

Name _____

Scientific Theories vs. Scientific Laws

Short-Answer Answer Key

1. Scientific theories play a crucial role in the scientific process by providing comprehensive and well-supported explanations for natural phenomena. They integrate a vast body of evidence and observations, help scientists understand the "whys" and "hows" of natural events, make testable predictions, and are subject to revision based on new evidence.
2. An example of a scientific theory is the Theory of Evolution. It is considered a theory rather than a law because it provides a comprehensive explanation for how species change over time through natural selection. It integrates evidence from various fields, including paleontology, genetics, and comparative anatomy, and it is subject to modification or refinement as new evidence emerges.
3. Scientific laws are immutable, meaning they do not change or require modification over time. They describe consistent and universal patterns in nature and are not subject to revision based on new evidence. In contrast, scientific theories can be modified or refined as new evidence becomes available, making them more adaptable.
4. Scientific laws are characterized by their descriptive nature, universal applicability, mathematical formulation, and immutability. They summarize observed patterns and relationships in nature. Scientific theories are comprehensive explanations supported by evidence, subject to revision, and focused on explaining natural phenomena.
5. Scientific theories and laws are both essential in the field of science because they serve distinct purposes. Theories explain the underlying mechanisms and reasons behind natural phenomena, helping us understand how and why things happen. Laws, on the other hand, provide concise descriptions of observed patterns or relationships, allowing us to make predictions and calculations based on consistent principles.

