

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:



- **Ex (1):**

- If I add food coloring to the applesauce, then my students will choose the colored applesauce over the regular applesauce.
- **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:



- regular applesauce

- Ex (1):

- **the original plane you fly without paperclips.**

- Trial:
- each time you do an experiment; each time you collect data.
- Ex: 
- each one of my students, 32 trials.
- Ex (1):
- each time you throw the plane.

- Variable:

- each change in the experiment, the thing you change “manipulate”

- Ex :



- the different colors of the applesauce.

- Ex (1):

- number of paperclips, or the weight of the plane is a variable.

Independent Variable:

- a variable is purposely changed in an experiment.

- Ex :

- the color.

- Ex (1):

- the number of paper clips.



- **Dependent Variable:**
- **the thing that changes because of the independent variable.**
- Ex :
A photograph showing two children, a boy in a yellow shirt and a girl in a pink shirt, sitting at a wooden table in what appears to be a classroom or cafeteria setting. They are both looking towards the left side of the frame, possibly at a teacher or another student. On the table in front of them are various items, including a red container, a green bottle, and some food containers.
- **Ex (1):**
- **the distance.**

- Constant

- Ex :



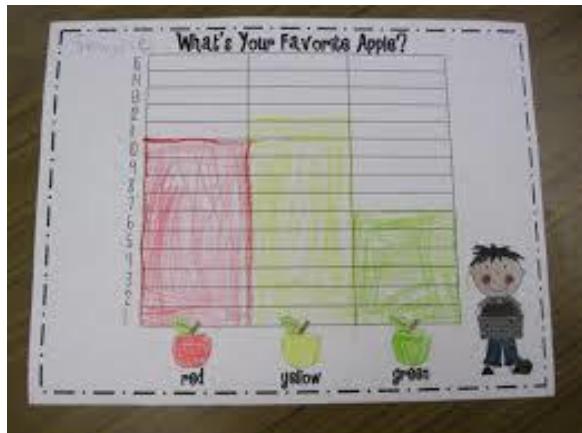
- Ex (1):

- all the factors that remain the same through out the experiment.

- the type/amount of applesauce, the cup, portion, temperature...

- the paper, size of paper clip, wind, throw, environmental conditions.

- Data Table



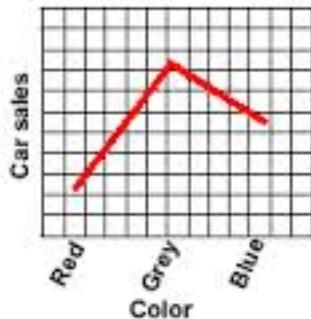
- independent variable on the x-axis,
- dependent variable on the y-axis.

Graph Setup



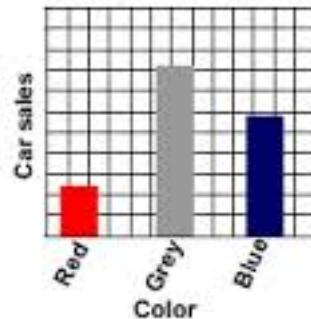
What type of graph?????

Line Graph



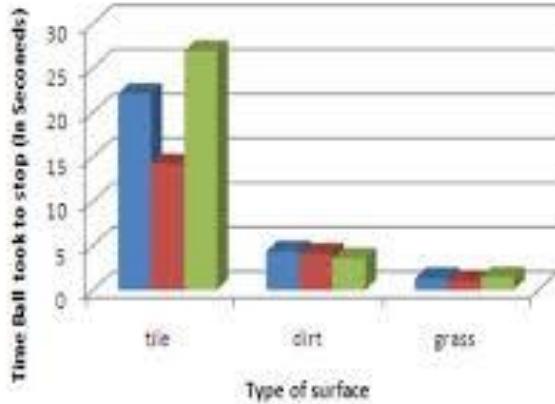
or

Bar 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.

Friction and Gravity



Rubber Band Experiment

