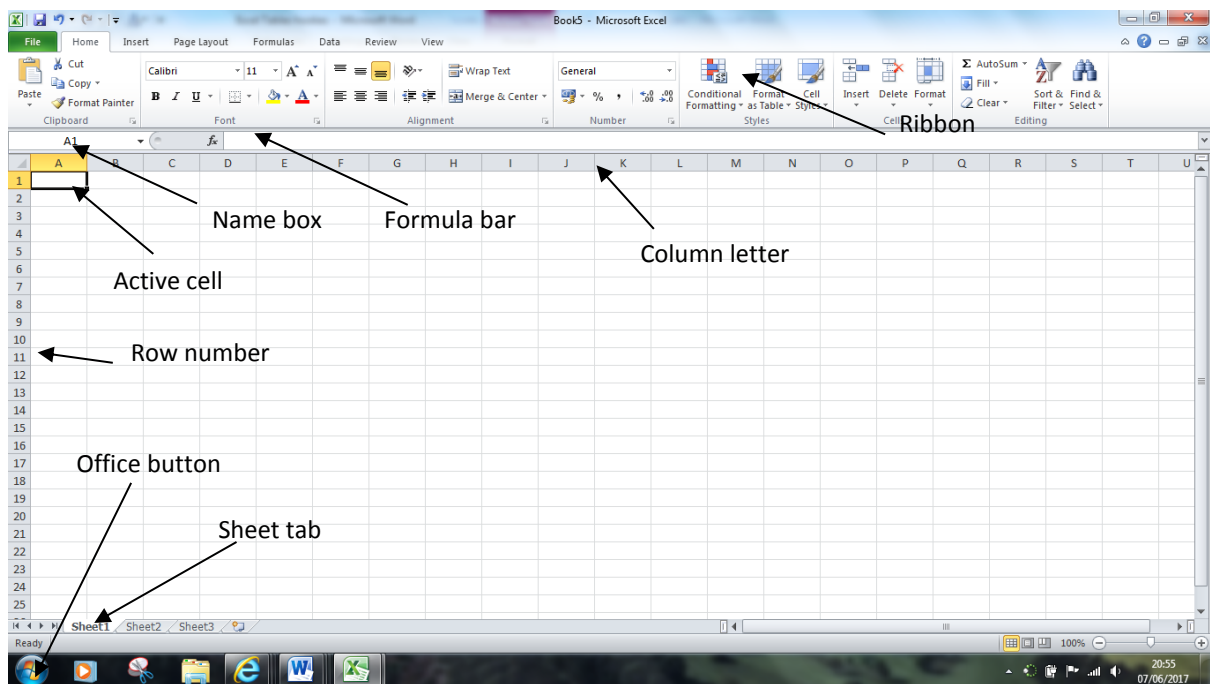
Open Excel in the Microsoft Office ▶ Folder

Microsoft Excel 2010

INTRODUCTION TO EXCEL 2010

When Excel 2010 is opened, this is what is seen:

Active cell
The cell with the black outline. Data are always entered into the active cell.

Column letter
Columns run vertically on a worksheet and each one is identified by a letter in the column header, eg the first column is column A.

Formula bar
Located above the worksheet, this area displays the contents of the active cell. It can also be used for entering or editing data and formulas.

Name box
Located next to the formula bar, the Name box displays the cell reference or the name of the active cell.

Row number
Rows run horizontally in an Excel 2007 worksheet and are identified by a number in the row header.

Sheet tab
Switching between worksheets is done by clicking on the sheet tab at the bottom of the screen.

Office button
Clicking on the Office button displays a drop-down menu containing a number of options, such as Open, Save, and Print. The options in the Office button menu are very similar to those found under the File menu in previous versions of Excel.

Ribbon
The ribbon is the strip of buttons and icons located above the work area in Excel 2007. The ribbon replaces the menus and toolbars found in earlier versions of Excel.

SAVE THE DOCUMENT

1. Before you start save your work with a sensible name, one that you will be able to find again. Note where you save it and the date in your jotter.

ENTERING DATA

Entering data, whether text or numerical, into a spreadsheet is a three-step process. The steps are:
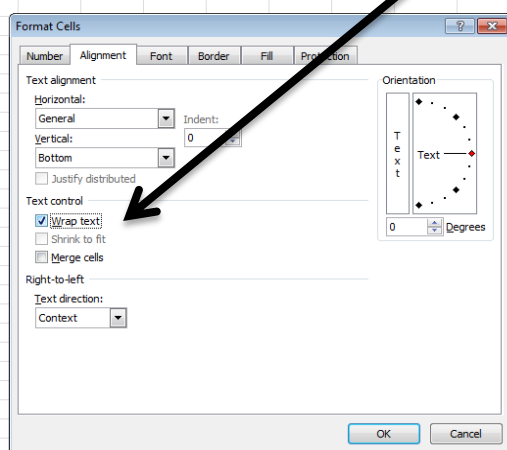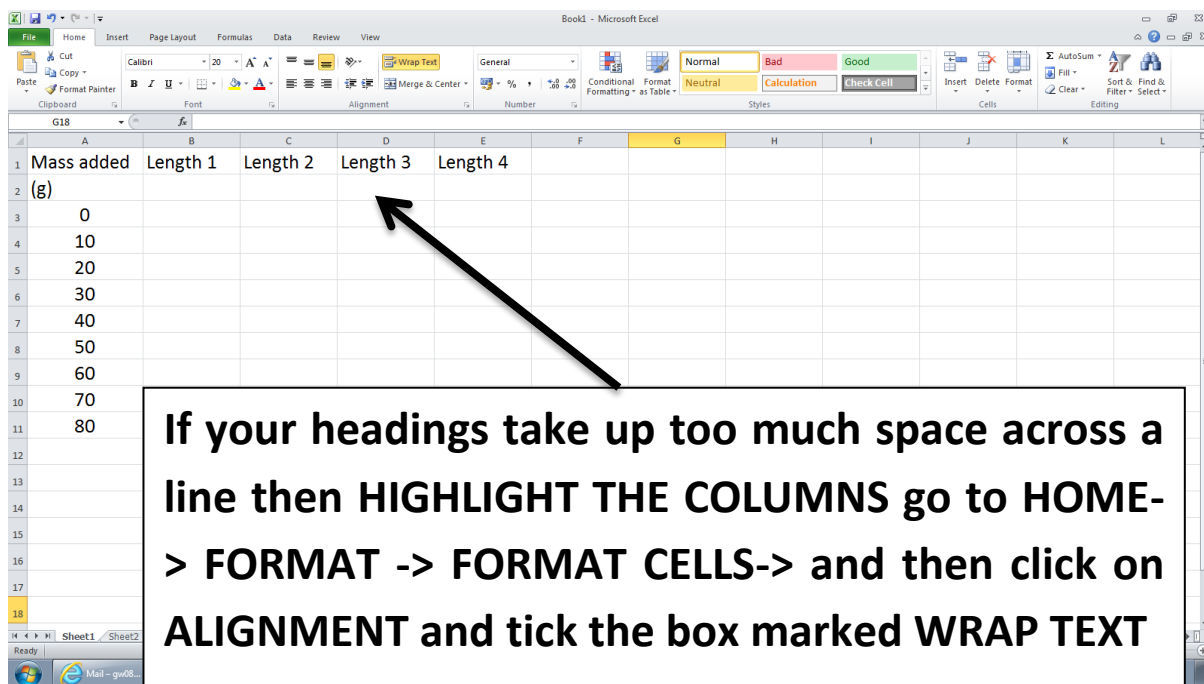
1. Click on the cell where you want the data to go.
2. Type your data into the cell.
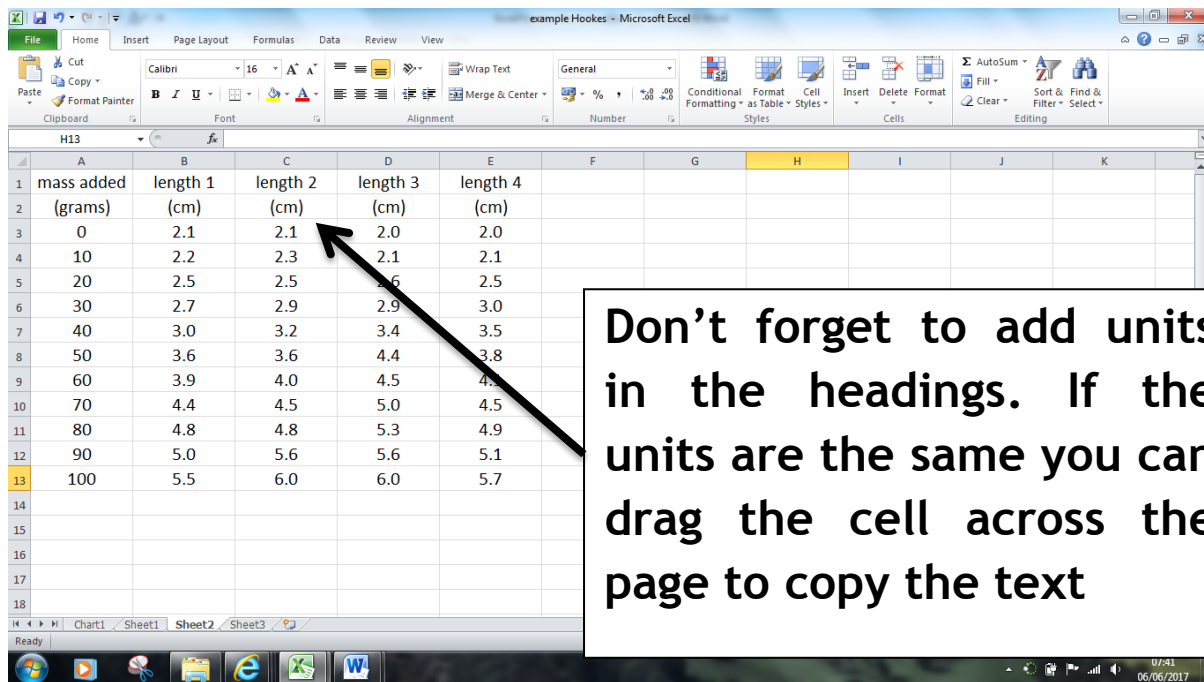3. Press the Enter key on the keyboard or click on another cell with the mouse.

If you make a mistake, the Esc key cancels the data entry. As in all Microsoft products, pressing Ctrl-Z will undo the last process.
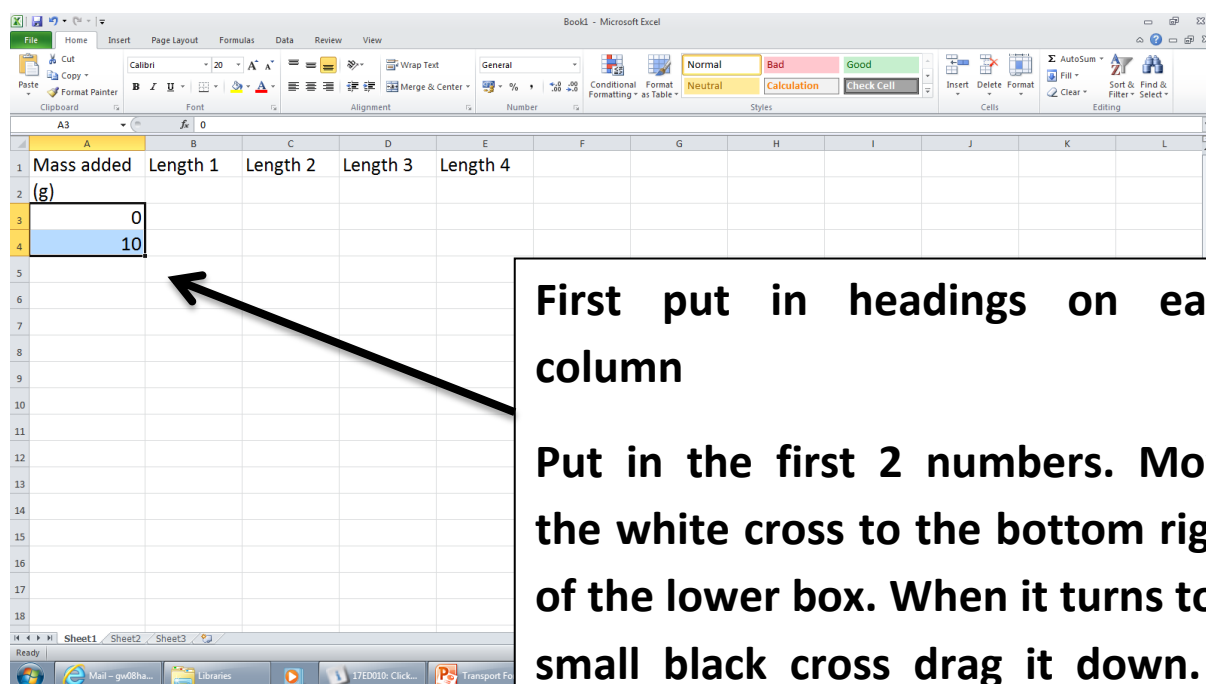
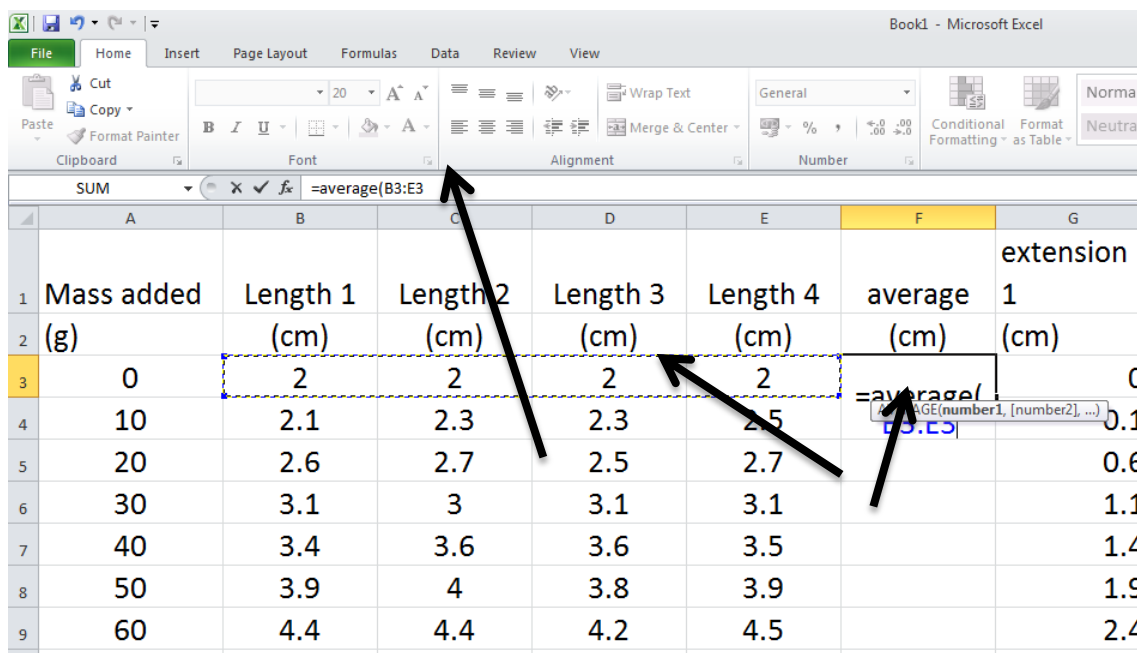**First put in headings on each column**

Put in the first 2 numbers. Move the white cross to the bottom right of the lower box. When it turns to a small black cross drag it down. It will add 10 or 100 (depending on boxes 1 and 2) to each line

If your headings take up too much space across a line then HIGHLIGHT THE COLUMNS go to HOME-> FORMAT -> FORMAT CELLS-> and then click on ALIGNMENT and tick the box marked WRAP TEXT

Don't forget to add units in the headings. If the units are the same you can drag the cell across the page to copy the text

AVERAGING YOUR RESULTS

You don't need to get your calculator out Excel will do it for you.

To get an average type in

=average(then holding down the SHIFT key and drag the mouse across the cells you want to average). Put brackets around the cells as above.

Dragging the black cross down will average each line.

	mass added	length 1	length 2	length 3	length 4	average length
	(grams)	(cm)	(cm)	(cm)	(cm)	(cm)
3	0	2.1	2.1	2.0	2.0	=average(B3:E3
4	10	2.2	2.3	2.1	2.1	
5	20	2.5	2.5	2.6	2.5	
6	30	2.7	2.9	2.9	3.0	
7	40	3.0	3.2	3.4	3.5	
8	50	3.6	3.6	4.4	3.8	
9	60	3.9	4.0	4.5	4.1	
10	70	4.4				
11	80	4.8				
12	90	5.0				
13	100	5.5				

Once you've put in ENTER at the end of the formula you can copy the formula for the whole column. Moving the cursor to the bottom right to get the little black cross and dragging it across the sheet will copy the formula for each column.

If you want to see the formula that you've added in you can push the SHIFT and the ¬ key (the one under the escape button) and it will show you the formula. Repeating this will turn it off.

	Length 1	Length 2	Length 3	Length 4	average
	(cm)	(cm)	(cm)	(cm)	(cm)
3	2	2	2	2	=AVERAGE(B3:E3)
4	2.1	2.3	2.3	2.5	=AVERAGE(B4:E4)
5	2.6	2.7	2.5	2.7	=AVERAGE(B5:E5)
6	3.1	3	3.1	3.1	=AVERAGE(B6:E6)
7	3.4	3.6	3.6	3.5	=AVERAGE(B7:E7)
8	3.9	4	3.8	3.9	=AVERAGE(B8:E8)
9	4.4	4.4	4.2	4.5	=AVERAGE(B9:E9)
10	4.9	4.9	4.6	4.9	=AVERAGE(B10:E10)
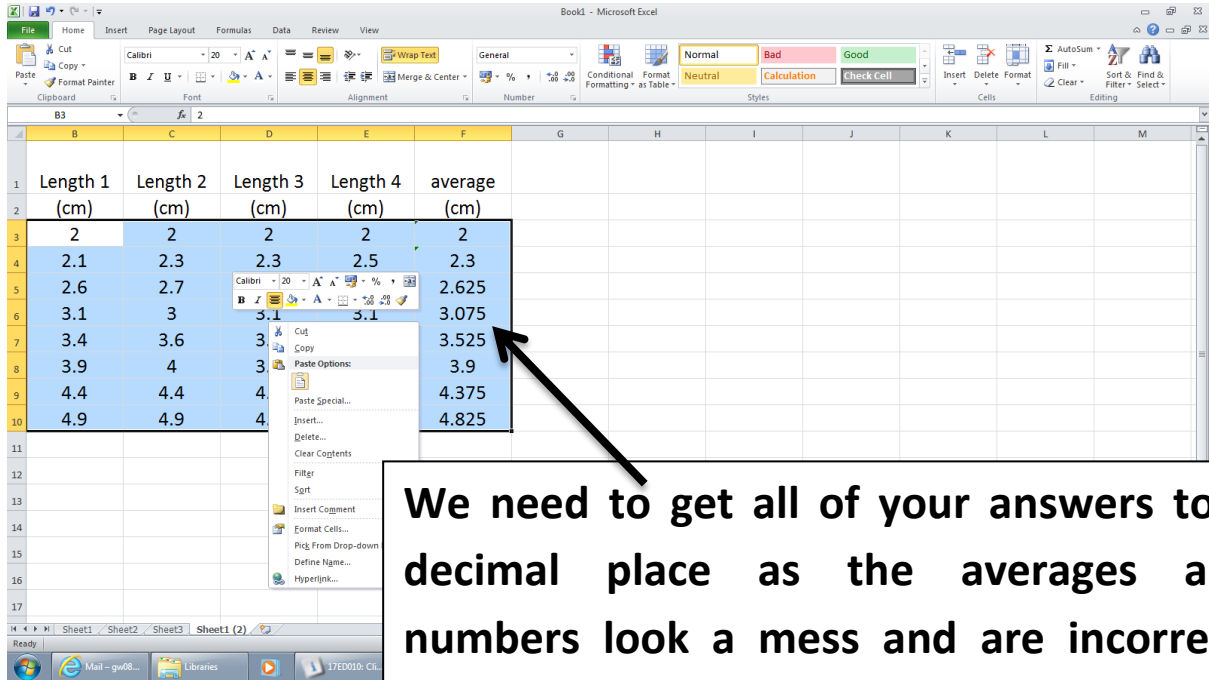
We need to get all of your answers to 1 decimal place as the averages and numbers look a mess and are incorrect. Highlight the boxes that you need to change.
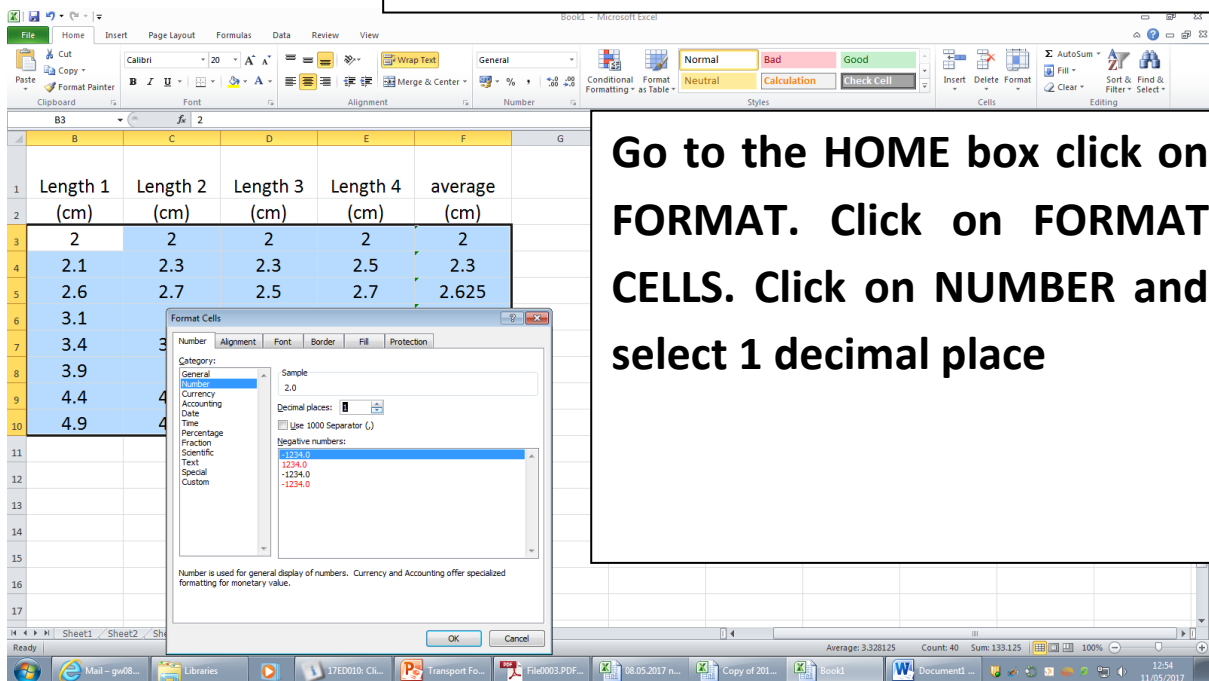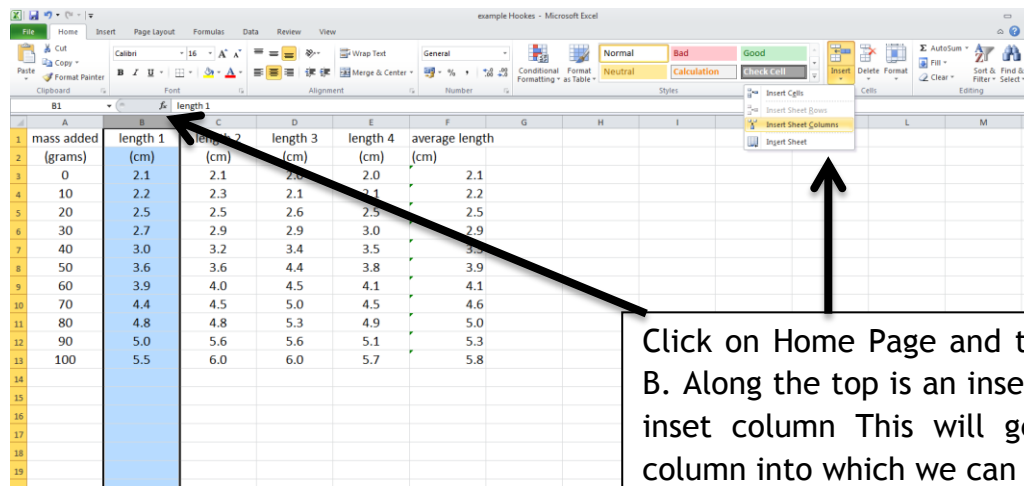

Go to the HOME box click on FORMAT. Click on FORMAT CELLS. Click on NUMBER and select 1 decimal place
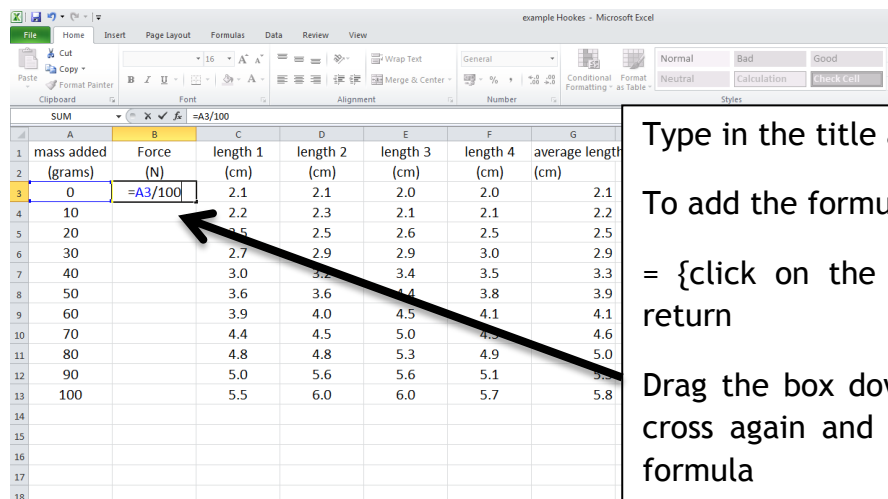
We now need to record the force. This is the force of gravity or weight. To link between mass and weight you need to divide the mass in grams by 100 in your table

So firstly we need to add in a column.

Click on Home Page and then on Column B. and the

Click on Home Page and then on Column B. Along the top is an insert button. Click inset column This will generate a new column into which we can add a formula

To add in the formula, always start with an = sign

Type in the title and unit, Force and (N)

To add the formula type

= {click on the cell}/100 and them hit return

Drag the box down from the small black cross again and this will copy down the formula

Drag the box down from the small black cross again and this will copy down the formula

Go back and change the number of decimal places to 1 (see if you can do it without looking back at the notes)

mass added	Force	length 1	length 2	length 3	length 4	average length
(grams)	(N)	(cm)	(cm)	(cm)	(cm)	(cm)
0	0.0	2.1	2.1	2.0	2.0	2.1
10	0.1	2.2	2.3	2.1	2.1	2.2
20	0.2	2.5	2.5	2.6	2.5	2.5
30	0.3	2.7	2.9	2.9	3.0	2.9
40	0.4	3.0	3.2	3.4	3.5	3.3
50	0.5	3.6	3.6	4.4	3.8	3.9
60	0.6	3.9	4.0	4.5	4.1	4.1
70	0.7	4.4	4.5	5.0	4.5	4.6
80	0.8	4.8	4.8	5.3	4.9	5.0
90	0.9	5.0	5.6	5.6	5.1	5.3
100	1.0	5.5	6.0	6.0	5.7	5.8

You can also highlight the text and put a border around the numbers as this makes it easier to read across the line. Don't make it too fancy and use all the printer ink when you come to print it out; it is not how Scientists lay out their work.

Now you are ready to plot your graph. SAVE YOUR FILE IN GROUPWORK WITH A SENSIBLE NAME THAT YOU'LL FIND THAT ISN'T TOO LONG.
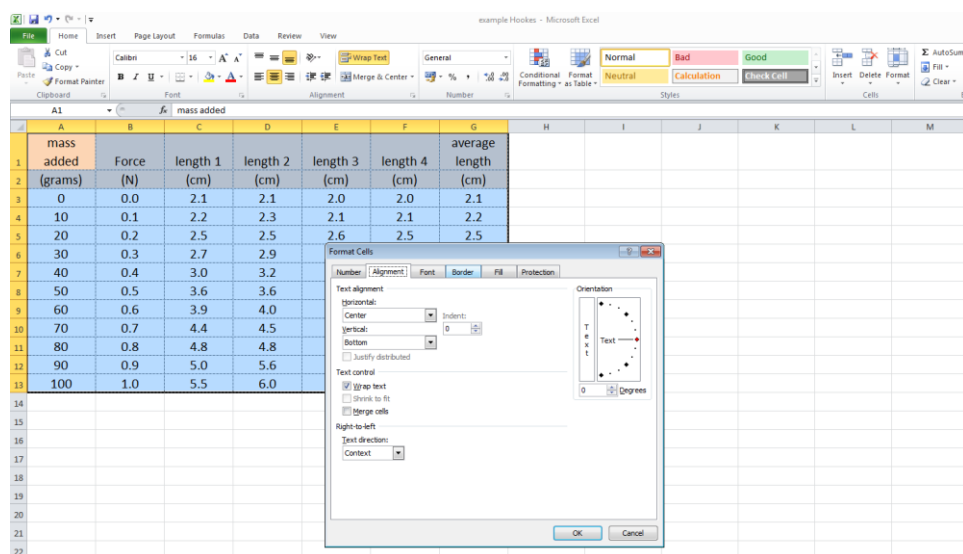
If your table is too big to print on one page then make sure first that it won't fit on a landscape page. Go to PAGE LAYOUT on the ribbon bar, then orientation and click to change it to landscape. This will make the page print landscape. If the table won't still fit on one page try reducing the font size and make sure that the headings have been wrapped so that the columns are not too wide.

Add your name to the table, either by adding it under the table or if you can add it in the header or footer.