

2.2: The Study of Science

The study of science involves **observation**, **logic**, and **skepticism**, which lead to investigating phenomena using the **Scientific Method**. Simply stated, the scientific method is an organized approach to “figuring out something” or acquiring new knowledge or understanding of the world around us.

Two steps of the scientific method involve constructing a **hypothesis** and proposing a **theory**. A hypothesis is a collection of testable ideas that appear to explain what is observed. A theory is a body of related and rigorously tested hypotheses pieced together into a larger, consistent description of nature. Scientists test and retest hypotheses and theories. If a hypothesis cannot be tested and verified, it does not qualify as a law or a theory. As technology emerges and advances in science occur, new revelations and discoveries are found. To maintain the integrity of science, it is critical for scientists to *always* be open-minded to discover the unknown.

The purpose of this module is to learn of the early pioneers who used the scientific method to study our Earth and stars, and of the scientists—Copernicus, Brahe, Kepler, and Galileo, whose scientific work revolutionized the birth of modern astronomy.

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