

# Numbers Never Lie! A 6<sup>th</sup> Grade Statistics Project

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

Class: \_\_\_\_\_

## Project Overview:

After studying graphs, analyzing and measuring data, you will apply your knowledge to conduct your very own research study. In groups of two, you will decide on a question to conduct your study. You will conduct your study on two different sample groups. You will record your data and use graphs to represent your findings to the class.

## Learning Objectives:

- I can create the different types of graphs and tables used in statistical analysis.
  - Frequency table
  - Line plot
  - Histogram (bar graph)
  - Box & whisker plot
- I can find mean, median, mode, range, and quartiles.
- I can analyze the distribution of data.
- I can apply the principles of design to compose beautiful, professional, thoughtful work.
- I can interpret graphs.
- I can compare multiple samples and their relative populations.
- I can draw conclusions sample/populations size.

## Project Objectives:

1. You will conduct a study in groups of two (Question must be approved)
2. You will create the following professional mathematical graphs for each set of data:
  - Frequency table
  - Line plot
  - Histogram
  - Box plot
3. You will find the mean, median, mode, quartiles, range
4. You will create a “professional” representation of your findings that will be displayed.
5. You will present your findings to an audience

## Essential Questions:

- Why is it important to analyze and interpret graphs and tables?
- Why is sample size/population important to consider when conducting a study?
- What are errors? What are possible errors you may come across in your study?
- What are variables or factors in your study that may affect your findings?
- What conclusions can you make about your findings?

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### Products and Project Due Dates:

\*Each of the following steps must be approved before you move on to the next step.

\*Approval of each step constitutes 2 pts on the final grade for your project.

Steps	Due Date	Description	Approval
Step 1	Jan. 9	Meet and decide on a question to study	
Step 2	Jan. 9	Select at least two sample populations	
Step 3	Jan. 12	Turn in a survey form for collecting data	
Step 4	Jan. 16	Return with collected data	
Step 5	Jan 16	Tally collected data in frequency tables	
Step 6	Jan. 16	Create a line plot of each set of data	
Step 7	Jan. 16	Find the mean, median & mode of each set of data	
Step 8	Jan. 23	Create a double bar graph of the data to display	
Step 9	Jan. 23	Create box & whisker plots of the data	
Step 10	Jan. 23	Divide and prepare your presentation for the class	

### Grading Rubric:

Product	3	2.5	2	1.5
Frequency Tables	Both complete, neat, correctly displayed	One has a few errors, seems incomplete or not neat	Both have errors, seem incomplete or not neat	Only one completed
Line Plots	Both complete, neat, correctly displayed	One has a few errors, seems incomplete or not neat	Both have errors, seem incomplete or not neat	Only one completed
Mean, Median & Mode	All done & mathematically correct	One or two mathematical errors	Missing one or more errors	Missing more than one
Bar Graph	Complete, neat, correctly displayed	A few errors, seems incomplete or not neat	Multiple errors or hard to follow	Only a single bar graph
Box & Whisker Plots	Both complete, neat, correctly displayed	One has a few errors, seems incomplete or not neat	Both have errors, seem incomplete or not neat	Only one completed
Presentation	Complete—covers it all	Doesn't answer the essential questions	Skips a graph in presenting	Only one person presents

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Step 1: Group meeting—Brainstorming and planning

Names of Group Members: \_\_\_\_\_ & \_\_\_\_\_

Brainstorm Ideas:

What would you like to conduct a study on? What would you like to know about our student population?

What materials do you need to conduct your study?

Final Question:

Teacher Approval: \_\_\_\_\_

