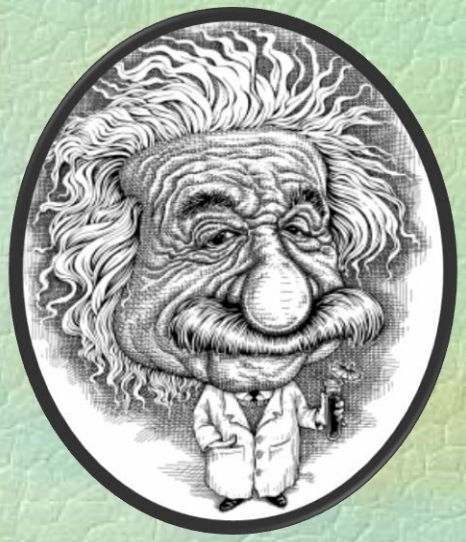


Scientific Method

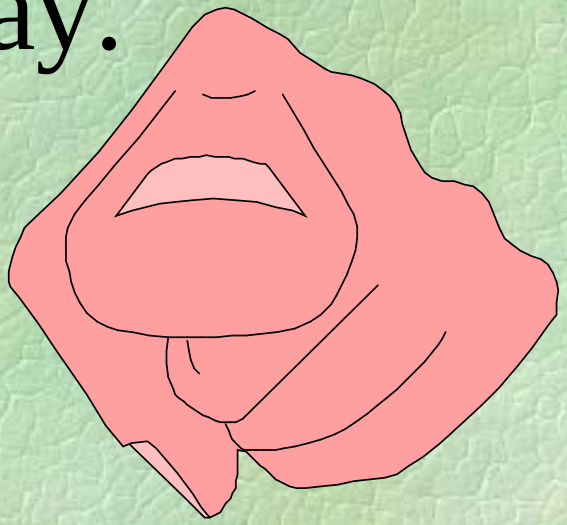
Who uses it?

What is it?

Why should I care?

Everyone uses it everyday.

- Yes Even You!!!!!!!!!!



It’s a way to solve problems…

- Big or small ones

Any of these sound familiar?

- Where are My Shoes?
- What should I have for lunch?
- What class do I have next?
- Did I do my homework for that class?
- What is the cure for cancer?
- Which deodorant works the longest?

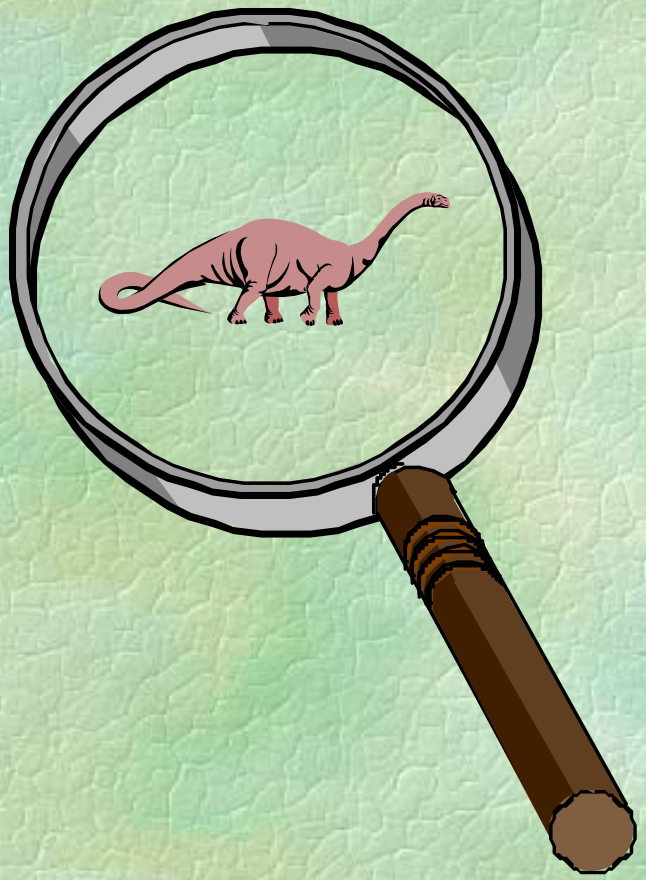
There are six steps to the scientific method-The Phrase

- Six
- Great
- Farmers
- Plant
- All
- Day

- State the problem
- Gather Information
- Form a Hypothesis
- Plan an Experiment
- Analyze Data
- Draw a Conclusion

There are six steps to the Scientific Method.

- 1. State the problem
- 2. Gather the information
- 3. Form a Hypothesis
- 4. Plan an Experiment
- 5. Analyze Data
- 6. Draw a conclusion



By following these steps in order you will learn about your question.

- Notice the IN ORDER part. It is very important.

Six-State the Problem

*This is the question that you are trying to answer or problem that you are trying to solve.

*Try to narrow it down and be very specific.

Great-Gather Information

- Based on information you already know. -
  - books
  - magazines
  - reports
  - experts
  - your past experiences

Farmers-Form A Hypothesis

- -an educated prediction
- -a prediction based on data
- -what *you* think the answer is based upon your gathered information
- This is usually stated as an If and Then statement (if this, then that)

Plant-Plan an Experiment

- Only tests a single factor in the experiment
- Has control group
- Contains a Manipulated (independent) Variable
- Contains a Responding (dependent) Variable

How to Remember

DRY

- Dependent variable
  - Indirectly affected by changes in the independent variable
- Responding
- Y-axis
- This is what you are doing to measure your variable(s)

MIX

- Manipulated
- Independent variable
  - Variable you have control over
- X-axis
- This is what you are testing. The thing you can change or manipulate to test your hypothesis

Example

- You are interested in how stress affects heart rate in humans
- Your independent variable would be?
- The stress
- Your dependent variable would be?
- The heart rate
- You can directly manipulate stress levels in your human subjects and measure how those stress levels change heart rate.

All-Analyze the data

- Collection of information and data.
  Includes: Quantitative-how much
  Qualitative-physical traits
- It may be charts, graphs, or written work.
- This is WHAT HAPPENED!!!!!

Day-Draw a Conclusion

- What did you find the answer to the question was?
- Did you accept or reject your hypothesis
- It is **OK** if it turns out that your hypothesis was not correct. You learned!!!!!!!!

Retest/Report your findings

- After proving your hypothesis numerous times, one of the most important parts of the scientific method is to report to others your findings.
- You will help others learn.