

The Scientific Method

A blueprint for experiment success.

What is the scientific method?

- It is a simple method scientists use to conduct an investigation.
- It is a way to ask & answer scientific questions by asking questions & conducting experiments.

1. Question/Problem

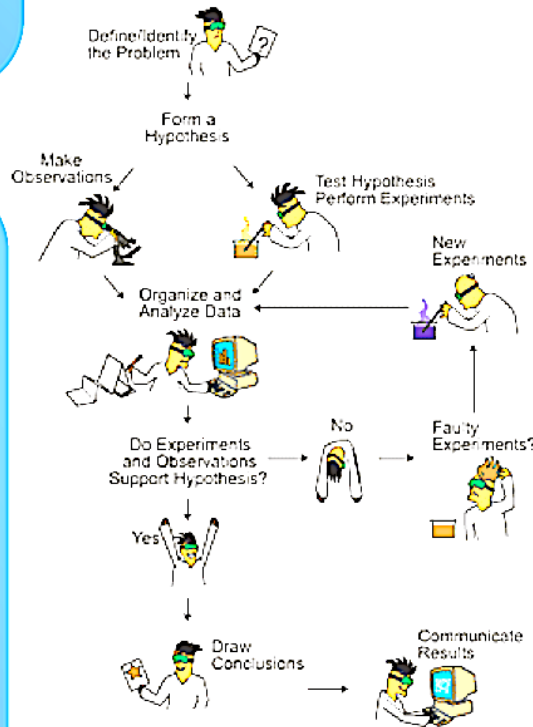
- ◆ Ask a question about something observed.
- ◆ Why?
- ◆ How?
- ◆ What?
- ◆ Question to be solved.
- ◆ Must be about something measurable.

3. Hypothesis

- ◆ Educated guess about how things work.
- ◆ Prediction
- ◆ Use If, then statements
- ◆ If ____ [*I do this*], then ____ [*this will happen*]
- ◆ Focus on one variable only.

2. Experiment

- ◆ Tests your hypothesis.
- ◆ Is it accepted (supported) or rejected (not supported)?
- ◆ Change only one variable at a time.
- ◆ Use a control or control group
- ◆ (A group that has *nothing done to it*. Standard used for comparison in an experiment.)
- ◆ In order for results to be valid, conduct several tests.



5. Conclusions

- ◆ Summary of your experiment.
- ◆ After your experiment, analyze your data to see if your hypothesis was accepted or rejected.
- ◆ If hypothesis is rejected, give possible reasons for the difference between your hypothesis and the experimental results.

1. Data Analysis

- ◆ Create graphs or charts to look for trends in your data.
- ◆ Use the average or mean to compare data between two groups.