

### Identifying parts of the scientific method

*Directions: For each of the following scenarios, identify the Problem, Hypothesis, IV, DV, Constants, and the control group.*

- #1 Suzie Q wants to know how different colors of light effect the growth of plants. She believes that plants can survive the best in white light. She buys 5 ferns of the same species, which are all approximately the same age and height. She places one in white light, one in blue light, one in green light, one in red light and one in the closet. All of the ferns are planted in Miracle-Grow and given 20 mL of water once a day for 2 weeks. After the two weeks, Suzie observes the plants and makes measurements.

Problem:	
Hypothesis:	
IV:	
DV:	
Constants: (at least 4)	
Control Group:	

- #2 You are growing tomato plants in your garden this year and you would like to get maximum production (maximum amount of tomatoes). When you go to Home Depot to buy fertilizer, you notice there are many different brands to choose from. You decide to try the **Miracle Grow, Farmer's Choice, and Too Tall** brands of fertilizer. To test them, you plant three different plots of tomato plants, with 5 plants in each plot. You also plant one plot that fertilizer is not applied to. You fertilize the plants every two weeks for two months. You keep track of the number of tomatoes produced by each plant.

Problem:	
Hypothesis:	
IV:	
DV:	
Constants: (at least 4)	
Control Group:	



## The Scientific Method-Notes

Name \_\_\_\_\_

### The Problem

- \_\_\_\_\_ leads to identifying a problem to solve.  
"Observing the world around you is the foundation of scientific investigation."
- The problem is the \_\_\_\_\_ of doing an experiment.
- Must be stated as a \_\_\_\_\_.

### The Hypothesis

- An \_\_\_\_\_
- Answers the \_\_\_\_\_ in the problem
- Written in "\_\_\_\_\_, \_\_\_\_\_" form
- IF statement = what is the \_\_\_\_\_ ?
- THEN statement = what do \_\_\_\_\_ will happen?
- Based on past \_\_\_\_\_ or \_\_\_\_\_ knowledge

### The Experiment

- 1. Defining \_\_\_\_\_ 2. Gathering \_\_\_\_\_ 3. Writing the \_\_\_\_\_ 4. Performing the \_\_\_\_\_ 5. Gathering \_\_\_\_\_

### Variables

- \_\_\_\_\_ kept the \_\_\_\_\_ except for the one item being tested.
- **Independent variable (IV)** - the variable that is \_\_\_\_\_ by the experimenter. (what is being tested)
- **Dependent variable (DV)** - the variable that \_\_\_\_\_ and is the variable \_\_\_\_\_. (what changes because of the experiment)
- **Control**- the item that is being tested with \_\_\_\_\_, used to compare
- **Constant (C)** - all \_\_\_\_\_ that are kept the \_\_\_\_\_ during the experiment.

### Materials

- \_\_\_\_\_ of items needed to complete the lab
- \_\_\_\_\_ of materials needed

### Procedure

- Step by step \_\_\_\_\_ to do lab
- Written like a \_\_\_\_\_
- Can be \_\_\_\_\_ by someone else

### Data

- **Qualitative Data:** a \_\_\_\_\_, uses \_\_\_\_\_
- **Quantitative Data:** \_\_\_\_\_, uses \_\_\_\_\_ tools
- Put data into a \_\_\_\_\_ or a \_\_\_\_\_

### Writing the Conclusion

- \_\_\_\_\_ the \_\_\_\_\_ and your \_\_\_\_\_
- \_\_\_\_\_ what happened to the test group when you applied the \_\_\_\_\_
- \_\_\_\_\_ the \_\_\_\_\_ in the problem
- \_\_\_\_\_ whether or not your \_\_\_\_\_ was correct