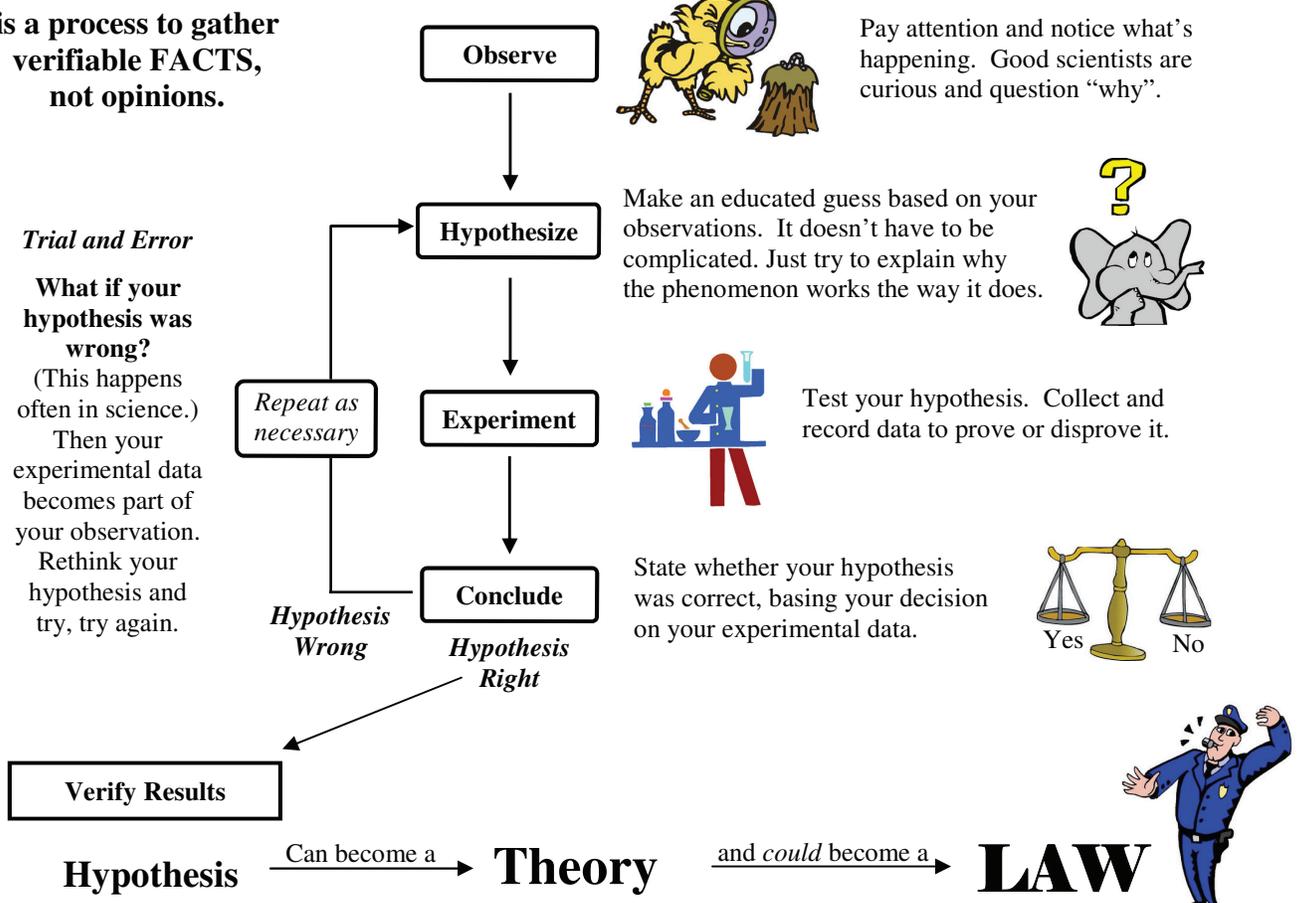


The Scientific Method

The Scientific Method is a process to gather verifiable FACTS, not opinions.

The Basic 4 Steps



Trial and Error
What if your hypothesis was wrong?
 (This happens often in science.)
 Then your experimental data becomes part of your observation. Rethink your hypothesis and try, try again.

Before you can claim your hypothesis as fact, it must be verified by other scientists. They must repeat your experiment several times to prove it! If so, it may become a theory.

A Scientific Theory must have a lot of evidence, facts to support it. This is not like a "theory" you have about something, which usually means a "guess". A Scientific Theory is a fact supported by experimental data!

Few Theories become Scientific Laws. Laws have to be tested SO MANY times so we are absolutely certain they are true for all cases. Some theories (like in biology) can't become laws because we can't repeat them, due to the time necessary.



An Everyday Example: Printer Problems

We all use the scientific method when solving everyday problems, we just don't know it. The following example shows an easy application of the above method.

- Observe** My computer will not print.
- Hypothesize** Maybe it's not turned on?
- Experiment** Check the power switch.
Data: the switch is on.
- Conclude** The printer is on.
My hypothesis was wrong.

So you need a new hypothesis!



- Observe** My computer will not print.
The printer is on.
- Hypothesize** Maybe it is out of paper.
- Experiment** Check the paper supply.
Data: it is out of paper.
- Conclude** The printer just needed paper.
My hypothesis was correct.

You put paper in and print.

Even though this is an easy example, much of science works the same way: Trial and Error!