Name Period

**Guided Notes Scientific Method**

The Scientific Method involves a series of steps that are used

**The Scientific Method**

**Steps of the Scientific Method**

1. **Problem/Question:**

that can be solved through experimentation.

2. **Observation/Research:**

your topic of interest.

3. **Formulate a Hypothesis** (Educated Guess that can be tested):

Example: If soil temperatures rise, then plant growth will increase.

4. **Experiment:**

. Include a detailed materials list. The outcome must be measurable (quantifiable).

5. **Collect and Analyze Results:** Modify the procedure if needed.

6. **Conclusion:** Include a statement that accepts or rejects the hypothesis and why. Refer to your data in your explanation.

Make recommendations for further study and possible improvements to the procedure.

7. **Repeat Experiment**

**Results and Data**

\*\*\*\* If your results DO NOT fit your Hypothesis and retry your experiment.

**Hypothesis**

The hypothesis is an educated guess about the relationship between the independent and dependent variables.

Note: Hypothesis are written as statements

**Independent Variable**

The independent, or manipulated variable, It usually includes time (dates, minutes, hours), depth (feet, meters), temperature (Celsius).

This variable is

**Dependent Variable**

The dependent, or responding variable, . It is the result of what happens because of the independent variable.

Example: How many oxygen bubbles are produced by a plant located five meters below the surface of the water? The oxygen bubbles are dependent on the depth of the water.

This variable is

**Graphing**

When graphing your data from an experiment always place the on the X axis (horizontal) and the on the Y axis (vertical).

**Valid Experiment**

* In order for a scientific experiment to be valid it can only have
* This variable is the
* All other parts of the experiment must remain the

* Any experiment that has more then 1 variable cannot prove anything and

**Control Group**

* In a scientific experiment, the control is the group that serves as the standard of comparison.
* The control group is exposed to the same conditions as the experimental group, except for the variable being tested.

**Constants**

The constants in an experiment are all the factors that the experimenter attempts to keep the same.