AP Biology Scope & Sequence

Days	Unit	Standard(s)/Outcome(s)	Essential/Guiding Questions
5	**Unit 1: Chemistry of Life** *You'll learn about water's role as the basis of life and the functions of macromolecules like lipids and proteins.*	**BIG IDEAS:** Energetics Information Storage and Transmission Systems Interactions **SCIENCE PRACTICES:** Concept Explanation Visual Representations Argumentation	**What is the role of energy in the making and breaking of polymers?** **How do living systems transmit information in order to ensure their survival?** **How would living systems function without the polarity of the water molecule?**
9	**Unit 2: Cell Structure and Function** *You'll study the makeup of cells and the fundamentals of evolution.*	**BIG IDEAS:** Evolution Energetics Systems Interactions **SCIENCE PRACTICES:** Concept Explanation Visual Representations Question and Method Representing and Describing Data	**Defend the origin of eukaryotic cells.** **How do the mechanisms for transport across membranes support energy conservation?** **What are the advantages and disadvantages of cellular**

		Statistical Tests and Data Analysis Argumentation	**compartmentalization?** **How are living systems affected by the presence or absence of subcellular components?**
11	**Unit 3: Cellular Energetics** *You'll explore how cells interact with their environment and how fundamental biological processes work at the cellular level.*	**BIG IDEAS:** Energetics Systems Interactions **SCIENCE PRACTICES:** Concept Explanation Question and Method Representing and Describing Data Argumentation	**How is energy captured and then used by a living system?** **How do organisms use energy or conserve energy to respond to environmental stimuli?**
8	**Unit 4: Cell Communication and Cell Cycle** *You'll learn how cells grow and reproduce, as well as how cells communicate.*	**BIG IDEAS:** Energetics Information Storage and Transmission **SCIENCE PRACTICES:** Concept Explanation Representing and Describing Data Statistical Tests and Data Analysis Argumentation	**In what ways do cells use energy to communicate with one another?** **How does the cell cycle aid in the conservation of genetic information?** **Why and in what ways do cells communicate with one another?**
8	**Unit 5: Heredity**	**BIG IDEAS:**	**How is our understanding**

	You'll learn how traits are passed down from one generation to the next.	Evolution Information Storage and Transmission Systems Interactions **<u>SCIENCE PRACTICES:</u>** Concept Explanation Question and Method Statistical Tests and Data Analysis Argumentation	**of evolution influenced by our knowledge of genetics?** **Why is it important that not all inherited characteristics get expressed in the next generation?** **How would Mendel's laws have been affected if he had studied a different type of plant?** **How does the diversity of a species affect inheritance?**
13	**Unit 6: Gene Expression and Regulation** *You'll study how hereditary information passes from parent to offspring and how those traits are expressed.*	**<u>BIG IDEAS:</u>** Information Storage and Transmission **<u>SCIENCE PRACTICES:</u>** Concept Explanation Visual Representations Question and Method Argumentation	**How does gene regulation relate to the continuity of life?** **How is a species' genetic information diversified from generation to generation?**
14	**Unit 7: Natural Selection** *You'll learn about Darwin's theory, the concept of natural selection, and evolution.*	**<u>BIG IDEAS:</u>** Evolution Systems Interactions **<u>SCIENCE PRACTICES:</u>** Concept Explanation	**What conditions in a population make it more or less likely to evolve?** **Scientifically defend the theory of evolution.**

		Visual Representations Question and Method Representing and Describing Data Statistical Tests and Data Analysis Argumentation	**How does species interaction encourage or slow changes in species?**
14	**Unit 8: Ecology** *You'll explore biological concepts at a broader organism level and analyze how populations interact within ecosystems.*	**BIG IDEAS:** Evolution Energetics Information Storage and Transmission Systems Interactions **SCIENCE PRACTICES:** Question and Method Representing and Describing Data Statistical Tests and Data Analysis Argumentation	**How does diversity among and between species in a biological system affect the evolution of species within the system?** **How does the acquisition of energy relate to the health of a biological system?** **How do communities and ecosystems change, for better or worse, due to biological disruption?** **How does a disruption of a biological system affect genetic information storage and transmission?** **How do species interactions affect the survival of an ecosystem?**