Numbers Never Lie!

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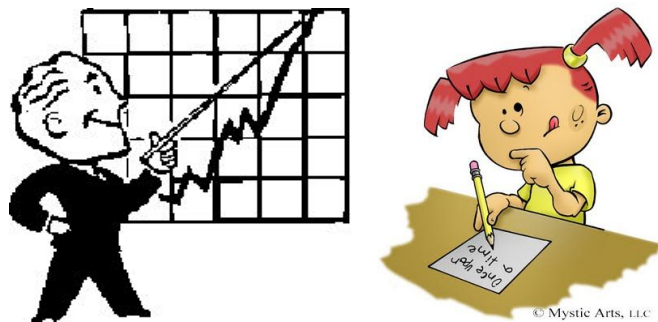## Introduction
Here's the rundown, 6th grade is one of the fundamental years of your education. Believe it or not, 7th grade will be here before you know it. But, before you start thinking ahead, you have an opportunity to conduct, analyze, and apply your mathematical intuition to help complete your very first statistics project at HTMNC!

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 at High Tech Middle North County. You will record your data and use graphs to represent your findings to the school.

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 might affect your findings?
- What conclusions can you make about your findings?

Learning Objectives
- Students will distinguish between a statistical question (numerical/categorical) with variability and non-statistical questions.
- Learn about different types of graphs and tables used in statistical analysis. See below:
  - Frequency Table
  - Dot Plots
  - Histograms
  - Box-and-Whisker Plots
- Find mean, median, mode, range, quartiles, and mean absolute deviation
- Learn about distribution of data
- Apply the principles of design to compose beautiful, professional, thoughtful work
- Learn how to interpret graphs
- Learn about sample size/population

Project Objectives

1. Conduct a study in groups of two. (Question must be approved)
2. You will create the following professional mathematical graphs:
    - 1 Frequency Table
    - 1 Dot Plot
    - 1 Histogram
    - 1 Box-and-Whisker Plot
    - (will find mean, median, mode, quartiles, and mean absolute deviation)
3. You will create a professional photographic representation of your findings that will be displayed on our North County campus. Yes, that means that everyone who visits our campus will get to see your beautiful work!
4. Present your findings to an audience.

Timeline (may subject to change due to learners' needs)

Date	Focus
Sept. 6 - 9	- Pre-assessment - Analyzing and creating a statistical question - Creating group statistical question
Sept. 12 - 16	- Analyzing various forms of graphing data & data distribution - Calculate mean, median, mode, and range of data - Conduct survey and begin analyzing results
Sept. 19 - 23	- Calculate mean absolute deviation - begin transferring data and creating graphs - critique of graphs
Sept. 26 - 30	- Continue working on graphs and publish graphs - Presentation of Results
Oct. 3 - 5th	"Celebration of Learning" of Statistics

Exhibition
Students will exhibit their work to their peers, parents, and the school. Graphs will be exhibited around the middle school's campus.

Assessment
- Action plan
- Process Folder
- Published Graphs (graded on a rubric scale)
- Unit Test