

## Principles of Agricultural Science – Plant Next Generation Science Standards Alignment

	Unit 1 Worlds of Opportunity	Unit 2 Mineral Soils	Unit 3 Soilless Systems	Unit 4 Anatomy and Physiology	Unit 5 Taxonomy	Unit 6 The Growing Environment	Unit 7 Plant Reproduction	Unit 8 Surviving a Harsh Environment	Unit 9 Crop Production and Marketing
<b>Disciplinary Core Ideas</b>									
<b>Life Science</b>									
<b>LS1: From Molecules to Organisms: Structures and Processes</b>									
• LS1.A: Structure and Function				X		X	X	X	
• LS1.B: Growth and Development of Organisms				X	X		x		
• LS1.C: Organization for Matter and Energy Flow in Organisms				X		X	X		
<b>LS2: Ecosystems: Interactions, Energy, and Dynamics</b>									
• LS2.A: Interdependent Relationships in Ecosystems		X	X			X	X		
• LS2.B: Cycles of Matter and Energy Transfer in Ecosystems							X		
• LS2.C: Ecosystem Dynamics, Functioning, and Resilience							X		
• LS2.D: Social Interactions and Group Behavior									
<b>LS3: Heredity: Inheritance and Variation of Traits</b>									
• LS3.A: Inheritance of Traits							X		
• LS3.B: Variation of Traits							X		
<b>LS4: Biological Evolution: Unity and Diversity</b>									
• LS4.A: Evidence of Common Ancestry and Diversity							X		
• LS4.B: Natural Selection				X			*		
• LS4.C: Adaptation				X			X	X	
• LS4.D: Biodiversity and Humans	X						X	X	

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<b>Earth and Space Science</b>									
<b>ESS1: Earth's Place in the Universe</b>									
• ESS1.A: The Universe and Its Stars									
• ESS1.B: Earth and the Solar System									
• ESS1.C: The History of Planet Earth									
<b>ESS2: Earth's Systems</b>									
• 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						X			
• ESS2.D: Weather and Climate									
• ESS2.E: Biogeology									
<b>ESS3: Earth and Human Activity</b>									
• ESS3.A: Natural Resources	X		X			X			
• ESS3.B: Natural Hazards									
• ESS3.C: Human Impacts on Earth Systems		X	X			X			
• ESS3.D: Global Climate Change							*		
<b>Physical Science</b>									
<b>PS1: Matter and Its Interactions</b>									
• PS1.A: Structure and Properties of Matter									
• PS1.B: Chemical Reactions		X		X			X		
• PS1.C: Nuclear Processes									
<b>PS2: Motion and Stability: Forces and Interactions</b>									
• PS2.A: Forces and Motion									
• PS2.B: Types of Interactions									
<b>PS3: Energy</b>									
• PS3.A: Definitions of Energy						X			
• PS3.B: Conservation of Energy and Energy Transfer						X			
• PS3.C: Relationship Between Energy and Forces									
• PS3.D: Energy in Chemical Processes and Everyday Life									

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<b>PS4: Waves and Their Applications in Technologies for Information Transfer</b>									
• PS4.A: Wave Properties									
• PS4.B: Electromagnetic Radiation									
• PS4.C: Information Technologies and Instrumentation									
<b>Engineering, Technology, and the Application of Science</b>									
<b>ETS1: Engineering Design</b>									
• ETS1.A: Defining and Delimiting Engineering Problems			X						X
• ETS1.B: Developing Possible Solutions			X						X
• ETS1.C: Optimizing the Design Solution			X						

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

<b>Crosscutting Concepts</b>									
• Patterns	X			X	X	X	X		
• Cause and Effect: Mechanism and Prediction	X	X		X		X	X	X	
• Scale, Proportion, and Quantity							X		
• Systems and System Models			X	X			X		X
• Energy and Matter: Flows, Cycles, and Conservation			X	X		X	X		
• Structure and Function		X	X	X			X		X
• Stability and Change							*	X	

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<b>Understandings about the Nature of Science</b>									
• Scientific Investigations Use a Variety of Methods		X	X	X					
• Scientific Knowledge is Based on Empirical Evidence					X		*		
• Scientific Knowledge is Open to Revision in Light of New Evidence							*		
• 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				
• Science Addresses Questions about the Natural and Material World.							*		