






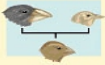
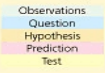



Table 1.1 Review of Ten Unifying Themes in Biology

Theme	Description	Web/CD Activity*
1. Emergent properties 	The living world has a hierarchical organization, extending from molecules to the biosphere. With each step upward in organizational level, novel properties emerge as a result of interactions among components at the lower levels.	Activity 1A: <i>Emergent Properties: The Levels of Life Card Game</i>
2. The cell 	Cells are every organism's basic units of structure and function. The two main types of cells are prokaryotic cells (in bacteria and archaea) and eukaryotic cells (in protists, plants, fungi, and animals).	Activity 1B: <i>Comparing Prokaryotic and Eukaryotic Cells</i>
3. Heritable information 	The continuity of life depends on the inheritance of biological information in the form of DNA molecules. This genetic information is encoded in the nucleotide sequences of the DNA.	Activity 1C: <i>Heritable Information: DNA</i>
4. Structure/function 	Form and function are correlated at all levels of biological organization.	Activity 1D: <i>Correlating Structure and Function of Cells</i>
5. Interaction with the environment 	Organisms are open systems that exchange materials and energy with their surroundings. An organism's environment includes other organisms as well as nonliving factors.	Activity 1E: <i>Energy Flow and Chemical Cycling</i>

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Table 1.1 Review of Ten Unifying Themes in Biology (continued)

Theme	Description	Web/CD Activity*
6. Regulation 	Feedback mechanisms regulate biological systems. In some cases, the regulation maintains homeostasis, a relatively steady state for internal factors such as body temperature.	Activity 1F: <i>Regulation: Negative and Positive Feedback</i>
7. Unity and diversity 	Biologists group the diversity of life into three domains: Bacteria, Archaea, and Eukarya. As diverse as life is, we can also find unity, such as a universal genetic code. The more closely related two species are, the more characteristics they share.	Activity 1G: <i>Unity and Diversity: Classification Schemes</i>
8. Evolution 	Evolution, biology's core theme, explains both the unity and diversity of life. The Darwinian theory of natural selection accounts for adaptation of populations to their environment through the differential reproductive success of varying individuals.	Activity 1H: <i>Evolution: Sea Horse Camouflage Video Case Study in the Process of Science: How Do Environmental Changes Affect a Population?</i>
9. Scientific inquiry 	The process of science includes observation-based discovery and the testing of explanations through the hypothetico-deductive method. Scientific credibility depends on the repeatability of observations and experiments.	Case Study in the Process of Science: <i>How Does Acid Precipitation Affect Trees?</i>
10. Science, technology, and society 	Many technologies are goal-oriented applications of science. The relationships of science and technology to society are now more crucial to understand than ever before.	Activity 1I: <i>Science, Technology, and Society: DDT</i>

*Go to the Campbell Biology CD-ROM or website (www.campbellbiology.com) to explore an interactive Chapter Review, Activities, Case Studies in the Process of Science, Self-Quizzes, and more.

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