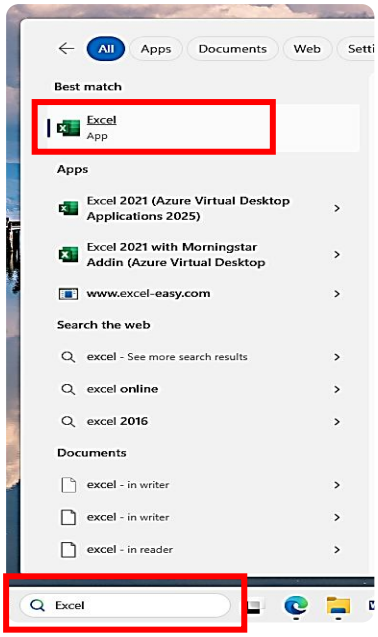
How to make a chart using Microsoft Excel

Step 1: Open the Excel app

Microsoft Excel is a great tool for analysing data. It should be on all school laptops and you can open it by double clicking on the symbol in green, which may be on the desktop.

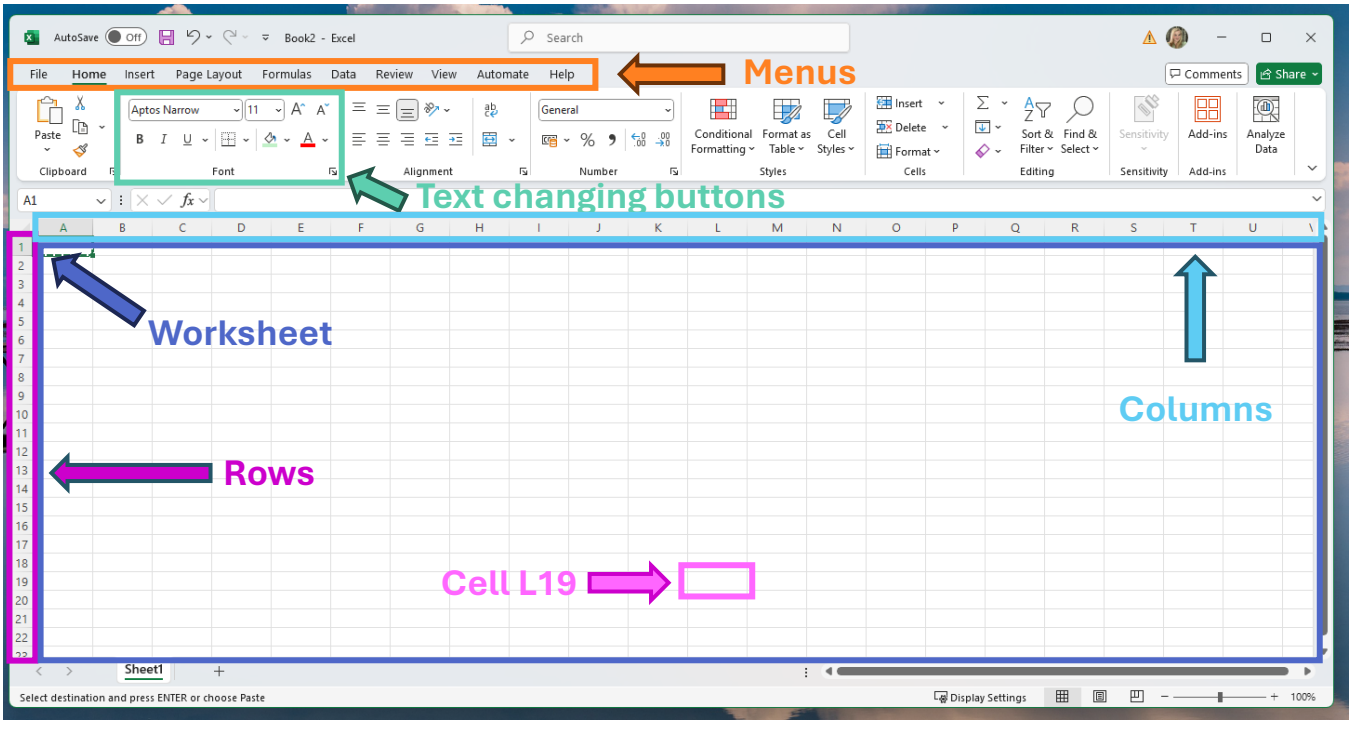
Alternatively, you can search for the app by typing "Excel" in the search bar of your laptop. In the picture to the right is where the search bar is on my laptop, but don't worry it might be slightly different on yours. Just click on the Excel App to open it.



Once you open the programme click on the "Blank Workbook" option. This should open an Excel worksheet which should look a bit like the picture below. If you've used Microsoft Word or PowerPoint before you might be familiar with this layout, but I'll go over some main parts.

First of all, just a like you use a menu in a restaurant to choose what you want to eat, you can use the menus along the top here to choose what you want to do. The home menu, which we are currently on, lets us change the text font, size, colour, and lots of other fun things. Using these buttons underneath it. These options or buttons change when you click on a different menu. We'll talk more about the other menus later. For the moment, let's stay on the home menu.

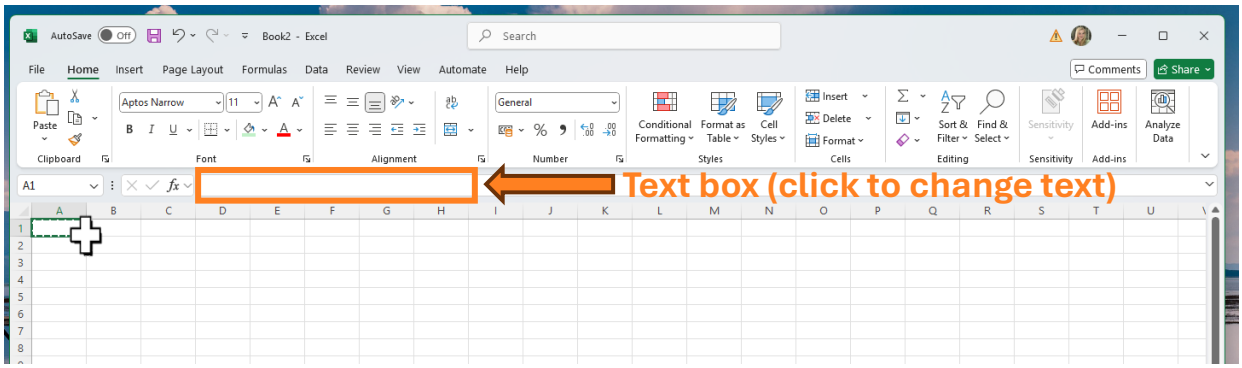
The most important part of Excel is the worksheet – think of this like a worksheet or a bit of paper you would normally write on. It's has lines drawn on it to split the 'page' into columns lettered A to Z, and rows numbered 1 to infinity, each rectangle is often called a cell. The cell gets the letter from which column it is in, and the number from its row. So the cell in pink below is L19. The worksheet is where we are going to put the data we collected for our projects.



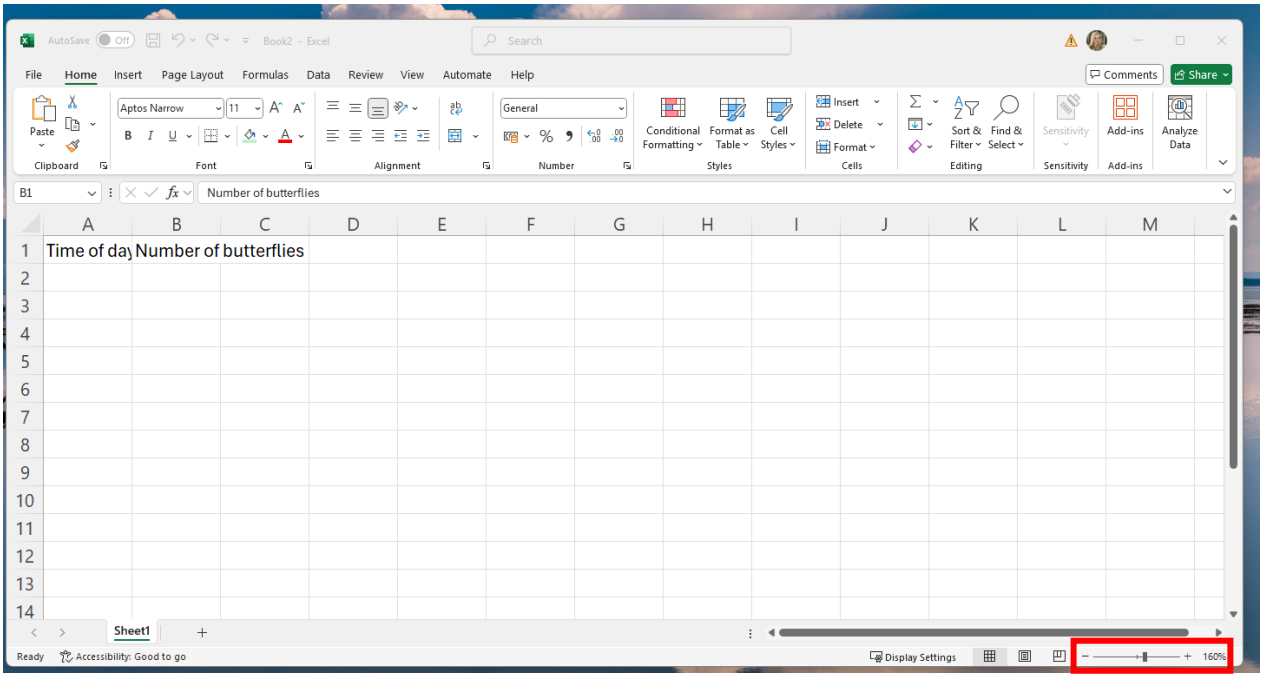
Step 2: Digitise (type up) your data

So we have our empty worksheet – a bit like a blank piece of paper. Now let's fill it with our data. How your data will look will depend on your project, but I'm going to put some data in from my made up project on butterflies. Follow along for the moment (when you see this arrow ➢ it means you have to do something!)

First you need to type columns names – basically what is our data going to show. These are a bit like headings when you are writing work. To type in a cell (remember this is the name for the rectangles) move your mouse (the white cross or arrow on the screen not a real mouse) to click on the cell you want to type in. Then just start typing using the keyboard. You can change the text by clicking on the text box (orange box in picture below) and using the left/right arrows and backspace on the keyboard, if you make a mistake.

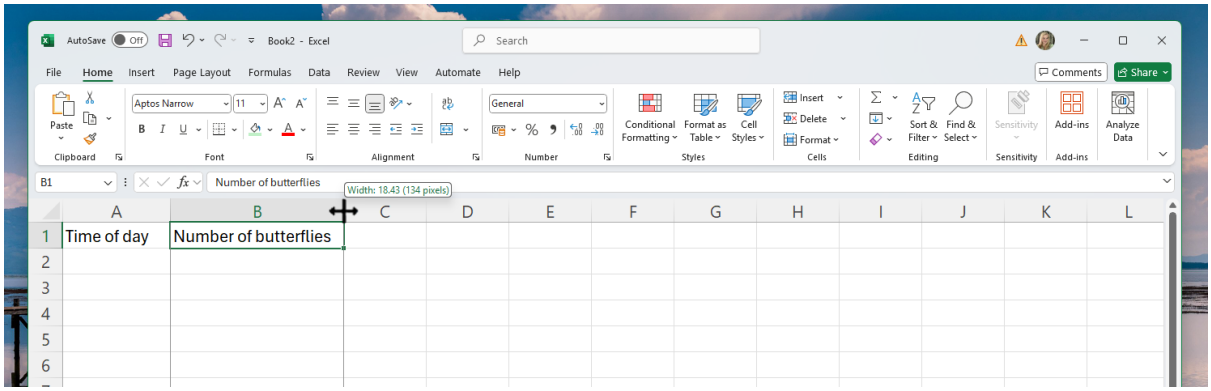


- ➢ Click on cell A1 (highlighted in green above). Type "Time of day" as the heading for the first column (in cell A1). Then press enter.
- ➢ Click on cell B1 and type "Number of butterflies" as the heading for our 2nd column.
- ➢ Also, let's make this a bit clearer by zooming in a bit. You can do this by clicking the + button on the zoom scale (red box in bottom right) to a 160% or so.



Do you notice that not all the letters fit in the cell, especially for time of day? We can make our columns a bit wider so that we can see all the text. To do this:

- Move your mouse to hover over the grey line between A and B, it should turn into a black line with two arrows.
- Now click, hold the click down, and drag to the right to make the column wider, stop holding the click when you are happy with the width.



Now we have a worksheet with column headings but no data. Adding data is simple:

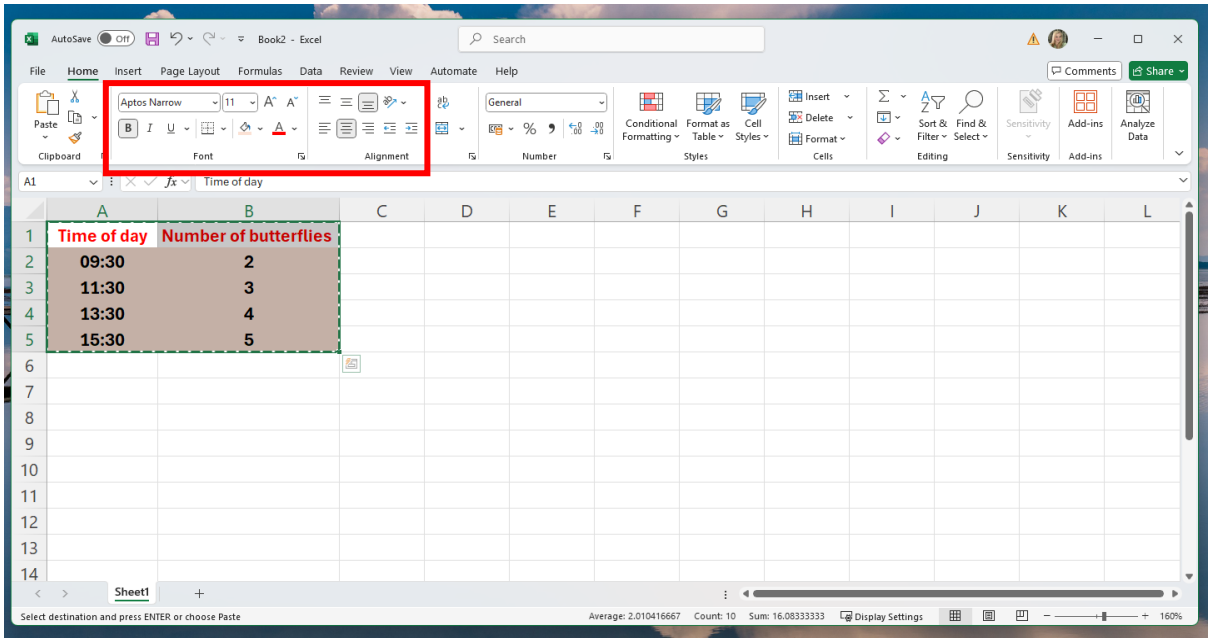
- Click on the cell you want, for example A2.
- Type a category name (in this case a time e.g. 09:30).
- Press enter.
- Click on another cell and type more data (e.g. type 2 in B2). Press enter.
- Keep going till your sheet looks like the example below.

Finally, ta dah, you have digitised some data!

	A	B
1	Time of day	Number of butterflies
2	09:30	2
3	11:30	3
4	13:30	4
5	15:30	5
6		

You could experiment with changing the font, size, and colour of the data using the font buttons (red box). Just select the cells you want to change first – try clicking, holding the click, and dragging the select more that more one cell.

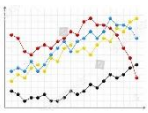
- You could try format the data to look like the example below.



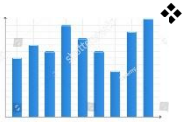
- **Can you digitise the data you collected?** You can do this under the butterfly data or in a new Excel worksheet. It will be a bit different from the example, but should be two columns. The first column will explain the differences in the data e.g. different locations or times the data was collected. The second column will give the data value e.g. the measurement or number of observations at that location/time.

Step 3: Create a cool chart

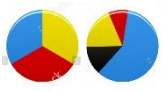
Now we have the data in Excel the next step is to make some cool charts or graphs. Again, the type of chart you make will depend on your project. I'm going to use my example butterfly data to make a line graph, bar chart, and pie chart (I may need to adapt the data slightly). Here's a quick summary of each type of chart:



- **Line Chart** is best for showing how something changes over time (like days, months, or years). For example tracking how much butterfly numbers change over a day. It's good because The line connects the points so you can easily see if things go up, down, or stay the same.



- **Bar Chart** is best for comparing different groups or counts at different locations. For example showing how many butterflies are found at different places. The bars make it easy to compare and see which place/group is biggest or smallest.

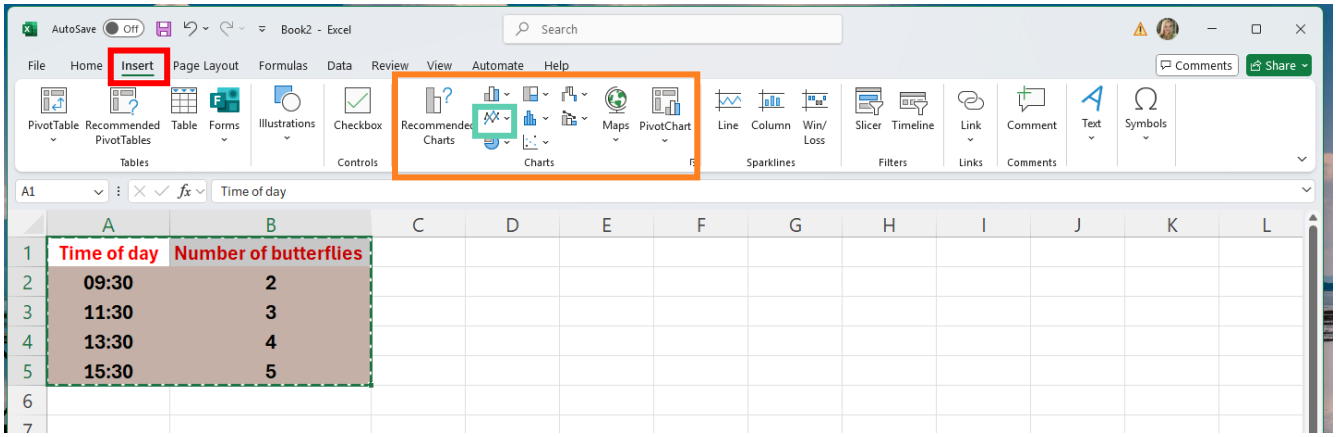


- **Pie Chart** is used for showing parts of a whole. Such as the break down of different butterfly types (or species) that were observed. The pie slices show how big each part is compared to the whole thing, making it easy to see which group there is the most and least of.

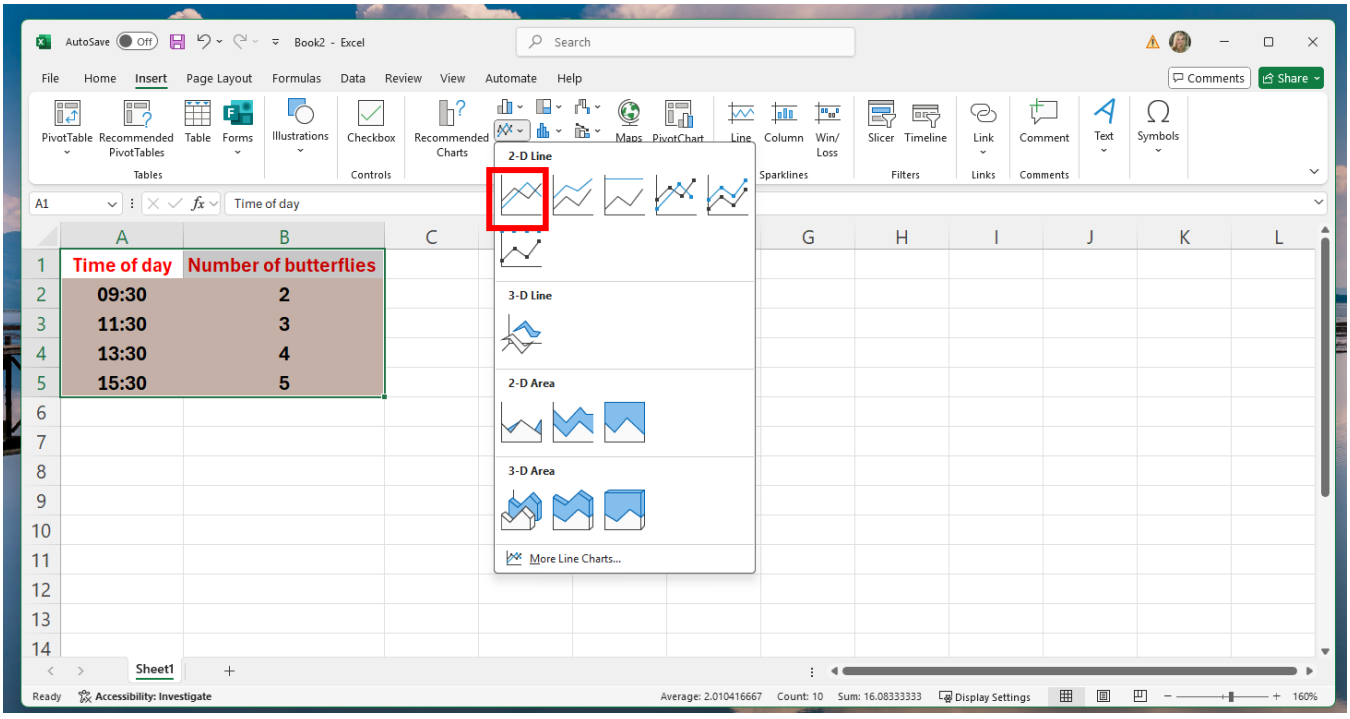
A. Line chart

To make a line chart:

- Click on A1, and then click and hold the click down to drag to B5. This selects all our data – you'll know you've done this right if the cells go grey and have a green border (like in the image below).
- Go to the "insert" menu (highlighted in red on the image below), this will give you some cool new options.
- We're interested in the charts (boxed in orange in the middle). Because we want a line graph, click on the line graph option (2nd from the top on the left in the green box). You can hover over each chart with your mouse and should get a description of that chart.

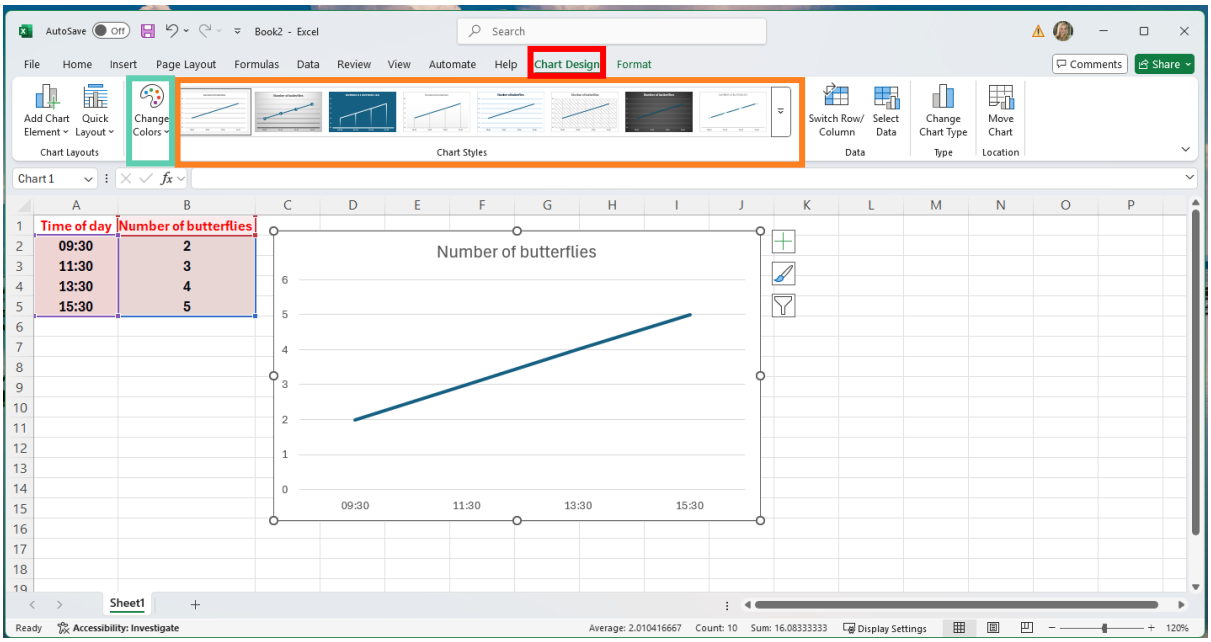


- Click on 2D line (red box in image below). You can explore other options later – some of the 3D options are fun.

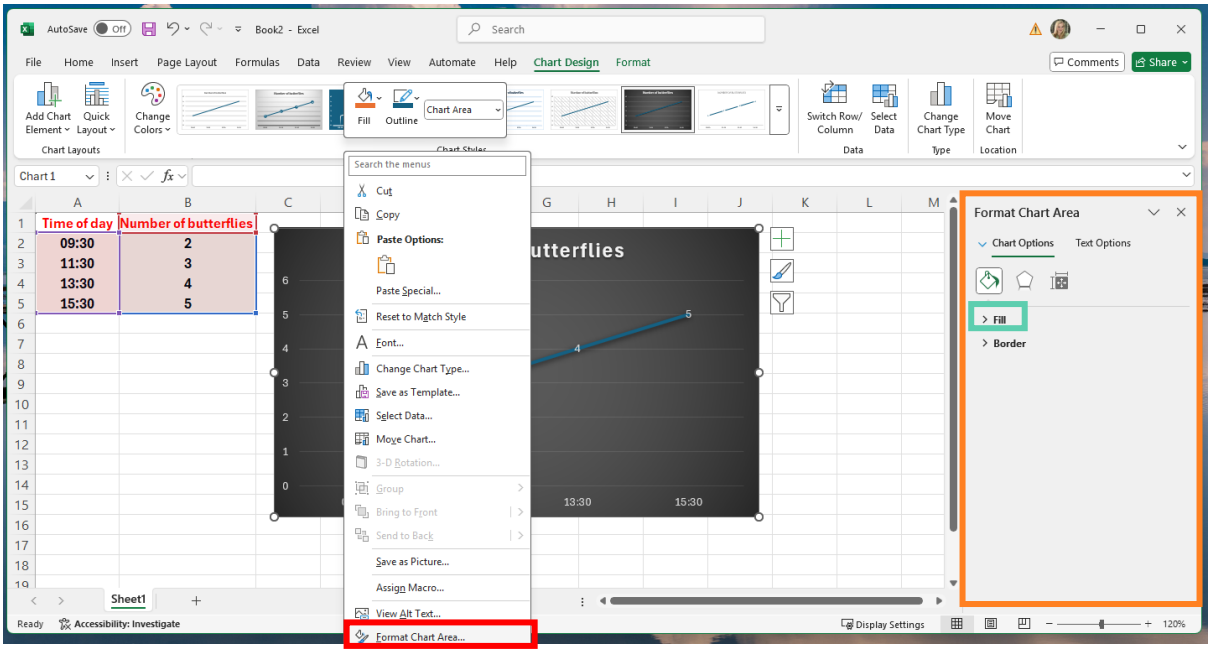


When you click on the line chart it should magically appear – see the image below! I've had to zoom out a bit to fit it on the page. You'll notice a new menu has appeared called "Chart design" (red box). You can change the chart styles but clicking on different options (orange box) and using the down arrow to get more options. Also look at different colour schemes (green box). The best way to learn about chart design is to play around with it.

- Try changing the chart design by clicking on different styles in the orange box.



You can also right click (not the usual left click) anywhere on the chart and then click on "format chart area" (red box). This opens a new option bar on the right side (orange box). In this option bar you can do extra cool things like change the fill/background colour. Just click on "fill" (green box) and then experiment with some of the background options.



B. Bar chart

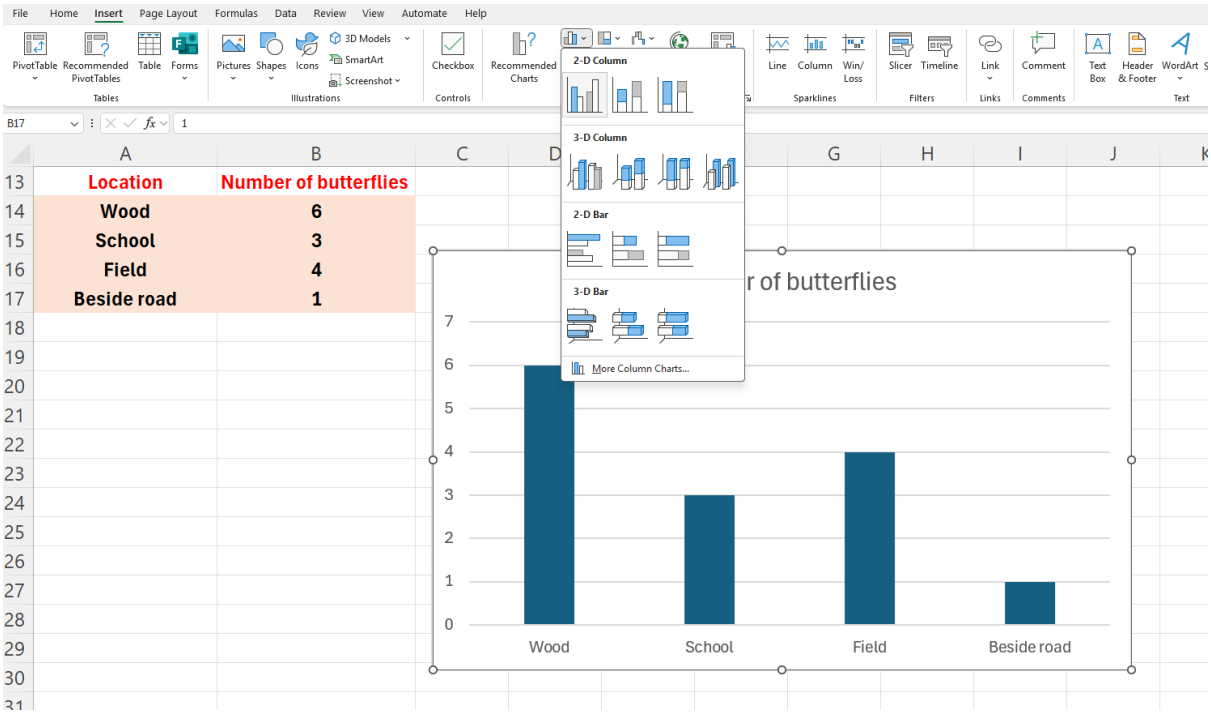
To make a bar chart we need to type some new data, for example the number of butterflies at each location.

- Copy the example below (if you're not sure how to do this look back at step 2).

	A	B
13	Location	Number of butterflies
14	Wood	6
15	School	3
16	Field	4
17	Beside road	1

Next, repeat the same steps as you used to add a line graph:

- Select all your data by clicking and dragging
- Go to the "insert" menu, then the chart section in the middle
- Select "Column or bar chart" and then the first option "Clustered Column"
- This will give you a bar chart that you can experiment with the chart design as before.



C. Pie chart

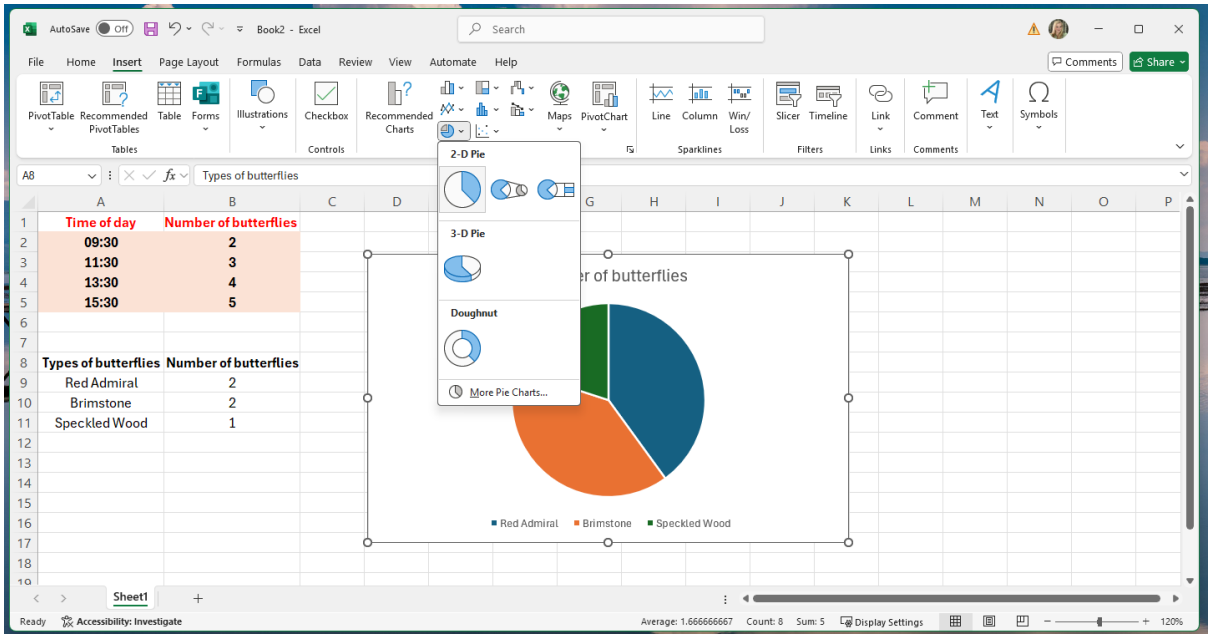
The last type of chart you might want to use is a pie chart. You'll need some data that is split into categories

- Copy the example below (if you're not sure how to do this look back at step 2).

	A	B
16	**Types of butterflies**	**Number of butterflies**
17	Red Admiral	2
18	Brimstone	2
19	Speckled Wood	1
20		

To make this into a pie chart it is the same as before:

- Click and drag to select the data
- "Insert" menu -> "Charts" -> "Pie or Doughnut chart" -> "2D Pie"
- Explore chart design to change how the pie chart looks.

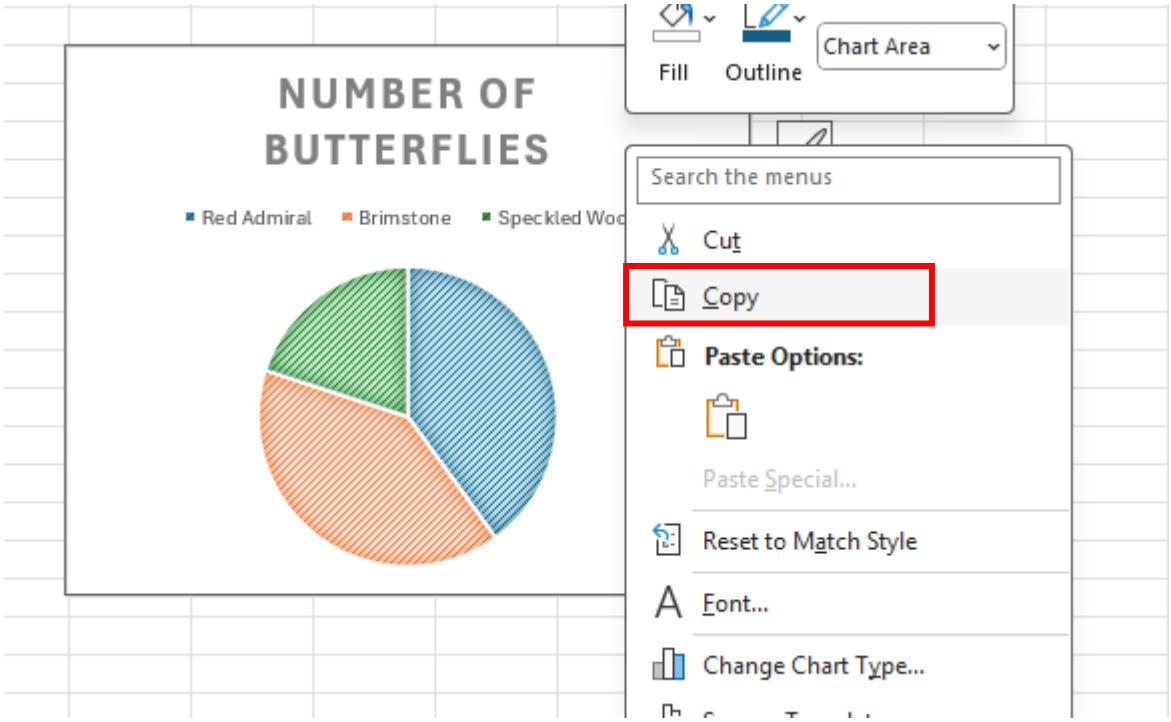


- **Can you make a chart for your data?** First, think about which chart type is best, then select your data and insert the chart. Spend some time experimenting with chart design options to make your chart look cool.

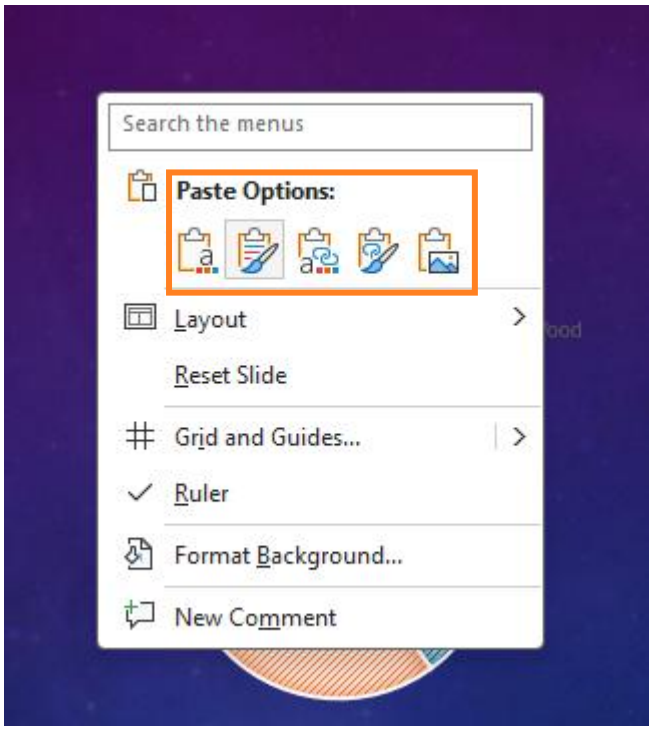
To **copy** any chart from Excel to PowerPoint, you:

- Right click on your chart in Excel, then click on "Copy" (red box).
- Now open PowerPoint, right click on the slide and click on paste (note this may change the chart formatting to match the PowerPoint slide, to stop this happening click "Paste keep source formatting" - 2nd from the left in the orange box).

Excel:



PowerPoint:



One last thing. Always remember to save your work. To save your Excel sheet:

- Go to the "File" menu, then click "Save as" (red box).
- This opens a new window (like the one below). Type a name for your worksheet in the text box (orange box) and make sure "Excel Workbook" is selected from the drop down menu (green box). Then click save (blue box). This means you can open your data anytime.