

## SCIENTIFIC METHOD & GRAPHING NOTES

### A. Define basic terms associated with science

**Science**-- A process through which nature is \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.

**Theory** -- The most probable \_\_\_\_\_ based on the best available \_\_\_\_\_.

**Facts** -- Data or \_\_\_\_\_ that can be \_\_\_\_\_ repeatedly

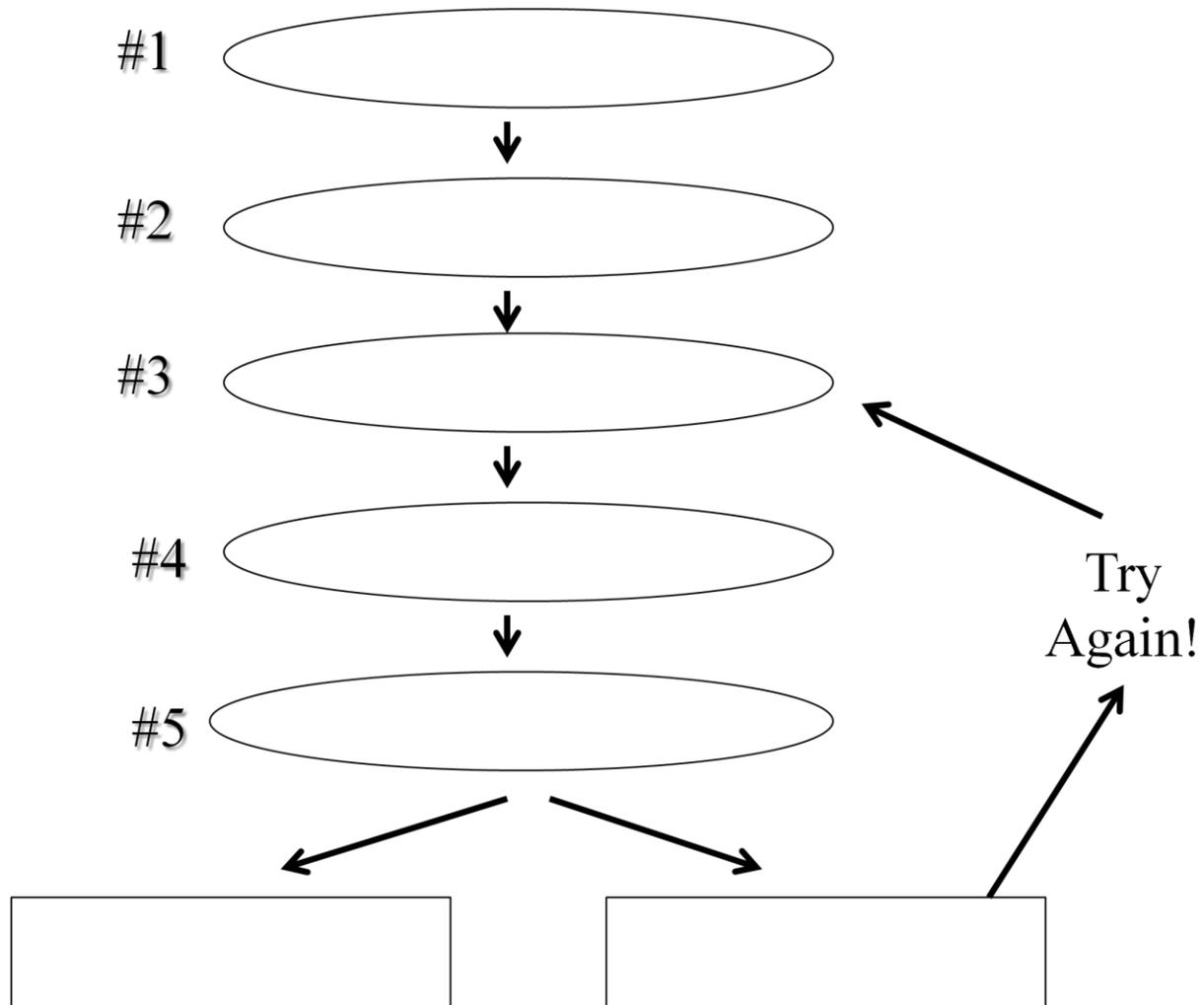
**Hypothesis** -- An \_\_\_\_\_ guess – a \_\_\_\_\_ statement

### B. Define the Scientific Method

#### What is the Scientific Method?

An \_\_\_\_\_ approach to \_\_\_\_\_ questions and \_\_\_\_\_ problems.

### C. List & describe the steps of the Scientific Method



### Step #1: The Problem

-States the purpose of doing an experiment

- \_\_\_\_\_ be stated as a \_\_\_\_\_

### Step #2: Research

-Read and study what is \_\_\_\_\_ about the topic

-Get advice from others

### Step #3: The Hypothesis

-An \_\_\_\_\_ guess

-Answers the question in the \_\_\_\_\_.

-Written in "If" – "Then" form

### Step #4: Perform the experiment

-Carry out the \_\_\_\_\_

-Keep records of the \_\_\_\_\_.

### Step #5: Analyze Results

-Determine the truth of your \_\_\_\_\_ based on your results

#### *D. Identify variables, constants, and controls in an experiment*

### *Variables*

**Independent variable (IV)** - the variable that is \_\_\_\_\_ (what is being tested)

**Dependent variable (DV)** - the variable that \_\_\_\_\_ and is \_\_\_\_\_.

**Control**- the item that is being tested with \_\_\_\_\_, (used to compare)

**Constant (C)** - all \_\_\_\_\_ that are kept the \_\_\_\_\_ during the experiment.

*Example: The Purina Feed salesman visits you and claims that his hog feed will cause your hogs to have a higher ADG (average daily gain). So, you design an experiment to see if he is correct. You get two pens with 10 hogs each. The hogs are all within 10 pounds of each other. You feed your current feed to one pen and the Purina feed to the other pen. At the end of 30 days, you weigh each pig and calculate the ADG for each pen*

Problem:

Hypothesis:

Independent Variable (IV):

Dependent Variable (DV):

Constant(s):

Conclusion:

**E. Construct, label, and discern different types of graphs**

**Why use graphs & tables in science??**

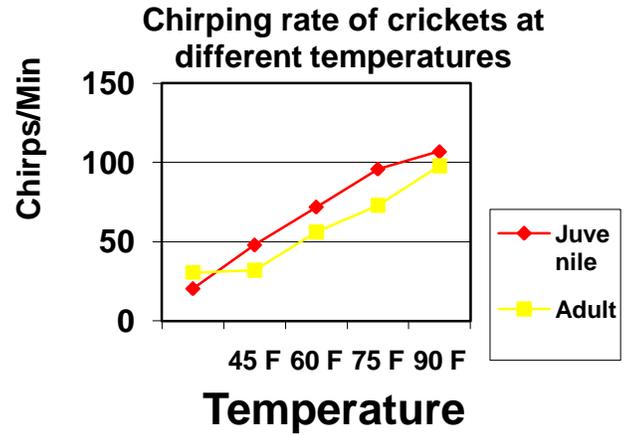
-To arrange \_\_\_\_\_ (numbers) so they are easy to \_\_\_\_\_.

-Makes numbers \_\_\_\_\_!

**Types of Graphs**

**1-Line Graphs**

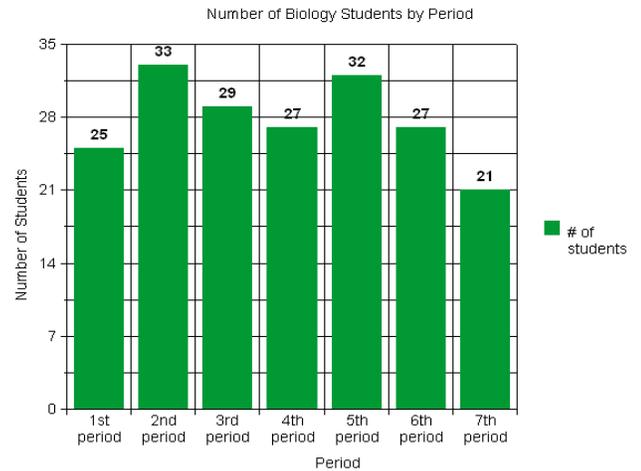
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**2- Bar Graphs**

-Easy to compare \_\_\_\_\_

-Easy to see an \_\_\_\_\_



**3- Pie Charts**

-Data usually equals 100%

**Percentage of seeds that germinated in soils with varying pH**

