Scientific Method

(Yes, taking notes is a good idea)

Like all science, biology is a process of inquiry.

- Scientists make careful and systematic observations.
- Scientists record observations as data.
- Scientists form a hypothesis as a possible answer to a question.
- Scientists test their hypotheses and analyze their data.

Method Steps

1. Observation – You have to look around to find a pattern/problem
2. Hypothesis – An educated guess at what may be causing something or how to solve a problem.
3. Experiments – Test the hypothesis and produce data.
4. Analysis – Gather all the data and determine what has been found.
5. Conclusion – Does your hypothesis seem like the likely cause?
6. Communication – Let everyone else know what you have found.

Biologists use experiments to test hypotheses.

- Observational studies allow scientists to describe a phenomenon.
• Experimental studies allow scientists to determine what causes a phenomenon.

A theory explains a wide range of observations.
• Theories explain a wide range of observations and experimental results.
• A theory is supported by a wide range of scientific evidence.
• Theories can change based on new evidence.

There are many Charts and Diagrams that depict the Scientific Method. Some are simple and some are overly complex. Here are some examples.

- Independent variables are manipulated.
  – Dependent variables are observed and measured.
  – Constants are conditions that are kept the same.

A Bit Vague/Simple
The Scientific Method

1. Ask a question
2. Do background research
3. Construct a hypothesis
4. Test your hypothesis by doing an experiment
5. Analyze your data and draw a conclusion
6. Report your results (note your hypothesis correct?)

Better but still to simple.

Wait... That's a lab report procedure.

Can be a bit confusing

Here's a good one for undergrads.
Ah this one is good for High School.