The Scientific Method

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For an experiment to meet the rigors of the Scientific Method, it must be based on something that is observable, testable, repeatable, and predictable. The process of investigation must also clearly elucidate the assumptions upon which the research is undertaken. In addition, it is important to realize that the *interpretation* of evidence and findings plays a significant role in contemporary scientific methodology, and is, to a large extent, dependent upon prior suppositions prompting the investigation in the first place.

The Scientific Method is an attempt to discover truth, performing observable, repeatable experiments in a controlled environment to find patterns of recurring behavior in the present physical universe. In this regard, most studies of past phenomena, although utilizing components of scientific investigation, are not truly rigorous in a scientific sense. In these instances, much of what is proposed as "science" is frequently conjecture, based on prior belief.

The Scientific Method is commonly described as a 7-step process:

1. Define the question
2. Gather information and resources
3. Form an hypothesis
4. Perform an experiment(s) and collect data
5. Analyze the data
6. Interpret the data and draw conclusions that serve as a starting point for new hypotheses
7. Publish the findings and results of the investigation

Here we clearly see the necessity for knowing basic assumptions before and during scientific investigation, as well as before and after interpreting data and drawing conclusions. When publishing results, the underlying assumptions should be clearly stated in the introduction of the study.