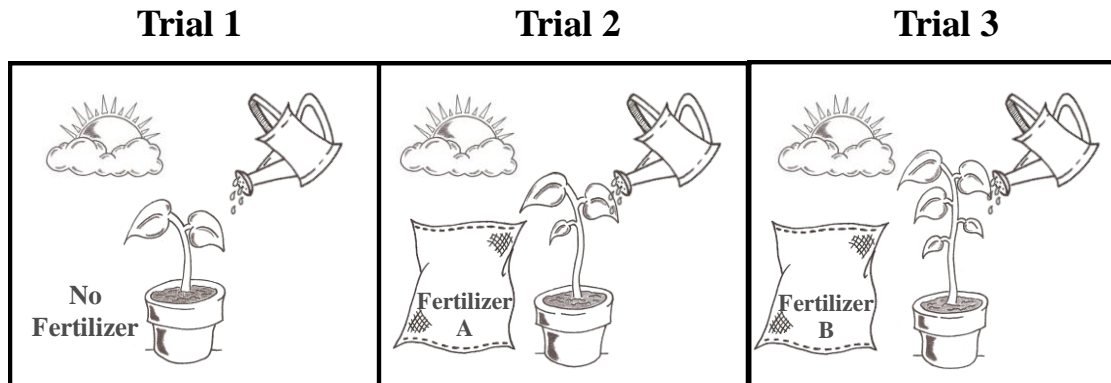


Name: _____ Date: _____ Block: _____

Notes: Experimental Design



What kind of relationship do experiments explore? _____

Which variable is thought of as the *cause*? _____

Which variable is thought of as the *effect*? _____

What is the independent variable in the experiment above? _____

What is the dependent variable in the experiment above? _____

What are *constants*? _____

Why are the constants kept the same in every trial? _____

What are constants in the experiment above? _____

Read the paragraph, then determine what is the independent variable, the dependent variable and what are the constants.

A student decided to conduct an experiment to investigate one of the factors involved in plant growth. She randomly selected twenty plants of the same species from the local plant nursery and placed them all in identical pots with the same type of soil. She gave them all the same amount of water and fertilizer, but she placed ten of the plants by a window and ten of the plants in a dark closet. She observed the plants and measured their growth daily for three weeks.

What is the independent variable? _____

What is the dependent variable? _____

What are the constants? _____

What typically happens to the dependent variable at the end of an experiment?

In a data table, which variable is in the **left** column? _____

In a data table, which variable is in the **right** column? _____

Where have you seen this rule before? _____

What does a **hypothesis** predict? _____

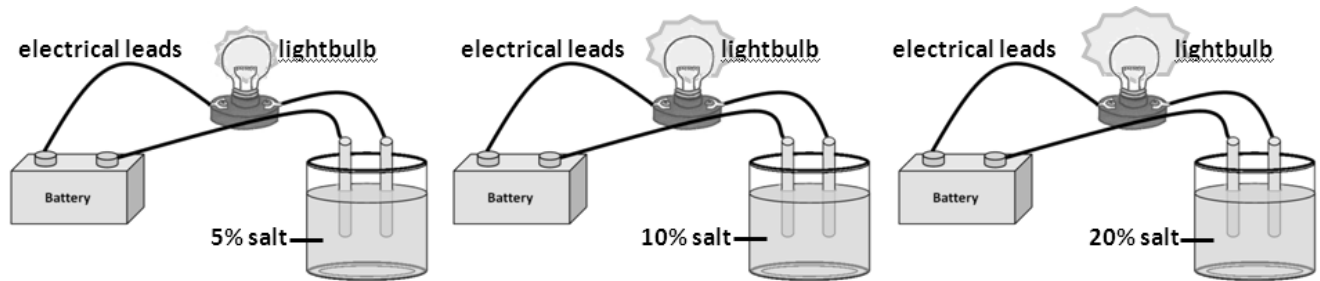
How else can the hypothesis be viewed? _____

TWO IMPORTANT FACTS ABOUT OBSERVATIONS AND EXPERIMENTS:

Emotions are NOT . **Opinions are NOT** .

What should every valid experiment contain? _____

What does a control group contain? _____



A control group for this experiment would contain electrodes, a beaker and which of the following sets of materials?

- F battery, electrical leads, light bulb, 1% salt solution
- G battery, electrical leads, light bulb, distilled water
- H battery, gold wires, electrical leads, 30% salt solution
- J battery, electrical leads, light bulb, 25% salt solution

1. What is the independent variable? _____
2. How much of this variable should be in the control group? _____

What is another word for conclusion? _____

What are conclusions based on? _____

How should experimental samples be selected? _____

What makes the results of an experiment more accurate? _____