

APB Next Generation Science Standards Alignment

	Unit 1: Introduction to Biotechnology	Unit 2: DNA Technologies	Unit 3: Proteins	Unit 4: Agricultural Biotechnology	Unit 5: Research Methods
Disciplinary Core Ideas					
Life Science					
LS1: From Molecules to Organisms: Structures and Processes					
• LS1.A: Structure and Function	X	X	X	X	
• LS1.B: Growth and Development of Organisms				X	
• LS1.C: Organization for Matter and Energy Flow in Organisms			X	X	
LS2: Ecosystems: Interactions, Energy, and Dynamics					
• LS2.A: Interdependent Relationships in Ecosystems					
• LS2.B: Cycles of Matter and Energy Transfer in Ecosystems					
• LS2.C: Ecosystem Dynamics, Functioning, and Resilience					
• LS2.D: Social Interactions and Group Behavior					
LS3: Heredity: Inheritance and Variation of Traits					
• LS3.A: Inheritance of Traits	X	X	X		
• LS3.B: Variation of Traits			X		
LS4: Biological Evolution: Unity and Diversity					
• LS4.A: Evidence of Common Ancestry and Diversity		X	X		
• LS4.B: Natural Selection					
• LS4.C: Adaptation				X	
• LS4.D: Biodiversity and Humans				X	
Earth and Space Science					
ESS1: Earth's Place in the Universe					
• ESS1.A: The Universe and Its Stars					

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• ESS1.B: Earth and the Solar System					
• ESS1.C: The History of Planet Earth					
ESS2: Earth's Systems					
• ESS2.A: Earth Materials and Systems					
• ESS2.B: Plate Tectonics and Large-Scale System Interactions					
• ESS2.C: The Roles of Water in Earth's Surface Processes					
• ESS2.D: Weather and Climate					
• ESS2.E: Biogeology					
ESS3: Earth and Human Activity					
• ESS3.A: Natural Resources				X	
• ESS3.B: Natural Hazards					
• ESS3.C: Human Impacts on Earth Systems				X	
• ESS3.D: Global Climate Change					
Physical Science					
PS1: Matter and Its Interactions					
• PS1.A: Structure and Properties of Matter					
• PS1.B: Chemical Reactions					
• PS1.C: Nuclear Processes					
PS2: Motion and Stability: Forces and Interactions					
• PS2.A: Forces and Motion					
• PS2.B: Types of Interactions					
PS3: Energy					
• PS3.A: Definitions of Energy				X	
• PS3.B: Conservation of Energy and Energy Transfer					
• PS3.C: Relationship Between Energy and Forces					
• PS3.D: Energy in Chemical Processes and Everyday Life					
PS4: Waves and Their Applications in Technologies for Information Transfer					

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• PS4.A: Wave Properties					
• PS4.B: Electromagnetic Radiation					
• PS4.C: Information Technologies and Instrumentation					
Engineering, Technology, and the Application of Science					
ETS1: Engineering Design					
• ETS1.A: Defining and Delimiting Engineering Problems		X		X	X
• ETS1.B: Developing Possible Solutions		X		X	X
• ETS1.C: Optimizing the Design Solution					

Science and Engineering Practices					
• Asking Questions and Defining Problems		X		X	X
• Developing and Using Models	X		X	X	X
• Planning and Carrying Out Investigations	X	X		X	X
• Analyzing and Interpreting Data			X	X	X
• Using Mathematics and Computational Thinking			X		
• Constructing Explanations and Designing Solutions		X		X	X
• Engaging in Argument from Evidence				X	X
• Obtaining, Evaluating, and Communicating Information	X	X	X	X	X

Crosscutting Concepts					
• Patterns	X	X	X		
• Cause and Effect: Mechanism and Prediction	X	X		X	
• Scale, Proportion, and Quantity	X	X	X		
• Systems and System Models	X	X		X	X
• Energy and Matter: Flows, Cycles, and Conservation					
• Structure and Function	X			X	

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• Stability and Change				X	

Understandings about the Nature of Science					
• Scientific Investigations Use a Variety of Methods	X	X	X	X	X
• Scientific Knowledge is Based on Empirical Evidence		X		X	X
• Scientific Knowledge is Open to Revision in Light of New Evidence		X		X	
• Science Models, Laws, Mechanisms, & Theories Explain Natural Phenomena					
• Science is a Way of Knowing		X			
• Scientific Knowledge Assumes Order & Consistency in Natural Systems					
• Science is a Human Endeavor	X	X		X	X
• Science Addresses Questions About the Natural and Material World.	X	X		X	X