

Laws and Theories in the Natural Sciences

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November 3, 2023

The discovery of regularities in nature has sometimes led to the establishment of "laws of nature" that express fundamental connections between several observables. These laws have often been the starting point for the development of a comprehensive theoretical framework, called "theory", in which they can be understood in a larger context. While a theory in colloquial usage is merely speculation, a scientific theory is a systematic and logically consistent system of assumptions which are based on experimentally proven facts. Such a theory then allows statements to be made that go beyond the already known results. This applies especially to physics, in which, for example, Newton's law of gravity can be understood as a limiting case of Einstein's general theory of relativity. The terms "law of nature" and "theory" are discussed using several examples.