

The Scientific Method



What is the Scientific Method?

The scientific method is defined as a method of research in which a problem is identified, relevant data is gathered, a hypothesis is formulated from this data, and the hypothesis is empirically tested.

What in the world does that mean?!?

In kid's terms, the scientific method is a way for scientists to study and learn things. It doesn't matter what the scientist is trying to learn, using the scientific method can help them come up with an answer.

The first thing to do with the scientific method is to come up with a question. You can't find the answer until you know the question after all!

Next you need to observe and gather information in order to come up with a guess (called a hypothesis) or a number of guesses to the answer.

Now you run experiments to see if your guess is right. As you run experiments you can change your guess, or hypothesis, to fit your results. A key to good experiments is to only change one thing, or variable, at a time. This way you can check your results and know what you changed that changed the answer.

Finally, after running all the tests you can think of, you present your final answer.

By going through this process, scientists have a way to verify their guesses and to double check each other. Another scientist can take a look at your tests and add some more tests and continue to refine your answer to the question.

Scientific Method Steps

As described above there are steps you take when using the scientific method. Here is an example of the steps:

1. Ask a question
2. Gather information and observe (research)
3. Make a hypothesis (guess the answer)
4. Experiment and test your hypothesis
5. Analyze your test results
6. Present a conclusion

History of the Scientific Method

The scientific method wasn't invented by one person, but was developed by different

scientists and philosophers over the years. For something that sounds so simple and basic, there are still long scientific papers written about the method and scientists who disagree on exactly the best way to implement it.

Francis Bacon, Rene Descartes, and [Isaac Newton](#) all helped contribute to the development of the scientific method as a good way to learn about nature and science. They wrote papers and discussed how using experiments and changing variables can help to determine if a guess (or hypothesis) is correct.

Why is the Scientific Method Important?

The scientific method is the cornerstone to modern science. Without a formal method of determining questions and their answers, we wouldn't have science or the knowledge we have today.