What is Science?

In order to study science, you must first understand what science is and is not. Science is the systematic study of natural phenomena. In other words, science is the observation of the world around you, using a specific process. This process is called the scientific method and contains the guidelines for scientific investigation.

Science unlike any other subject, not only requires you to think and develop ideas, but you must substantiate your ideas with evidence. So, you need to understand the process of science as well as the meaning of science.

The so-called science of today's media and much of society is not science; it is nothing more than **junk science**. Junk science is any information or data that has been obtained from opinions or observations without being tested by experimentation. This is a step backwards into the dark ages before natural philosophers were required to support their ideas with evidence. The very reason natural philosophers developed the scientific method was to prevent biases and opinions from becoming fact without direct verification. By following the scientific method, natural philosophers avoided junk science.

The Scientific Method

Science is a collection of ideas proposed by men and **men are not perfect**. As a result, science is bound to have errors, some intentional and some not. But these errors can be minimized by a continuous application of the scientific method.

The scientific method is a step by step formula for proving that scientists' ideas are indeed correct. Although there are many versions to the scientific method, most follow a basic pattern with certain basic steps. These steps start with an observation or an idea that leads to a hypothesis that can be tested. Then, the data collected from the tests should be organized and analyzed to determine the validity of the hypothesis. If the hypothesis is correct you write a conclusion that explains your findings and defends your hypothesis. But if your data shows your hypothesis to be incorrect you must rethink your hypothesis.

The scientific method has brought a certain amount of respectability to science. But it didn't solve all the problems. A scientific conclusion still relies on the scientist to interpret the data, and the interpretation will reflect the worldview of the scientist.

"The scientific method is the process of science."

Limitations of Science

As amazing as science is, it is not the answer to everything. Science has definite limits and a genuine scientist will recognize those limitations and respect them. Science cannot

Legitimate scientists will use the scientific method and adhere to its steps.

Honest science is continually **observable**, **measurable** and **repeatable** even when using models. No true scientist would claim that a computer model can predict the future.

Technology

The goal of science is to discover how natural phenomena change, while the goal of technology is to apply those discoveries to practical everyday problems. Much of today's technology has come from scientific discoveries and many of today's scientific discoveries have been made possible because of technology.

Think It Through

- What is science?
- What is the scientific method?
- What is technology?
- What are the three main branches of science?
- Science must be?
- What are the limitations of science?

"To deny, to believe, and to doubt absolutely -- this is for man what running is for a horse." – Blaise Pascal