Scientific Method

1. Ask a question

2. Form a hypothesis

3. Make a prediciton

4. Test Hypothesis

5. Conclude

6. Reject/ Accept Hypothesis

Placebo

Placebo: harmless pill or procedure mainly for psychological effect.	Placebo Effect: Response to placebo, possibly based on a person's expectations or body chemistry.

Example: Sugar Pills

Statistics

Why do we need statistics?	What is a statistically significant result?
	Very unlikely to be due to chance differences between experimental and control samples. Meaning there is most likely a true difference between the groups.

Statistics (cont)

Example: A 33% reduction in cold severity shows there is low probability that the difference is purely by chance.

Hypothesis vs. Prediction

Hypothesis= possible explanation
Prediction= "guess" of outcome

Types of Studues

Blind Study	Double Blind Study
Information about the test is concealed from the tester, subject, or both, to minimize bias.	Neither participants or researchers know which is the control group until after the test is concluded.
	Eliminates bias from both groups of the study.

Correlation vs. Causation

Correlation: Shows the relationship between two variables

Causation: Shows that an outcome was *caused* by the other variable.

Case-Control and Cohort Studies

Cohort	Case-Control
Follows a group free of an issue (ex: disease)	Begins with selection of cases (group with disease) and controls (group without the disease)
Grouped by whether or not they are exposed to a potential cause of an issue. (Ex: a specific water source causing diarrhea)	Subjects are questioned and a possible cause is determined based on gathered information.
Whole group is followed over time to see if new cases of the problem develop	
Pros: Extremely detailed and larger range of possible outcomes and causes.	Pros: Cheaper, faster, and you can choose your case groups (people with the disease)
Cons: Possibly expensive, very time consuming.	Cons: Less adept at showing a relationship between case and cause, and can be prone to bias.

Experimental Method

Testing/manipulating one variable to determine cause of change in an experiment.

Experimental Method Cont.

Control Group: Group receiving no treatment.

Treatment Group: Group receiving treatment.

Dependent Variable: The variable being tested.

Independent Variable: Variable being changed by tester.