Module 1: Fundamentals of Biology
Topic 2 Content: Hypothesis vs. Theory vs. Law Notes

The nature of a hypothesis is that it must be rejected or revised, if when tested, it is not supported by the data. A hypothesis predicts what is expected to happen in an investigation, and gives a reason why a particular outcome is expected. Rather than being a tragedy, the practice of proposing, testing, and revising hypotheses expands scientific knowledge and helps to explain events that occur in the natural world.

A theory is a widely accepted explanation supported by multiple sources of evidence and by many tested hypotheses. Theories are broad, and provide a framework for scientists to explain a variety of observations or sets of data. For example, one of the most important theories in biology is cell theory. Cell theory allows scientists to make predictions about cells in new situations. Theories are subject to change when new evidence emerges. When new ideas are developed that are well supported and reliable, theories may be modified.

A law is a generalized statement of fact. Laws describe what will happen under a specific set of conditions. For example, on Earth, every time you throw a pencil in the air, the pencil will fall back down. The law of gravity tells you how gravity will work on the pencil, but it does not explain why. The action the law describes is accepted as true, and can be expected to happen every time it is tested.