

## Overview of Science, Math, and ELA Standards Covered in Lessons

	NGSS Content Standards	AZ State Standards	NGSS Practices	NGSS Crosscutting Concepts	Common Core	Learning Goals
L1	<p><b>LS1.B:</b> Growth and Development of Organisms: Genetic factors as well as local conditions affect the growth of the adult plant.</p> <p><b>LS1.B:</b> Growth and Development of Organisms: Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction.</p>	<p><b>AZ L3:</b> Genetic information is passed down from one generation of organisms to another.</p> <p><b>AZ L4:</b> The unity and diversity of organisms, living and extinct, is the result of evolution.</p> <p><b>AZ:</b> Develop and use models to demonstrate the interdependence of organisms and their environment, including biotic and abiotic factors.</p>	Apply scientific ideas, principles, and/or evidence to construct, revise and/or use an explanation for real-world phenomena, examples, or events.	<p><b>Cause and Effect:</b> Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.</p> <p><b>Patterns:</b> Patterns can be used to identify cause and effect relationships.</p>	<p><b>ELA/Literacy</b></p> <p><b>RST.6-8.2:</b> Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p><b>WHST.6-8.2:</b> Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.</p> <p><b>WHST.6-8.9:</b> Draw evidence from informational texts to support analysis, reflection, and research.</p>	<p><b>Students will know:</b></p> <ul style="list-style-type: none"> <li>There are multiple biotic communities across New Mexico and Arizona.</li> <li>These biotic communities are determined by the biotic communities and abiotic factors.</li> <li>The plants that are able to grow in each biotic community are evolved/adapted to survive there, based on climate and other conditions, and they pass these adaptations down from generation to generation.</li> <li>If conditions change, then the populations of an area might change.</li> <li>Some plants are adapted to live in more than one biotic community.</li> <li>Plants from other places in the world might be well adapted to thrive in a similar climate zone and might displace the local species.</li> <li>Elevation and climate will affect what grows in a region.</li> <li>There are similarities across biotic communities</li> </ul> <p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>Explain the patterns of plant adaptations that relate to survival in different biotic communities.</li> <li>Create and understand a model of a region with different biotic communities.</li> <li>Share their ideas using writing and verbal communication.</li> <li>Find specific and relevant evidence and information in texts.</li> </ul>
L2	<p><b>LS2.C: Ecosystem Dynamics, Functioning, and Resilience:</b> Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations.</p> <p><b>LS4.B: Natural Selection:</b> Natural selection leads to the predominance of certain traits in a population, and the suppression of others.</p>	<p><b>AZ L4:</b> The unity and diversity of organisms, living and extinct, is the result of evolution.</p> <p><b>AZ 6.L2U3.12:</b> Engage in argument from evidence to support a claim about the factors that cause species to change and how humans can impact those factors.</p> <p><b>AZ U1:</b> Scientists explain phenomena using evidence obtained from observations and or scientific investigations. Evidence may lead to developing models and or theories to make sense of phenomena. As new evidence is discovered, models and theories can be revised.</p>	Engaging in Argument from Evidence: Construct an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. Scientific Knowledge is Based on Empirical Evidence Science disciplines share common rules of obtaining and evaluating empirical evidence.	<p><b>Stability and Change:</b> Small changes in one part of a system might cause large changes in another part.</p> <p><b>Cause and Effect:</b> Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.</p>	<p><b>ELA/Literacy</b></p> <p><b>RST.6-8.1:</b> Cite specific textual evidence to support analysis of science and technical texts. (MS-LS2-4)</p> <p><b>RI.8.8:</b> Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims. (MS-LS2-4)</p> <p><b>WHST.6-8.1:</b> Write arguments to support claims with clear reasons and relevant evidence. (MS-LS2-4)</p> <p><b>WHST.6-8.9:</b> Draw evidence from literary or informational texts to support analysis, reflection, and research. (MS-LS2-4)</p>	<p>Students will know:</p> <ul style="list-style-type: none"> <li>Their local environment is made up of a population of plants and animals</li> <li>These plants and animals are adapted to survive her as a result of evolution and natural selection</li> <li>The abiotic factors in the region impact the biotic community</li> <li>The abiotic factors in the region impact the biotic community</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>Cite evidence that indicates the connections between the climate and the living organisms in the area.</li> <li>Cite evidence supporting their claims about the biotic community</li> <li>Collect evidence from the environment around them</li> <li>Use this evidence to make an argument about evolution and biotic communities</li> <li>Use what they have learned from their classmates and read themselves to</li> </ul>

						<ul style="list-style-type: none"> <li>determine the local biotic community</li> <li>Cite specific evidence to support their claims</li> <li>Write a clear argument, outlining what biotic community they are in and why they say this</li> <li>Argue how evolution has impacted the plants and animals in the region and explain why they make this claim using evidence</li> </ul>
<b>L3</b>	<p><b>MSLS1.C:</b> Organization for Matter and Energy Flow in Organisms, Plants, algae (including phytoplankton), and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use.</p> <p><b>MSPS3.D:</b> Energy in Chemical Processes and Everyday Life, The chemical reaction by which plants produce complex food molecules (sugars) requires an energy input (i.e., from sunlight) to occur. In this reaction, carbon dioxide and water combine to form carbon-based organic molecules and release oxygen</p>	<p><b>AZ L2:</b> Organisms require a supply of energy and materials for which they often depend on, or compete with, other organism</p> <p><b>AZ P1:</b> All matter in the Universe is made of very small particles.</p> <p><b>AZ P4:</b> The total amount of energy in a closed system is always the same but can be transferred from one energy store to another during an event.</p>	<p>Constructing Explanations and Designing Solutions, Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific knowledge, principles, and theories.</p> <p>Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.</p>	<p><b>Energy and Matter:</b> Within a natural system, the transfer of energy drives the motion and/or cycling of matter.</p>	<p><b>ELA/Literacy</b></p> <p><b>RST.6-8.1:</b> Cite specific textual evidence to support analysis of science and technical texts. (MS-LS1-6)</p> <p><b>WHST.6-8.2:</b> Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. (MS-LS1-6)</p> <p><b>WHST.6-8.9:</b> Draw evidence from informational texts to support analysis, reflection, and research. (MS-LS1-6)</p>	<p>Students will know:</p> <ul style="list-style-type: none"> <li>Energy is stored in molecules</li> <li>Molecules can be broken apart in several ways</li> <li>Animals and plants can use the energy stored in molecules</li> <li>Fire can also break apart molecules</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>Use the readings they are provided to help them understand the material</li> <li>Share their thinking verbally and in writing</li> <li>Cite evidence supporting what they state</li> <li>Explain how atoms are split apart and reformed (Boundary: will not discuss electrons or covalent)</li> <li>Create a model and diagram demonstrating conservation of matter and conservation of energy</li> </ul>
<b>L4</b>	<p><b>MS-LS2-3:</b> Ecosystems: Interactions, Energy, and Dynamics: Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.</p> <p><b>MS-ESS3-2:</b> Earth and Human Activity: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p>	<p><b>AZ U1:</b> Scientists explain phenomena using evidence obtained from observations and or scientific investigations. Evidence may lead to developing models and or theories to make sense of phenomena. As new evidence is discovered, models and theories can be revised.</p> <p><b>AZ 6.L2U1.13:</b> Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.</p> <p><b>AZ 7.E1U1.5:</b> Construct a model that shows the cycling of matter and flow of energy in the atmosphere, hydrosphere, and geosphere.</p> <p><b>AZ8.P1U1.2:</b> Obtain and evaluate information regarding how scientists identify substances based on unique physical and chemical properties.</p>	<p>Develop and/or use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales. Analyze and interpret data to provide evidence for phenomena. Apply scientific ideas, principles, and/or evidence to construct, revise and/or use an explanation for real-world phenomena, examples, or events. Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.</p>	<p><b>Systems and system models:</b> Defining the system under study—specifying its boundaries and making explicit a model of that system—provides tools for understanding and testing ideas that are applicable throughout science and engineering.</p> <p><b>Energy and matter:</b> Flows, cycles, and conservation. Tracking fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.</p>	<p><b>ELA/Literacy</b></p> <p><b>RST.6-8.1:</b> Cite specific textual evidence to support analysis of science and technical texts. (MS-LS1-6)</p> <p><b>WHST.6-8.2:</b> Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. (MS-LS1-6)</p> <p><b>WHST.6-8.9:</b> Draw evidence from informational texts to support analysis, reflection, and research. (MS-LS1-6)</p>	<p>Students will know:</p> <ul style="list-style-type: none"> <li>Energy is stored in plant materials</li> <li>The fuel properties</li> <li>How the properties of fuel relate to the way that the fuels burn</li> <li>The fuel properties are in evidence in the biotic communities they studied and these can become hazardous</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>Observe the phenomena presented by the fuels and make inferences about how this relates to the larger environment around us.</li> <li>Use scientific vocabulary to explain phenomena.</li> <li>Use evidence to support claims.</li> </ul>
<b>L5</b>	<p><b>MS-LS2-3:</b> Ecosystems: Interactions, Energy, and</p>	<p><b>AZ 6.L2U1.13:</b> Develop and use models to demonstrate the</p>	<p>Analyze and interpret data to provide evidence for phenomena.</p>	<p><b>Energy and matter:</b> Flows, cycles, and conservation. Tracking</p>	<p><b>ELA/Literacy</b></p>	<p>Students will know:</p> <ul style="list-style-type: none"> <li>Plants coadapted with fire (or the</li> </ul>

	<p>Dynamics: Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.</p> <p><b>MS-ESS3-2:</b> Earth and Human Activity: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p> <p><b>MS-LS2-4:</b> Ecosystems: Interactions, Energy, and Dynamics: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.</p> <p><b>MS-LS4-4:</b> Biological Evolution: Unity and Diversity: Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.</p>	<p>interdependence of organisms and their environment including biotic and abiotic factors.</p> <p><b>AZ 6.L2U3.12:</b> Engage in argument from evidence to support a claim about the factors that cause species to change and how humans can impact those factors.</p> <p><b>AZ 8.E1U3.7:</b> Obtain, evaluate, and communicate information about data and historical patterns to predict natural hazards and other geological events.</p> <p><b>AZ 8.L3U1.9:</b> Construct an explanation of how genetic variations occur in offspring through the inheritance of traits or through mutations.</p>	<p>Apply scientific ideas, principles, and/or evidence to construct, revise and/or use an explanation for real-world phenomena, examples, or events.</p> <p>Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.</p>	<p>fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.</p>	<p><b>SL.8.5:</b> Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.</p> <p><b>WHST.6-8.7:</b> Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p>	<p>absence of fire)</p> <ul style="list-style-type: none"> <li>This led to different populations of plants either depending on fire to maintain their presence or the lack of fire to allow survival</li> <li>The living and nonliving parts of the environment are connected</li> <li>Humans can change the natural environment and alter natural systems</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>Synthesize information</li> <li>Connect new information with what they have learned in the past</li> <li>Share knowledge with others</li> <li>Learn from their peers</li> <li>Identify patterns in the relationships between plants, fuel, and fire</li> <li>The fuel properties connect with the plants they studied</li> </ul>
<b>L6</b>	<p><b>MS-LS2-3:</b> Ecosystems: Interactions, Energy, and Dynamics: Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.</p> <p><b>MS-ESS3-2:</b> Earth and Human Activity: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p>	<p><b>AZ U1:</b> Scientists explain phenomena using evidence obtained from observations and or scientific investigations. Evidence may lead to developing models and or theories to make sense of phenomena. As new evidence is discovered, models and theories can be revised.</p> <p><b>AZ 6.L2U1.13:</b> Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.</p> <p><b>AZ 6.P1U1.2:</b> Plan and carry out an investigation to demonstrate that variations in temperature and/or pressure affect changes in state of matter.</p> <p><b>AZ 7.E1U1.5:</b> Construct a model that shows the cycling of matter and flow of energy in the atmosphere, hydrosphere, and geosphere.</p> <p><b>AZ 8.P4U1.3:</b> Construct an explanation on how energy can be transferred from one energy store to another.</p>	<p>Develop and/or use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales. Analyze and interpret data to provide evidence for phenomena. Apply scientific ideas, principles, and/or evidence to construct, revise and/or use an explanation for real-world phenomena, examples, or events.</p> <p>Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.</p>	<p><b>Systems and system models:</b> Defining the system under study—specifying its boundaries and making explicit a model of that system—provides tools for understanding and testing ideas that are applicable throughout science and engineering.</p> <p><b>Energy and matter:</b> Flows, cycles, and conservation. Tracking fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.</p>	<p><b>RST.6-8.3</b> Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p><b>WHST.6-8.7</b> Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p>	<p>Students will know:</p> <ul style="list-style-type: none"> <li>Energy is stored in plant material</li> <li>The fuel properties</li> <li>How the properties of fuel relate to the way that the fuels burn</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>Identify a variable</li> <li>Ask a question that tests that variable</li> <li>Plan and carry out an investigation</li> <li>Use the data from that investigation to better understand a phenomena</li> <li>Observe the phenomena presented by the fuels and make inferences about how this relates to the larger environment around us.</li> <li>Use scientific vocabulary to explain phenomena</li> <li>Use evidence to support claims</li> </ul>
<b>L7</b>	<p><b>MS-LS2-3:</b> Ecosystems: Interactions, Energy, and</p>	<p><b>AZ 6.L2U1.13:</b> Develop and use models to demonstrate the</p>	<p>Analyze and interpret data to provide evidence for phenomena.</p>	<p><b>Energy and matter:</b> Flows, cycles, and conservation. Tracking</p>	<p><b>ELA/Literacy:</b> WHST.6-8.7 Conduct short research projects</p>	<p>Students will know:</p> <ul style="list-style-type: none"> <li>Plants and biotic communities</li> </ul>

	<p>Dynamics: Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.</p> <p><b>MS-ESS3-2:</b> Earth and Human Activity: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p> <p><b>MS-LS2-4:</b> Ecosystems: Interactions, Energy, and Dynamics Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.</p> <p><b>MS-LS4-4:</b> Biological Evolution: Unity and Diversity: Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.</p>	<p>interdependence of organisms and their environment including biotic and abiotic factors.</p> <p><b>AZ 6.L2U3.12:</b> Engage in argument from evidence to support a claim about the factors that cause species to change and how humans can impact those factors.</p> <p><b>AZ 8.E1U3.7:</b> Obtain, evaluate, and communicate information about data and historical patterns to predict natural hazards and other geological events.</p> <p><b>AZ 8.L3U1.9:</b> Construct an explanation of how genetic variations occur in offspring through the inheritance of traits or through mutations.</p>	<p>Apply scientific ideas, principles, and/or evidence to construct, revise and/or use an explanation for real-world phenomena, examples, or events.</p> <p>Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.</p>	<p>fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.</p>	<p>to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p>	<p>coadapted with fire (or the absence of fire)</p> <ul style="list-style-type: none"> <li>This led to different relationships between fire and biotic communities</li> <li>These systems and relationships have changed as fire frequency and severity has changed</li> <li>The living and nonliving parts of the environment are connected</li> <li>Humans can change the natural environment and alter natural systems</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>Synthesize information</li> <li>Connect new information with what they have learned in the past</li> <li>Share knowledge with others</li> <li>Learn from their peers and teacher</li> <li>Take notes from an oral presentation</li> <li>Identify patterns in the relationships between plants, biotic communities, fuel, and fire</li> <li>Identify some of the fuel properties are in evidence in the biotic communities they studied and these can become hazardous</li> <li>Determine the fire regime of the biotic community they studied</li> </ul>
L8	<p><b>MS-ESS3-2</b> Earth and Human Activity Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p> <p><b>MS-LS2-4</b> Ecosystems: Interactions, Energy, and Dynamics Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.</p>	<p><b>AZ 6.L2U3.11</b> Use evidence to construct an argument regarding the impact of human activities on the environment and how they positively and negatively affect the competition for energy and resources in ecosystems.</p> <p><b>AZ 6.L2U3.12</b> Engage in argument from evidence to support a claim about the factors that cause species to change and how humans can impact those factors.</p> <p><b>AZ 8.E1U3.7</b> Obtain, evaluate, and communicate information about data and historical patterns to predict natural hazards and other geological events.</p>	<p>Ask Questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles.</p> <p>Construct, analyze, and/or interpret graphical displays of data and/or large data sets to identify linear and nonlinear relationships. Use graphical displays (e.g., maps, charts, graphs, and/or tables) of large data sets to identify temporal and spatial relationships. Analyze and interpret data to provide evidence for phenomena.</p>	<p><b>NGSS Crosscutting Concepts: Patterns.</b> Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them.</p> <p><b>NGSS Crosscutting Concepts: Cause and effect:</b> Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.</p>	<p><b>ELA/Literacy SL.8.5</b> Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (MS-LS2-3)</p> <p><b>Mathematics: 6.EE.C.9</b> Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (MS-LS2-3)</p>	<p>Students will know:</p> <ul style="list-style-type: none"> <li>Humans have a long history of using technology (fire) to mitigate natural hazards (fuel in the WUI)</li> <li>Wildland fire management is not a new concept. We can learn about how to manage fires today from looking back at what has and has not worked in the past.</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>Create data from real world information</li> <li>Recognize patterns in data</li> <li>Use these patterns to draw conclusions</li> <li>Apply mathematical concepts to science</li> <li>Use evidence when making claims</li> <li>Apply historical knowledge to a modern context</li> </ul>
L9	<p><b>MS-ESS3-2</b> Earth and Human Activity Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p>	<p><b>AZ 6.L2U3.11</b> Use evidence to construct an argument regarding the impact of human activities on the environment and how they positively and negatively affect the competition for energy and resources in ecosystems.</p> <p><b>AZ 6.L2U3.12</b> Engage in argument from evidence to support a claim about the factors that cause</p>	<p>Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence.</p> <p>Engaging in arguments from evidence: Compare and critique</p>	<p><b>NGSS Crosscutting Concepts: Systems and system models.</b> Defining the system under study—specifying its boundaries and making explicit a model of that system—provides tools for understanding and testing ideas that are applicable throughout science and engineering.</p> <p><b>NGSS Crosscutting Concepts:</b></p>	<p><b>ELA/Literacy RST.6-8.1</b> Cite specific textual evidence to support analysis of science and technical texts. (MS-ESS3-4)</p> <p><b>WHST.6-8.1</b> Write arguments focused on discipline content. (MS-ESS3-4)</p> <p><b>WHST.6-8.9</b> Draw evidence from</p>	<p>Students will know:</p> <ul style="list-style-type: none"> <li>The complexities of wildland fire management includes managing human expectations and politics</li> <li>To implement successful wildland fire management we must base our decisions on data and teach the public to understand why these decisions are being made</li> </ul>

		species to change and how humans can impact those factors. <b>AZ 8.E1U3.7</b> Obtain, evaluate, and communicate information about data and historical patterns to predict natural hazards and other geological events.	two arguments on the same topic and analyze whether they emphasize similar or different evidence and/or interpretations of facts.	<b>Cause and effect:</b> Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.	informational texts to support analysis, reflection, and research. (MS-ESS3-4)	Students will be able to: <ul style="list-style-type: none"> <li>• Understand different perspectives on the same issues</li> <li>• Sort opinion from facts</li> <li>• Synthesize and prioritize information</li> </ul>
<b>L10</b>	<p><b>MS-ESS3-2 Earth and Human Activity:</b> Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p> <p><b>MS-ESS3-3 Earth and Human Activity:</b> Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*</p> <p><b>MS-ETS1-1 Engineering Design:</b> Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.</p>	<p><b>AZ U2:</b> The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.</p> <p><b>AZ U3:</b> Applications of science often have both positive and negative ethical, social, economic, and/or political implications.</p> <p><b>AZ 6.L2U3.11:</b> Use evidence to construct an argument regarding the impact of human activities on the environment and how they positively and negatively affect the competition for energy and resources in ecosystems.</p> <p><b>AZ 8.E1U3.7:</b> Obtain, evaluate, and communicate information about data and historical patterns to predict natural hazards and other geological events.</p>	<p>Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence.</p> <p>Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.</p> <p>Communicate scientific and/or technical information (e.g. about a proposed object, tool, process, system) in writing and/or through oral presentations.</p>	<p><b>NGSS Crosscutting Concepts: Systems and system models.</b> Defining the system under study—specifying its boundaries and making explicit a model of that system—provides tools for understanding and testing ideas that are applicable throughout science and engineering.</p> <p><b>NGSS Crosscutting Concepts: Cause and effect:</b> Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.</p>	<p><b>ELA/Literacy RST.6-8.1</b> Cite specific textual evidence to support analysis of science and technical texts. (MS-ESS3-4)</p> <p><b>WHST.6-8.1</b> Write arguments focused on discipline content. (MS-ESS3-4)</p> <p><b>WHST.6-8.9</b> Draw evidence from informational texts to support analysis, reflection, and research. (MS-ESS3-4)</p>	<p>Students will know:</p> <ul style="list-style-type: none"> <li>• The fire regime of their local environment and how this has (or has not) been impacted by human intervention</li> <li>• People can alter fire regimes</li> <li>• Wildland fire managers help manage the WUI</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>• Make recommendations on wildland fire management based on what they have learned</li> <li>• Base their recommendations on scientific knowledge</li> </ul>