## Scatter Plot Investigation Project

Statisticians and quality control technicians gather data to determine **correlations** (relationships) between events. Scatter plots will often show at a glance whether a relationship exists between two sets of data. In this project you will act as a statistician and draw conclusions from your given data table by the use of scatter plot graphs.
On the **back** of your paper is a table of data that you will have to use to create:
1. A Question you want to find the answer to for the given data.
2. Scatter Plot Graph.
3. Whether it is a <u>positive</u>, <u>negative</u> or <u>no correlation</u> Graph.
4. Best fit line.
5. Equation of the best fit line ( $y = mx + b$ ).
6. A written paragraph of your conclusion based on the original question along with any other information you can link to the data.
7. A prediction using the equation of your best fit line.
8. An organized poster illustrating your collected data and conclusion.

Your graph must have:
1. Title
2. Labeled axis
3. Best fit line along with equation
4. 2 prediction points based on your best fit line.

**EXAMPLE**
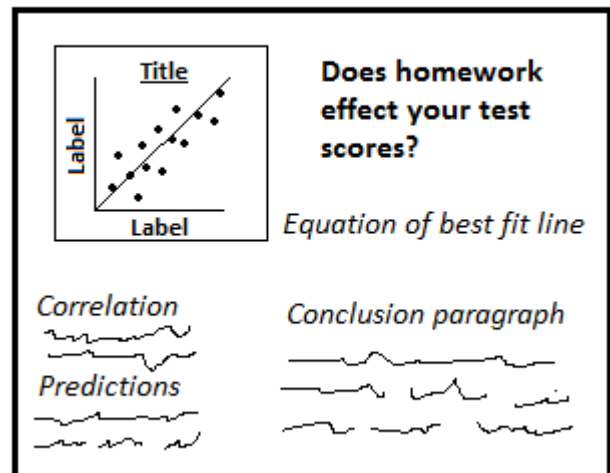
| x | y |
|---|---|
| 0 | 165 |
| 39 | 134 |
| 19 | 135 |
| 26 | 145 |
| 12 | 178 |
| 19 | 175 |
| 10 | 220 |
| 37 | 135 |
| 15 | 170 |
| 23 | 167 |
| 20 | 150 |
| 18 | 155 |
| 0 | 255 |
| 5 | 270 |
| 60 | 120 |

**X= Average Minutes of Daily Exercise**
**Y= Cholesterol Level**

**What is the question that you want to answer from the given data?(Create a Word Problem)**

**Make a scatter plot of the data (you may use graphical calculator). What kind of correlation did you find?**

**In addition to drawing a scatter plot, the type of correlation between data sets can also be determined by examining the data in a table format. Explain how this can be done.**

**Use the linear regression feature of a graphing calculator to find an equation of the best-fitting line for the data. (y = mx + b)**

**Predict the cholesterol level of a person who works out 2 hour a day (Use the equation above). SHOW WORK!**

**Does your model work for a person who wants to work out for 35 minutes and wants his/her cholesterol level at 90? Why or Why not?**

**Conclusion: How does your finding from this project help you in your own life?**