

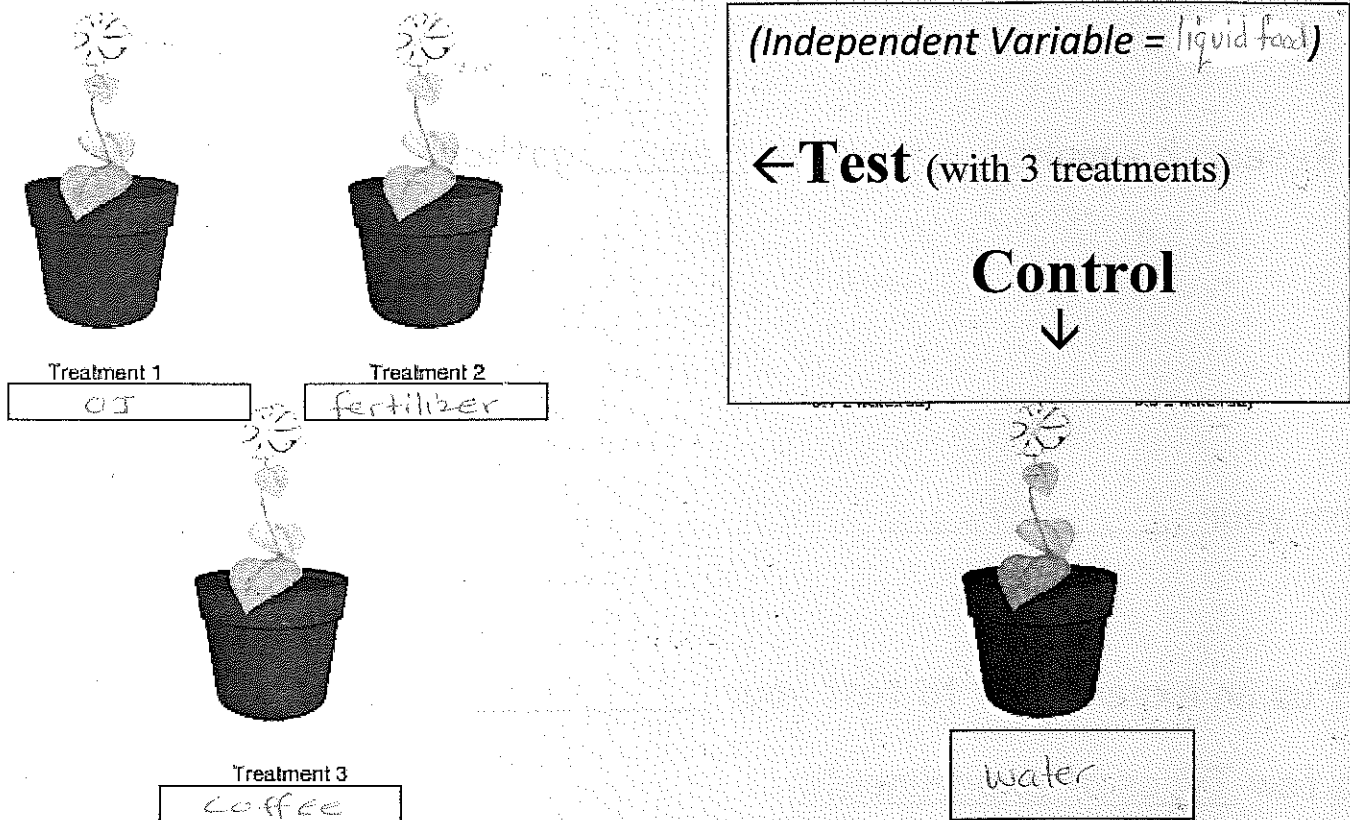
The Scientific Method

The Scientific Method is an orderly and systematic approach to problem solving.

1. Ask a question or State the problem
2. Do Research - make observations, gather information
 - Use 5 senses
 - make measurements
 - book
 - internet
 - ask an expert
 - TV/radio
3. Form your Hypothesis
4. Set up an experiment to test your Hypothesis, record results/data
 - a few Types of experiments:
 - a. Comparison
 - b. trial and error
 - c. Controlled
 - controlled exp info →→
5. Analyze results/data, form your conclusion
6. Check your work. Repeat experiment if necessary

Controlled Experiment

- An experiment in which conditions are **controlled** to make it possible to observe the results when varying only one thing at a time.
- A controlled experiment has two equal parts:
 1. Control - you control what will happen
 2. Test - the experimental part (What you're testing)
 - o The "test" portion of the experiment includes the variable
 - o The variable is the ONLY thing that changes in your test



Other Vocabulary

1. The dependent variables answer the question "What do I observe and/or measure?"
2. The independent variable answers the question "What is the ONE thing I change?"
3. The control variables answer the question "What do I keep the same/What can I control?"
4. theory - an idea that's been supported by repeated testing but not proven.
5. Law - an idea that has been proven to be true after repeated testing.
6. Replication - repeating experiments to verify results
(without replication, results may not be reliable.)
7. Sample Size - the amount of trials (or tested individuals) must be large enough to produce reliable data.
8. Serendipity - an accidental discovery
(the key is to recognize the importance of the accident or chance discovery)