

Experimental Design

Scientific Method/Process

1. Make an observation and come up with a question
2. Then form an explanation to the questions, known as a hypothesis, using “If..., Then...”
3. Design an experiment* to test the hypothesis.
4. Test the hypothesis through experimentation
 - Record qualitative and quantitative data
5. Make a conclusion about findings
 - Analyze data by comparing differences between the experimental and control group
 - Consider all factors from beginning to end.
 - Does your evidence support or reject your hypothesis.
6. Communicate conclusion with other scientists.

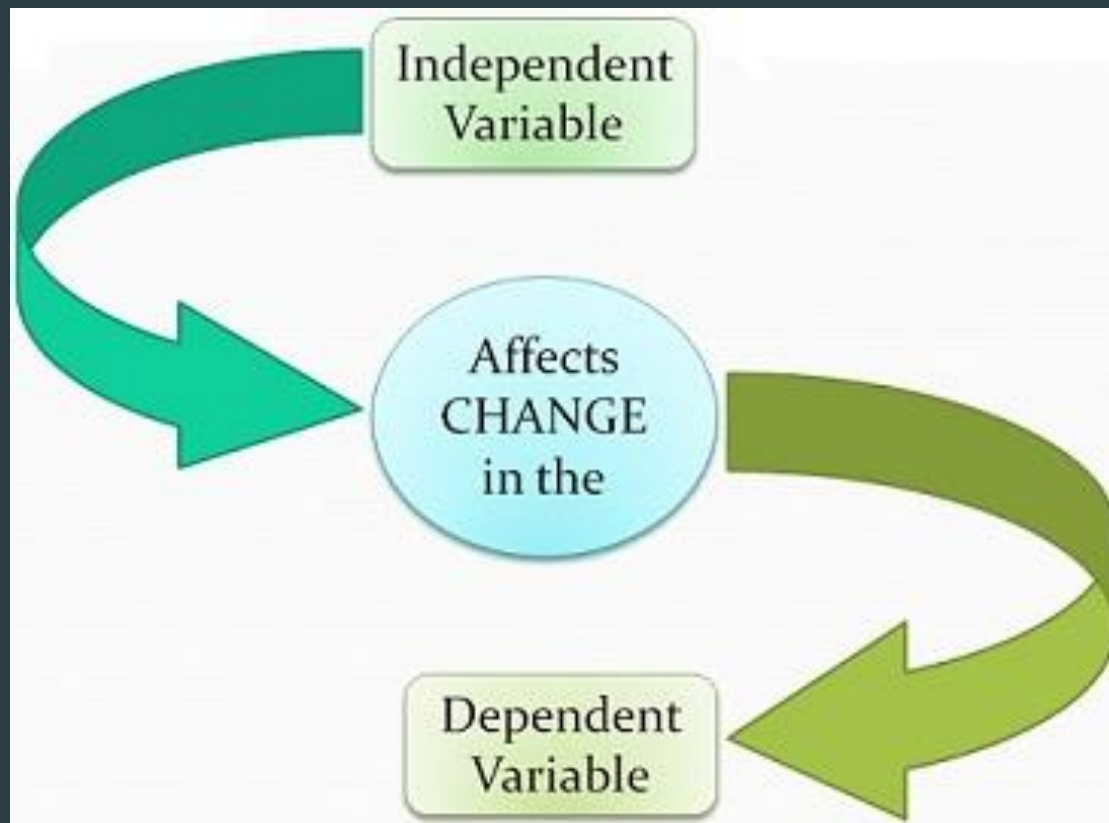
- ❑ Data = information gathered from observations
 - ❑ Quantitative = a quantity, a number or measure
 - ❑ Qualitative = a quality, description

1. Examples of Quantitative data?

2. Examples of Qualitative data?



- ❑ Independent variable - the thing you change
- ❑ Dependent variable - what you observe or measure



Determine...

Constants

- ▶ must be kept the same from trial to trial in order to ensure that the results change due to the independent variable.
- ▶ Constants are all of the factors that are the same in both the experimental group and the control group

Control Group

- ▶ the group in an experiment or study that does not receive treatment by the researchers and is then used as a benchmark to measure how the other tested subjects do.