Experimental Design

This concept will be integrated throughout the year – refer to these notes when needed

(Write just the underlined parts)**

- **HYPOTHESIS**
  - **your prediction before you change a variable**
  - **IF __(IV)___, THEN __(DV)__.**
- **Ex: #1**

  - **If I add food coloring to the applesauce, then my students will choose**… the colored applesauce over the regular applesauce.
- **Ex (1):**
  - **If a paper clip is added to the nose of the plane, then it will fly farther. (or increasing the weight of the nose.**

- Control
  - an unchanged object used in an experiment to detect and measure the effects of hidden variables.
- Ex:#1 
  - regular applesauce
- Ex #2:
  - the original plane you fly without paperclips.

- Trial:
- each time you do an experiment; each time you collect data.
- Ex:#1
- each one of my students, 32 trials.

- Ex #2:
- each time you throw the plane.

- Variable:
  - each change in the experiment, the thing you change “manipulate”
- Ex:#1  
  - the different colors of the applesauce.
- Ex #2
  - number of paperclips, or the weight of the plane is a variable.

Independent Variable:

- a variable is purposely changed in an experiment.

- Ex:#1
- the color.

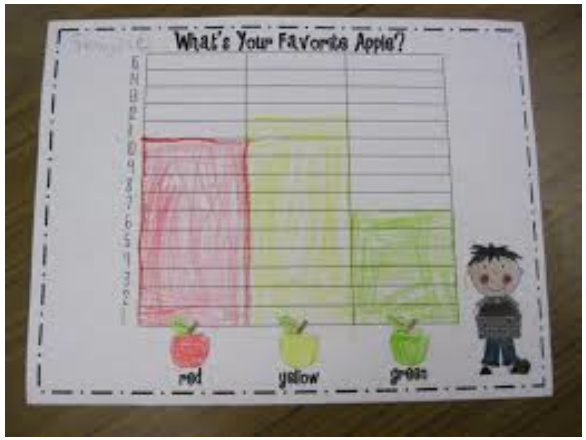
- Ex #2
- the number of paper clips.

- Dependent Variable:
  - the thing that changes because of the independent variable.
- Ex:#1 
  - the “frequency” of the color that is chosen.
- Ex #2
  - the distance.

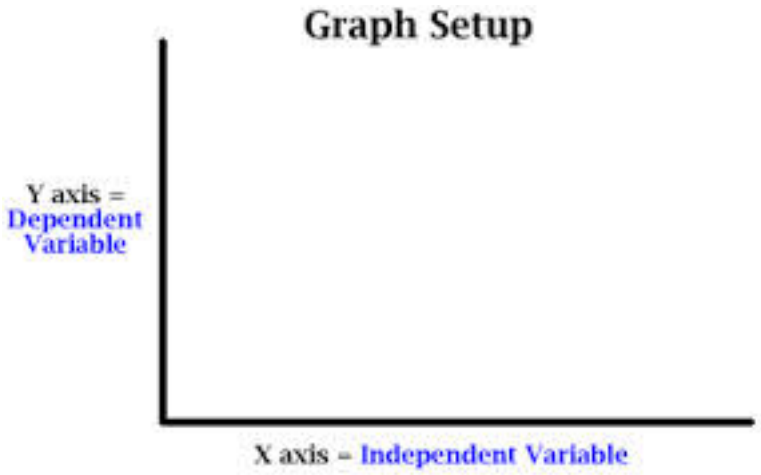
- **Constant**
  - **all the factors that remain the same through out the experiment.**
- **Ex:#1**

  - the type/amount of applesauce, the cup, portion, temperature…
- **Ex #2**
  - **the paper, size of paper clip, wind, throw, environmental conditions.**

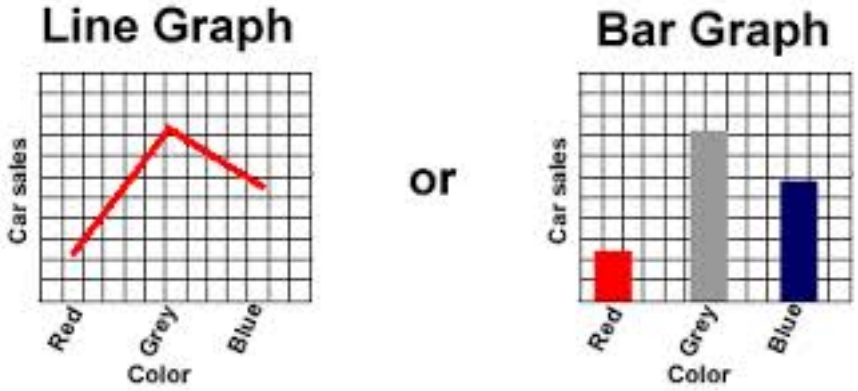
- Data Table



- independent variable on the x-axis,
- dependent variable on the y-axis.



What type of graph?????



The graph may look something like this-. Line and bar graph. Which one is correct? The bar graph is correct because the IV is non-numerical.