

Scientific Inquiry: The Scientific Method

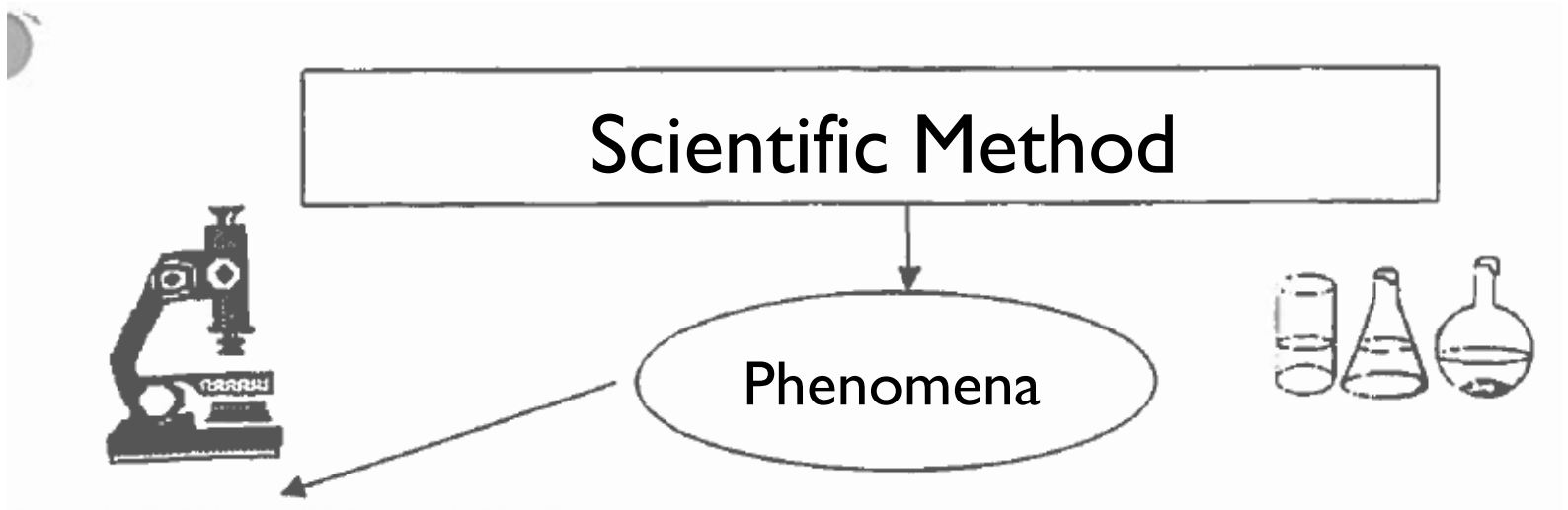
Chapter 1: What is Life science?



I will be able to...

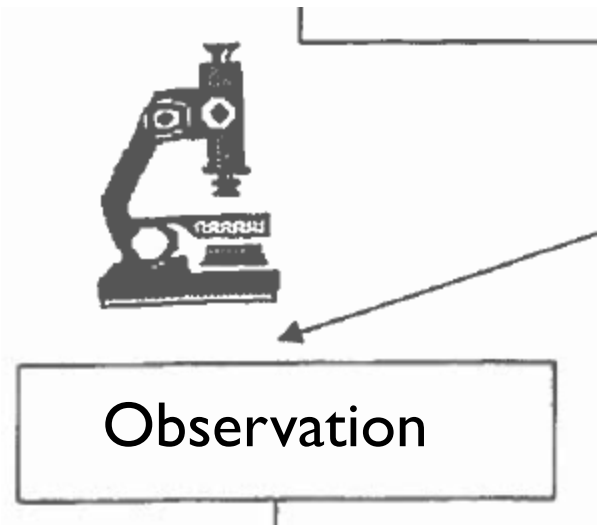
- Form a question around an laboratory activity
- Form a hypothesis using the “If..then” format
- Identify the independent and dependent of an experiment
- Follow the procedure and safety guidelines of the lab activity
- Analysis, interpret, and discuss data collected from the lab activity
- Form a conclusion from collected data

The Scientific Method



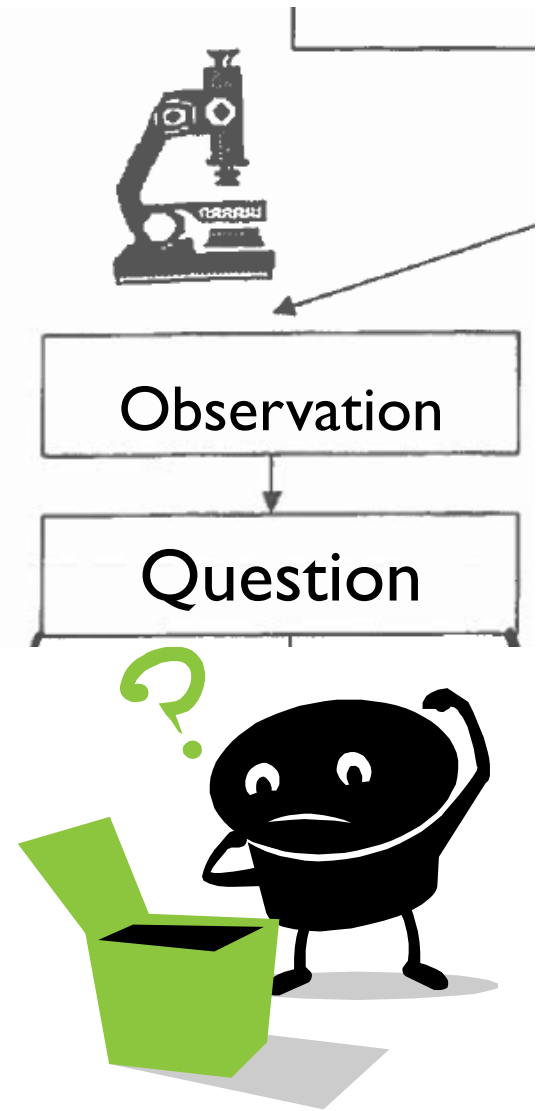
What is an observation?

- The act of using one's senses to describe the qualities and quantities of a phenomena



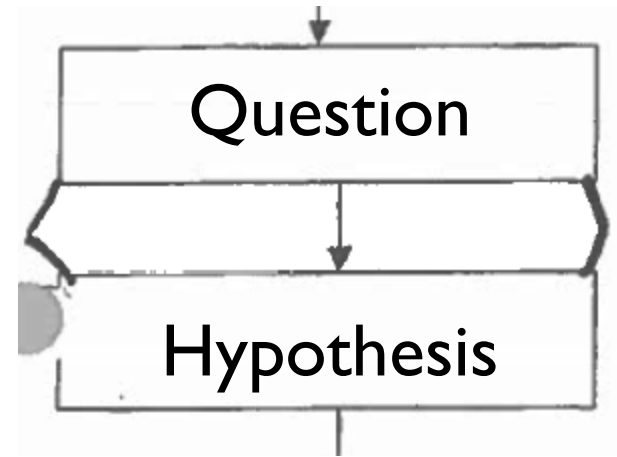
How do you form a question/problem?

- **What you want to find out (the objective or problem)**
- The question must be defined, measurable, testable, and controllable
- Testable questions have what and how



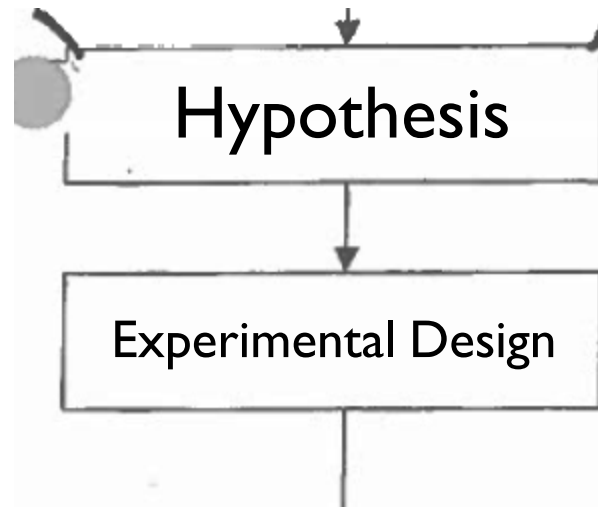
What is a hypothesis?

- An observed prediction or inference as an answer for the problem



Experimental Design

- The steps and variables being tested and how they are being tested in a safe manner



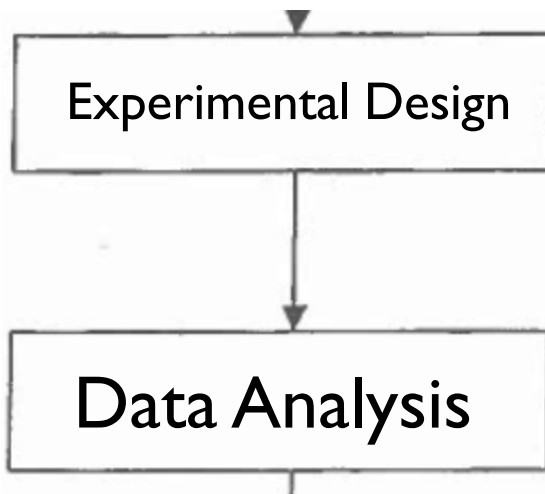
Experimental Design

- Procedure
 - **Detailed** steps to how to perform an experiment
- Materials
 - List of equipment used
- Lab Safety
- State your variables



Data Analysis

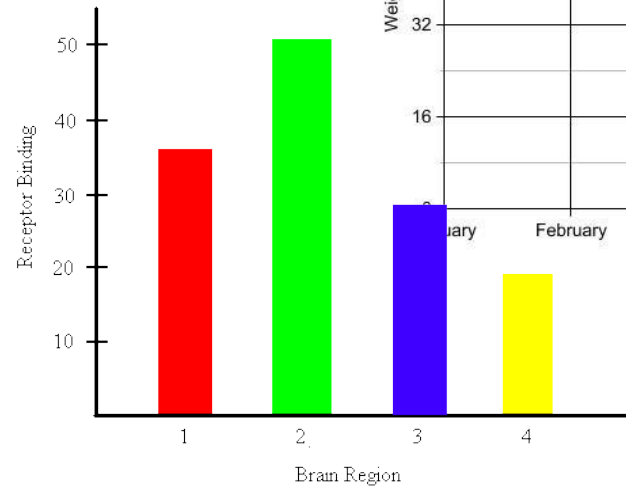
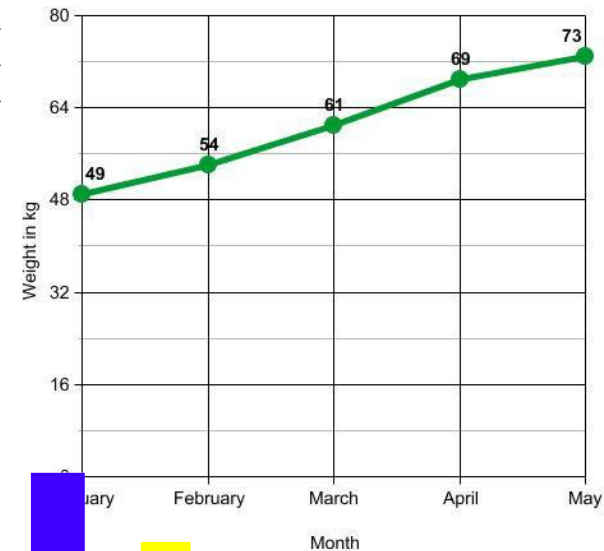
- Organize the data from the experiment into charts, tables, and graphs and analyze and interpret trends in the data.



Data Table for the Cart's Motion

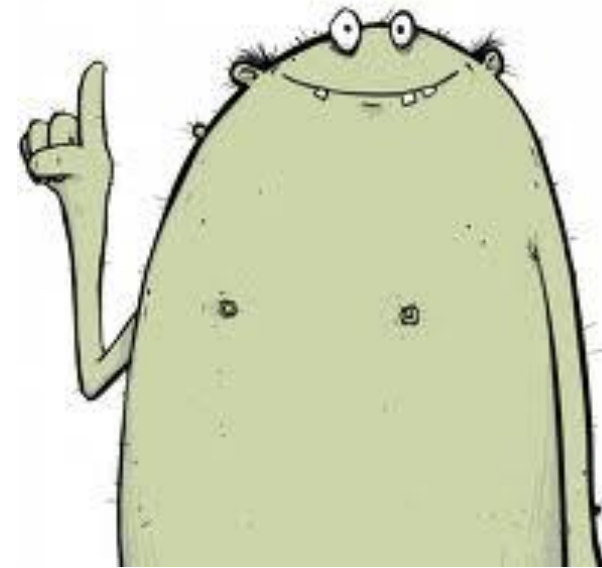
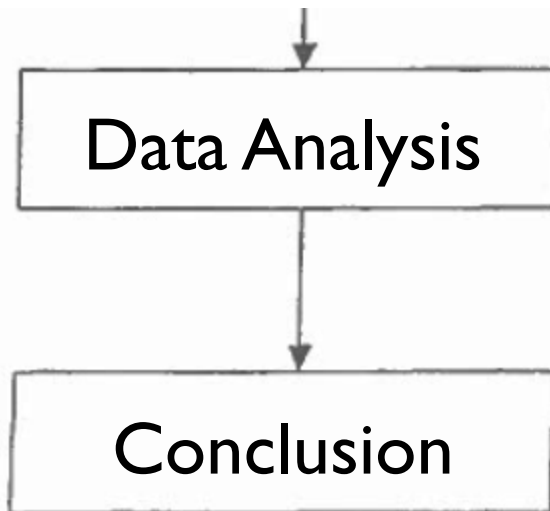
Trial	Time (s)	Position (cm)	Displacement (cm)	Ave. Velocity (cm/s)
1	0	0	_____	_____
2				
3				
4				
5				
6				
7				
8				
9				
10				

Sam's Weight



How do I write a conclusion?

- The answer to your problem and whether your data supports or not supports your hypothesis



What are the steps of the scientific method?

1. Make an observation

2. State the problem and make a question

3. Form a hypothesis

4. List the materials, variables, and create a safe procedure

5. Collect Data

5. Interpret, analyze and discuss results

6. Make a conclusion, revise, and repeat