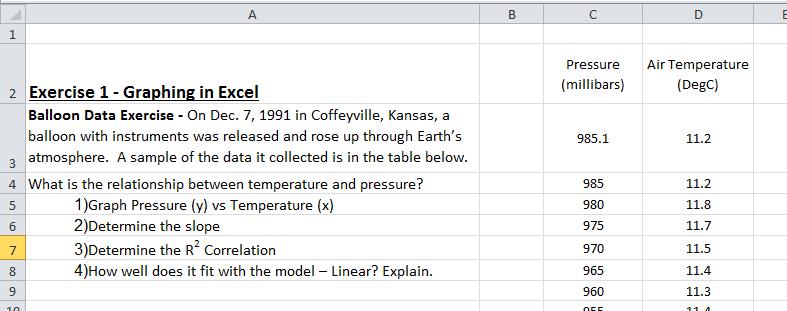
CRISP WORKSHOP BALLOON DATA ACTIVITY

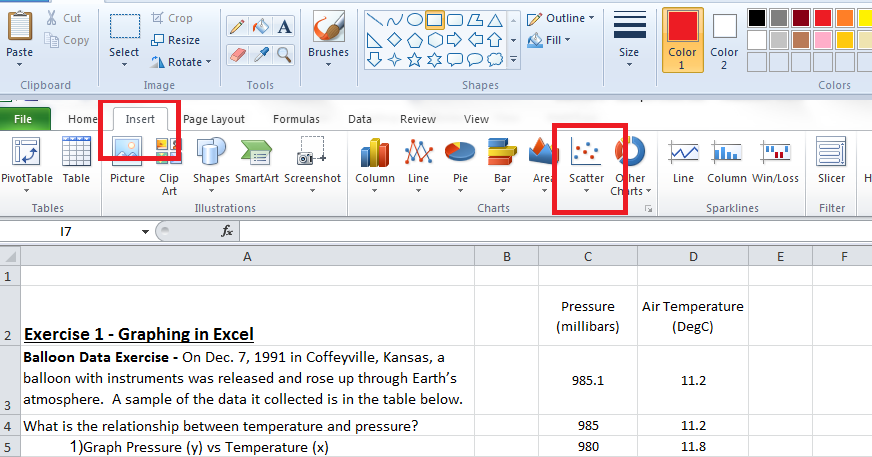
Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lab Partner:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

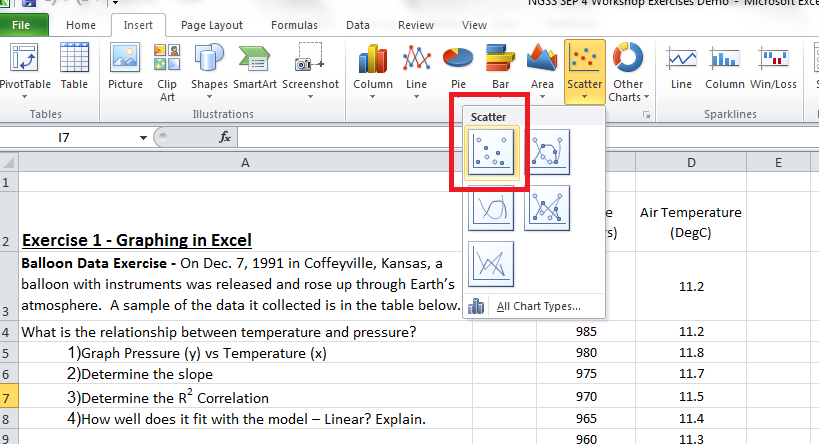
1. Open Excel and open NGSS SEP Workshop Final.xls
2. Select the tab “Exercise 1 – Balloon Data”, you should see the following data/table:



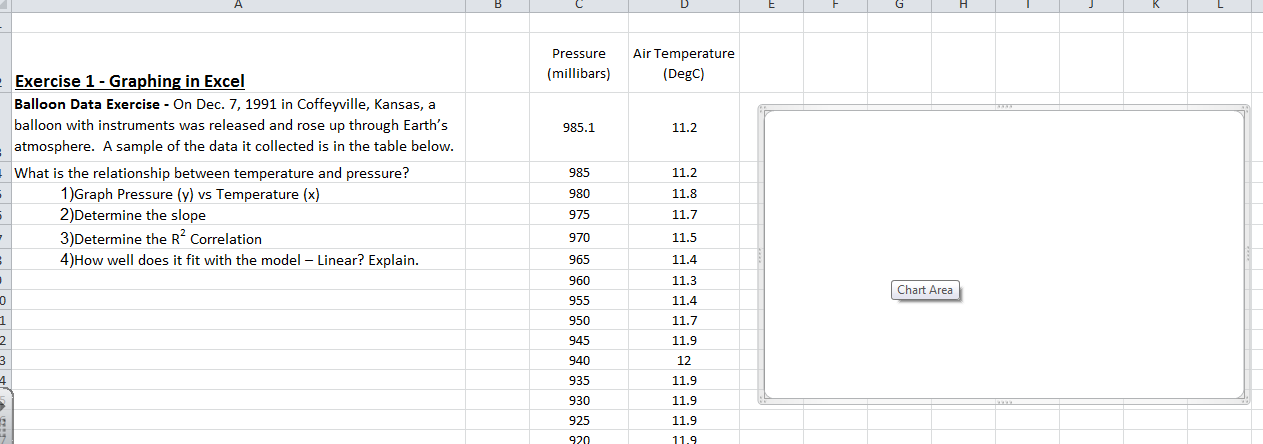
1. Select the “Insert Tab” at the top of the page and select “Scatter Plot”



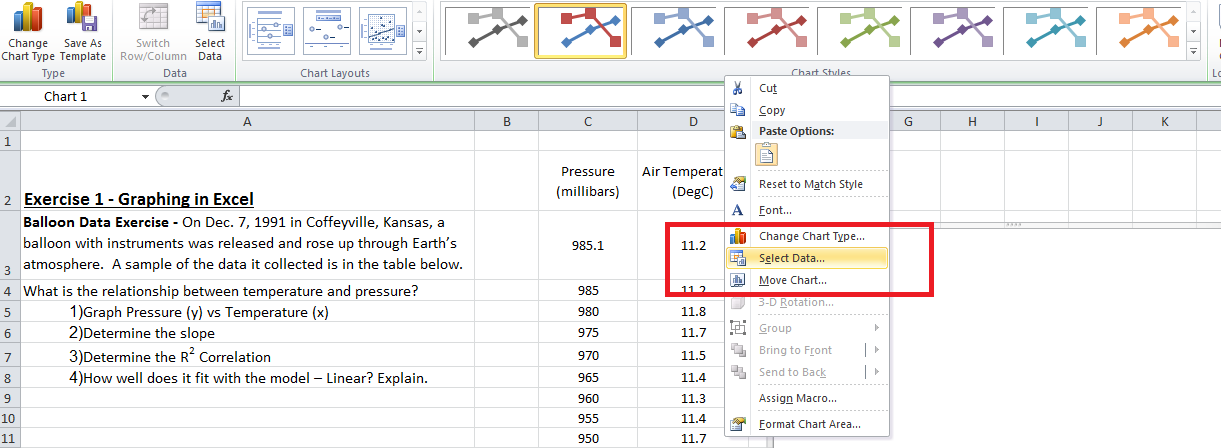
1. Select the top left graph with only the data points. We can add lines later.



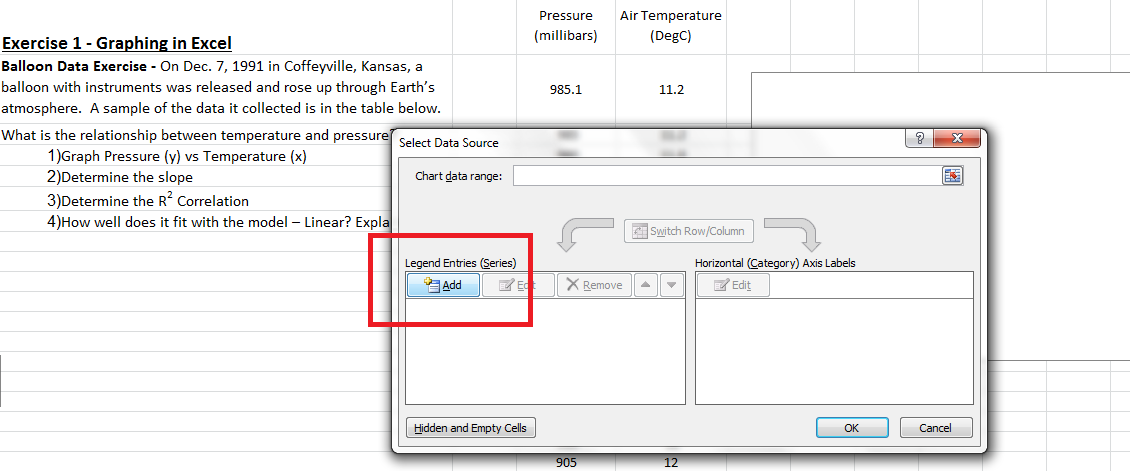
1. Move the blank graph off of the data and to the side.



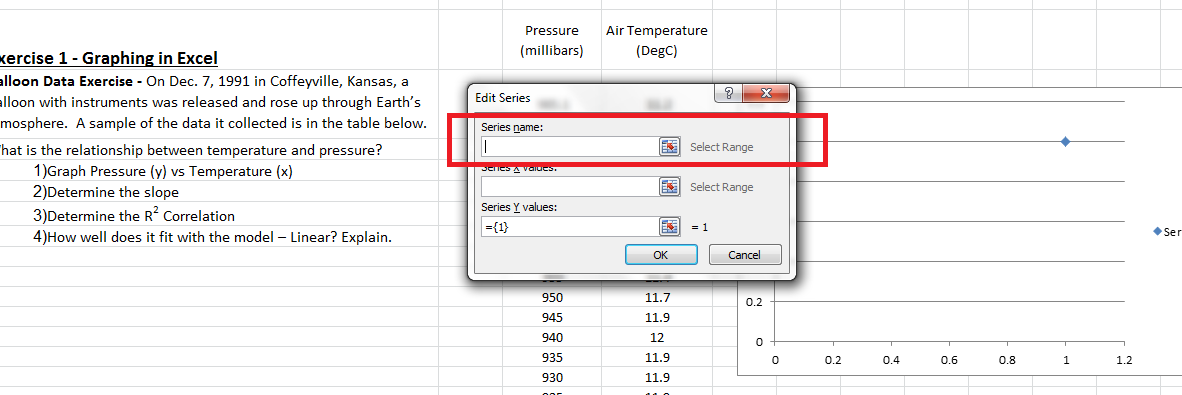
1. Right click on the blank graph and select “SELECT DATA”.



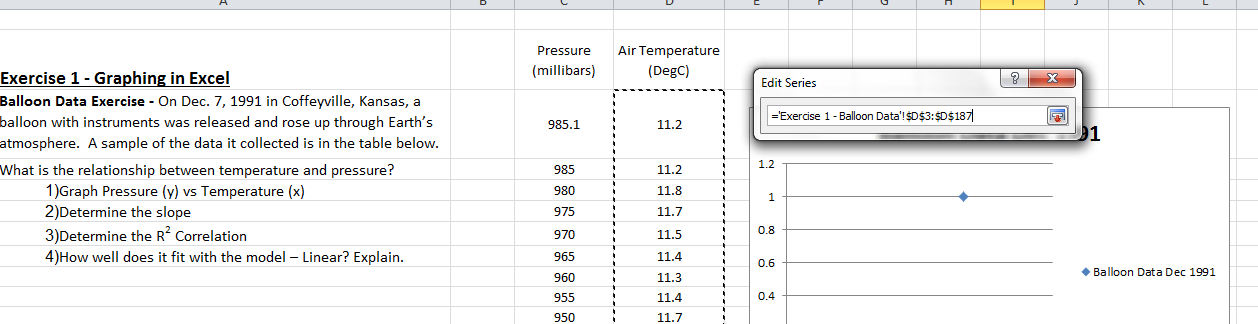
1. Click on the button “ADD”. This allows us to choose the data to add to the chart.

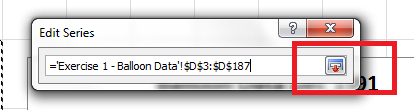


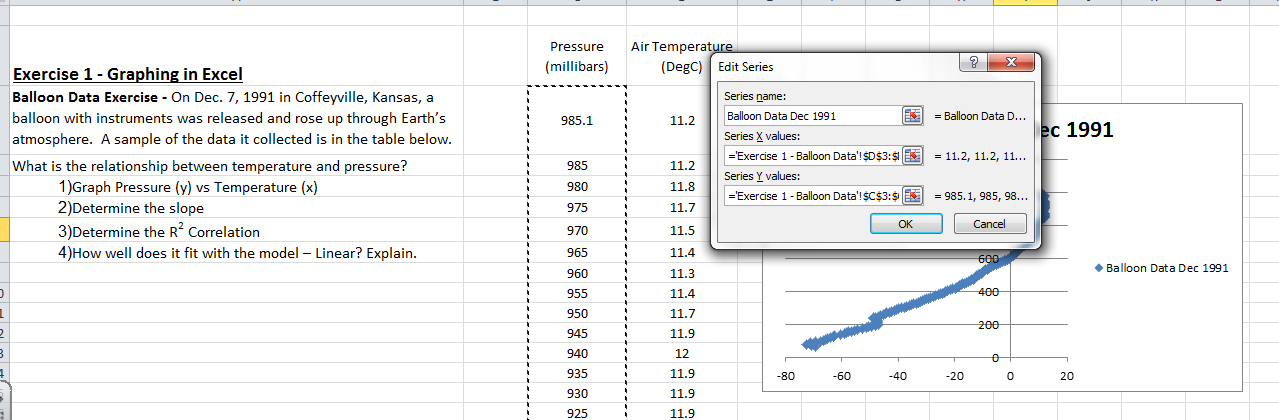
1. Series Name will display the name of the trend line. Put “Balloon Data Dec 1991”.

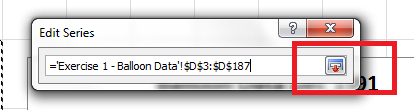
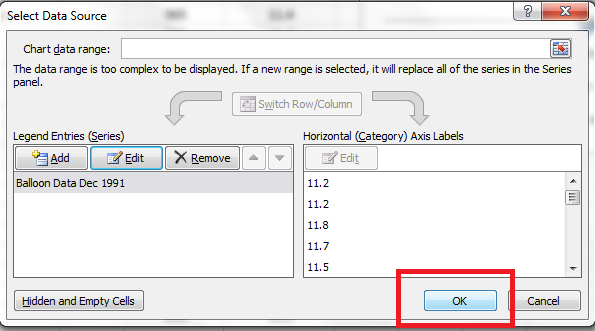


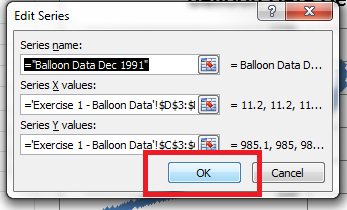
1. Series “X” values will plot the data on the x-axis. Select the button , starting with the numbers (do not select the title), select and drag all of the numbers of the temperature data.

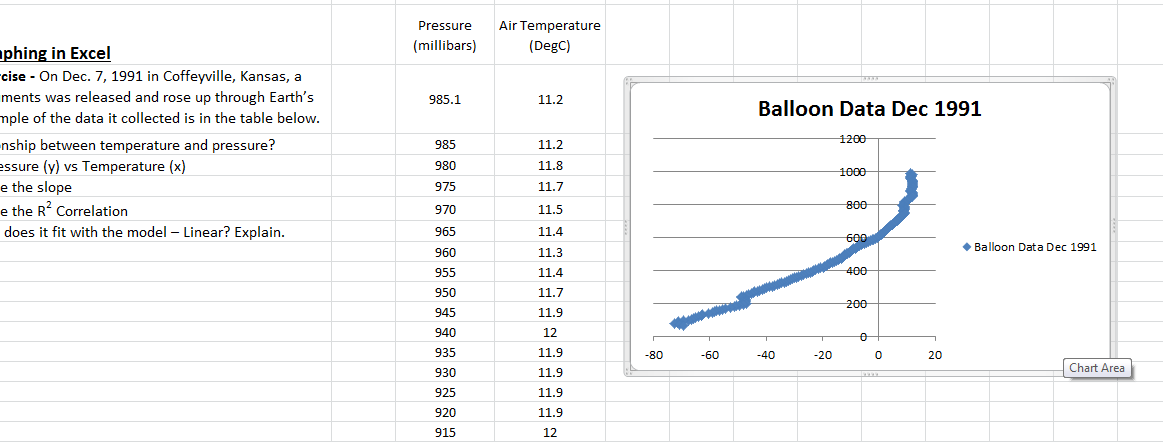


1. Once the data is highlighted, click the button to finalize the selection.
2. Series “Y” values will plot the data on the y-axis. Select the button , starting with the numbers (do not select the title), select and drag all of the numbers of the pressure data.

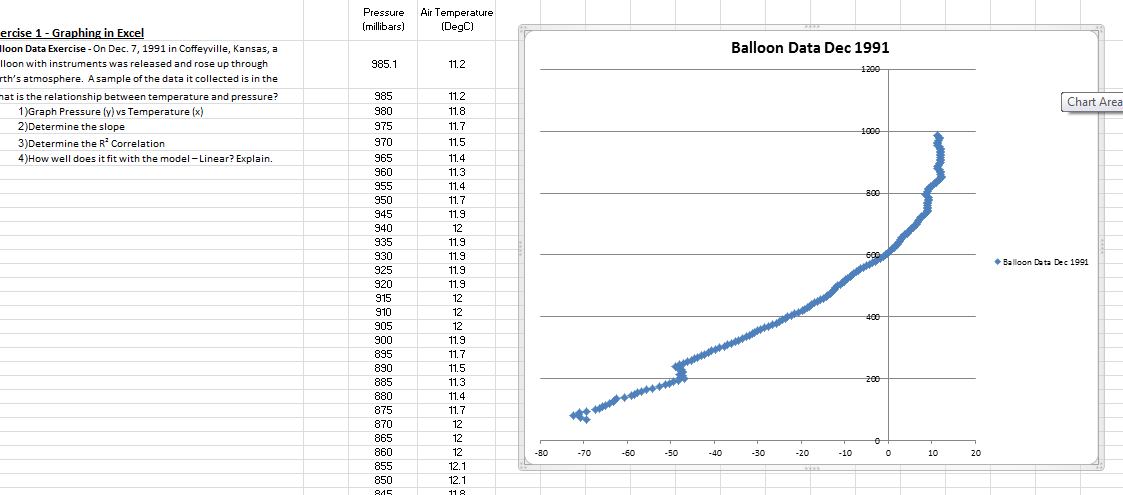


1. Once the data is highlighted, click the button to finalize the selection.
2. Select OK, and then OK to display the graph on Excel.

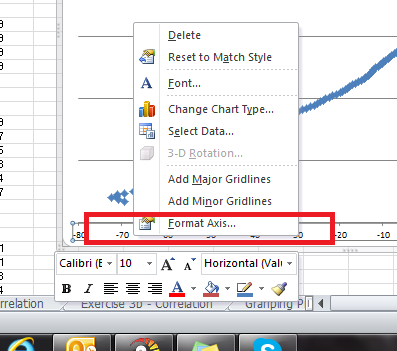




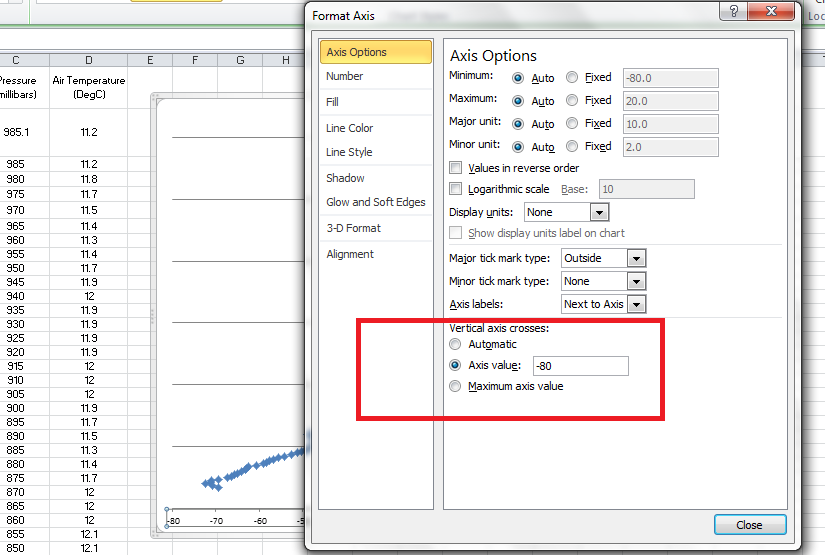
1. Make the graph large by expanding the graph to make it easier to view.



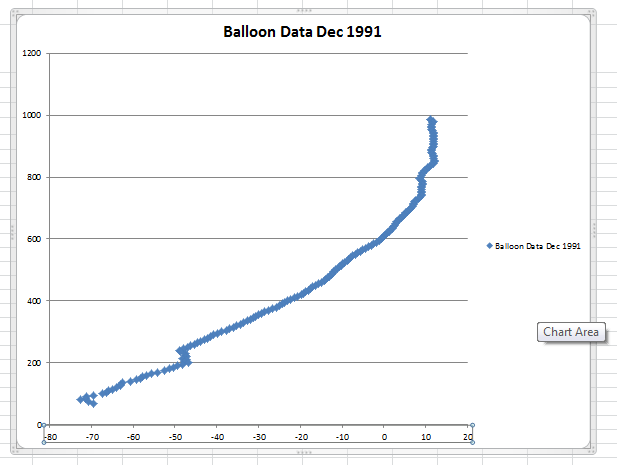
1. To move the vertical axis to the left of the page, right click on **horizontal axis** of the graph and select “format axis”



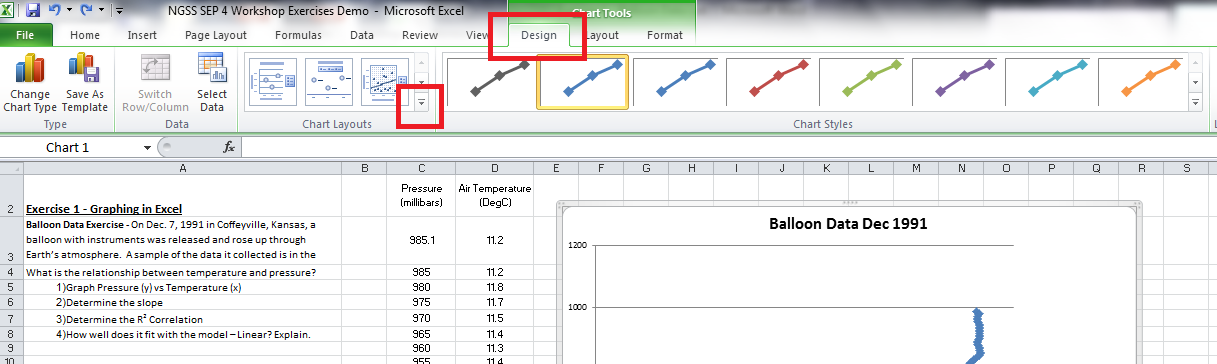
1. Under the “Vertical axis crosses”, select “Axis value” and set it to the left most data point which is -80 in this case.



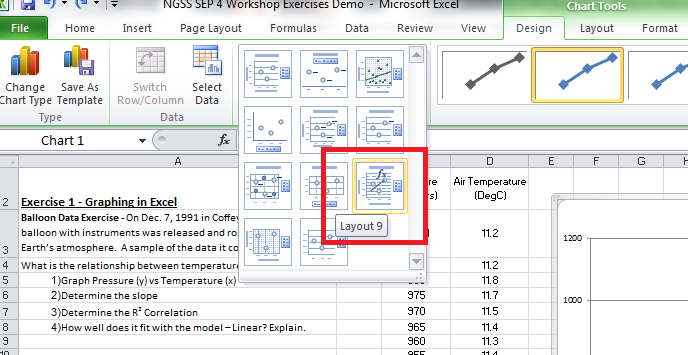
It should move the vertical axis to the left side like this:



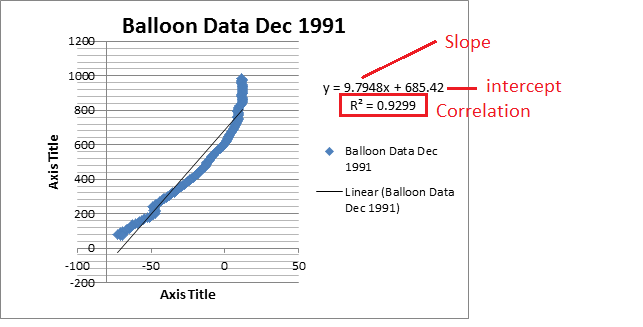
1. Next, lets put axis titles, equation and R2 on the graph. The easiest way is to select the DESIGN tab and then the bottom arrow to select the chart type.



1. Select the bottom right – Layout 9

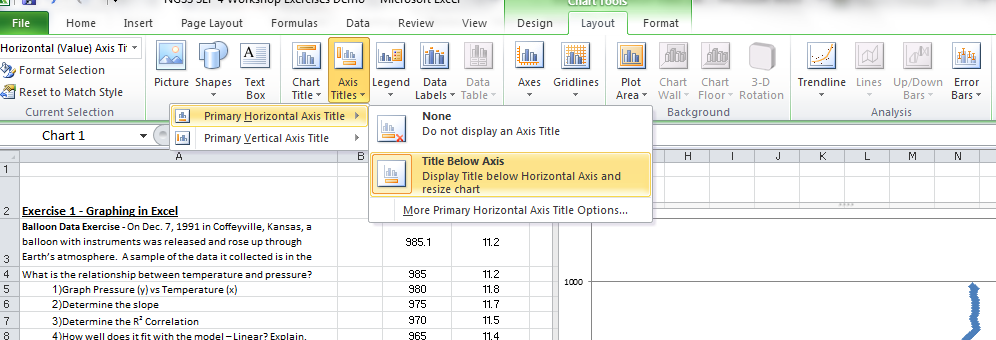


1. It should display the following where you can click on the axis titles to change the names and the equation show is the linear fit and the R2 value.



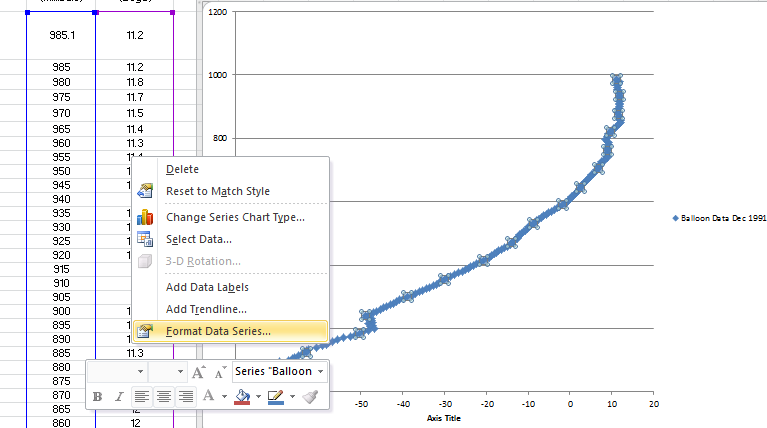
Alternative way to add chart axis titles and trendline

* To add chart titles, Click on the Layout Tab, Axis Titles, Primary Horizontal Axis Title, Axis Below to display the horizontal.
* Repeat for the Vertical Axis Titles

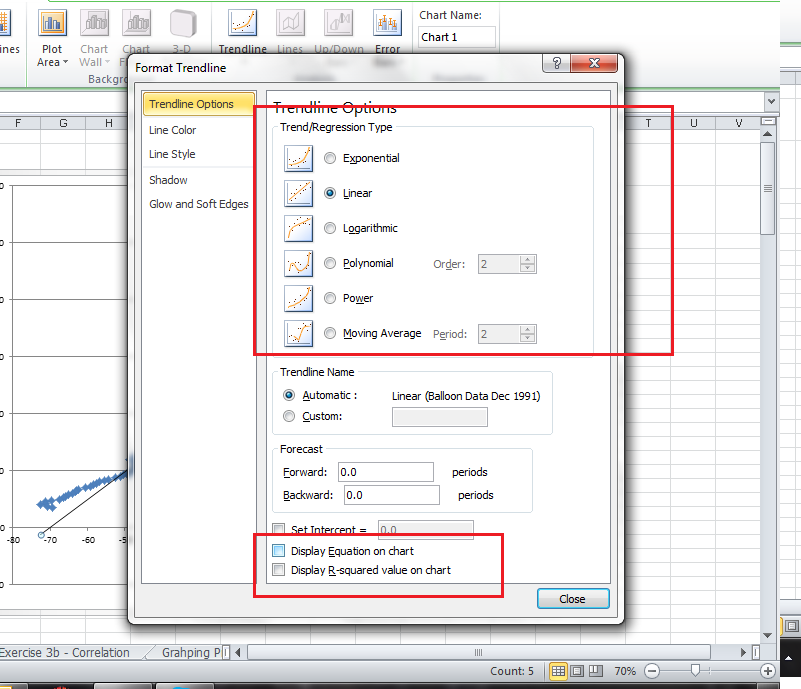


To add a trendline, equation and correlation:

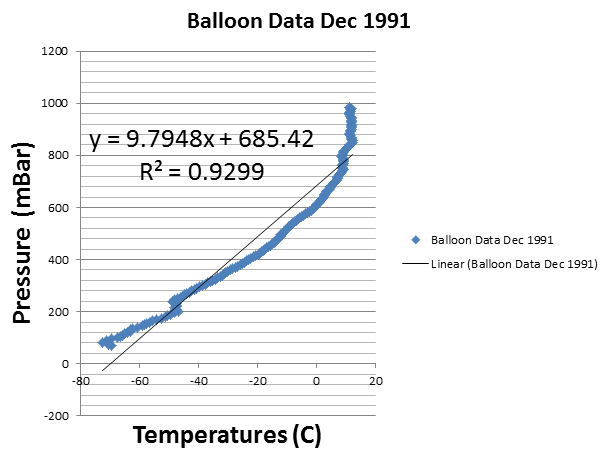
* Right click on the data points 🡪 Select **Add Trendline**



* Select the type of model/fit you would like to use. For this example, use the “Linear”.
* Check the box “Display Equation” and “Display R-Squared”



After labeling the graph, it should look like:



The trend line generates the best fit with the data give. From this,

Answer the following questions:

|  |
| --- |
| What is the relationship between temperature and pressure? |
| 1)Graph Pressure (y) vs Temperature (x) |
| 2)Determine the slope |
| 3)Determine the R2 Correlation |
| 4)How well does it fit with the model – Linear? Explain. |

Generate a list of questions you can ask your students with the data in this graph: