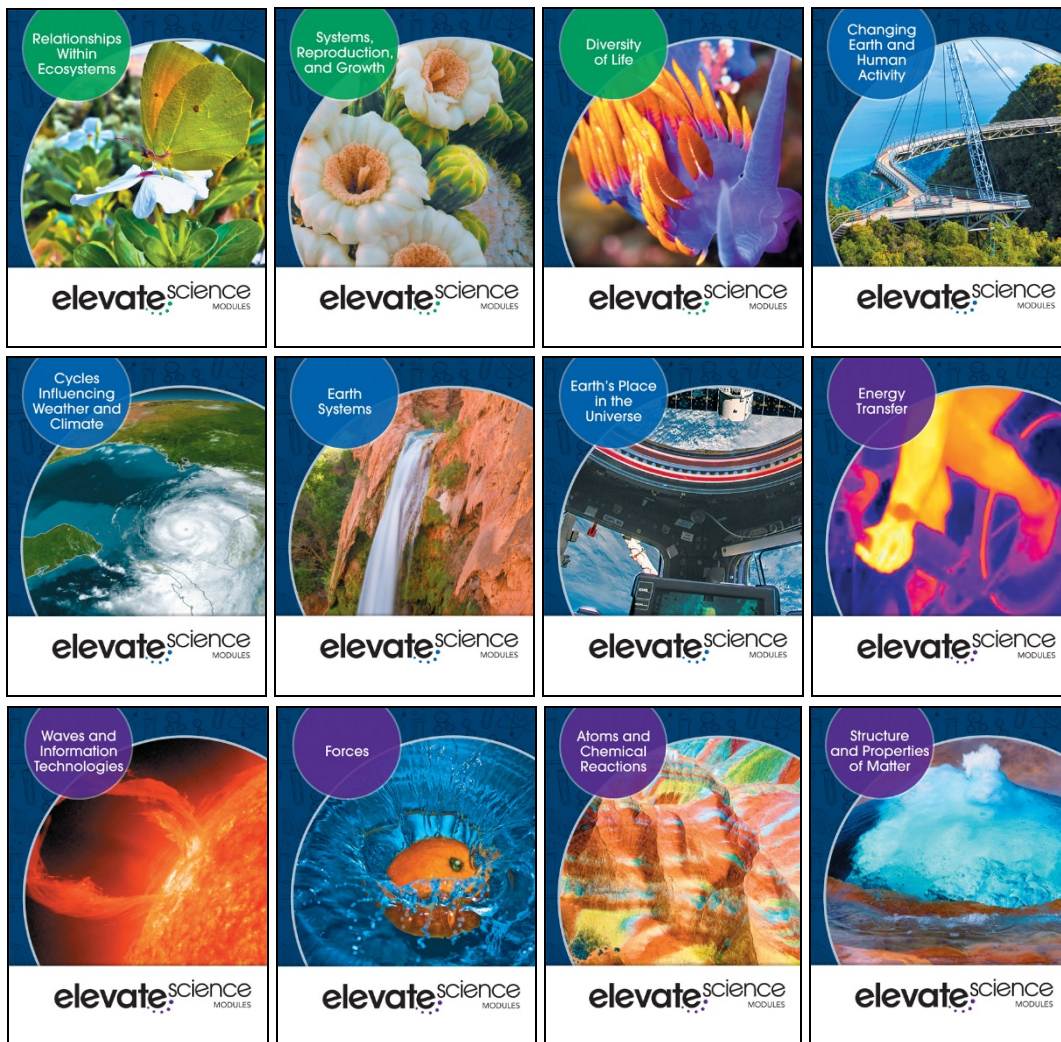


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To the
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Grade 8

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Arizona Science Standards (2018) Grade 8	Elevate Science Modules Grades 6-8, ©2019
Grade 8	
Eighth Grade: Focus on Cause and Effect; Energy and Matter; Stability and Change	
Physical Sciences: Students apply stability and change to explore chemical properties of matter and chemical reactions to further understand energy and matter.	
Physical Science Standards	
<p>8.P1U1.1 Develop and use a model to demonstrate that atoms and molecules can be combined or rearranged in chemical reactions to form new compounds with the total number of each type of atom conserved.</p>	<p>Atoms and Chemical Reactions SE/TE: Chemical Change, 80 Building and Breaking Chemical Bonds, 81 Evidence of Chemical Reactions, 82–83 Law of Conservation of Mass, 94–95 For related content, please see: Changes in Energy, 84 Energy Graphs for Chemical Reactions, 85 The Art of Chemical Change, 89 Chemical Equations, 91–93 Types of Chemical Reactions, 96</p> <p>Structure and Properties of Matter SE/TE: Chemical Changes in Matter, 27–29</p>
<p>8.P1U1.2 Obtain and evaluate information regarding how scientists identify substances based on unique physical and chemical properties.</p>	<p>Structure and Properties of Matter SE/TE: Matter, 5–7 Video, 6 Literacy Connection, 7 Lesson 1 Check, 12</p>

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8.P4U1.3 Construct an explanation on how energy can be transferred from one energy store to another.	<p>Energy Transfer SE/TE: Energy in Motion and Force, 5 Thermal Energy, 25 Energy Transformation and Transfer, 35 uDemonstrate Lab: 3,2,1...Liftoff!, 46-49 Thermal Energy and Heat, 55 Types of Heat Transfer, 63-65 Question It!, 67 Temperature, Energy, and Friction, 76 For related content, please see: Energy Changes and the Law of Conservation, 36-37 How Thermal Energy and Temperature Are Related, 57 Energy Conservation, 66</p>
8.P4U1.4 Develop and use mathematical models to explain wave characteristics and interactions.	<p>Waves and Information Technologies SE/TE: Types of Waves, 5-7 Properties of Waves, 8-9 Wave Energy, 10 Reflection, Refraction, and Absorption, 15-17 Wave Interference, 18-21 The Behavior of Sound, 25-27 Factors Affecting the Speed of Sound, 28 Loudness and Pitch, 29-31 The Doppler Effect, 32 Characteristics of Electromagnetic Waves, 35 Models of Electromagnetic Wave Behavior, 36-37 Wavelength and Frequency, 38 The Electromagnetic Spectrum, 39-41 Light, Color, and Objects, 45-47 Reflecting Light, 48-50 Lenses, 51-52 For related content, please see:</p> <p>Energy Transfer SE/TE: Conservation of Energy in Waves, 38</p>

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8.P4U2.5 Develop a solution to increase efficiency when transferring energy from one source to another.	<p>Energy Transfer SE/TE: Quest Kickoff, 52–53 Quest Check-In, 68 Quest Check-Ins, 79 Quest Findings, 83</p>
Earth and Space Sciences: Students explore natural and human-induced cause-and-effect changes in Earth systems over time.	
Earth and Space Standards	
8.E1U1.6 Analyze and interpret data about the Earth’s geological column to communicate relative ages of rock layers and fossils.	<p>Earth Systems SE/TE: Describing the Ages of Rocks, 155 Determining the Relative Ages of Rocks, 156–158 For related content, please see: Determining Absolute Ages of Rocks, 159–160 The Geologic Time Scale, 165</p>
8.E1U3.7 Obtain, evaluate, and communicate information about data and historical patterns to predict natural hazards and other geological events.	<p>Earth Systems SE/TE: Case Study: The Case of the Shrinking Sea, 34–35 Connect It!, 108 Model It!, 105</p> <p>Cycles Influencing Weather and Climate SE/TE: How to Predict Weather, 31–33 Learning from Weather Maps, 34 Lesson 4 Check, 36 Lesson 1 Check, 70</p>

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<p>8.E1U3.8 Construct and support an argument about how human consumption of limited resources impacts the biosphere.</p>	<p>Changing Earth and Human Activity SE/TE: Natural Resources, 57 Fossil Fuels, 58–62 Using Energy Resources, 64 Reducing Fossil Fuel Usage, 67 Humans and Minerals, 80 Case Study: Phosphorus Fiasco, 82–83 Human Impacts, 88–89 Using Natural Resources, 108–109 Balancing Needs, 110 Causes of Pollution, 113 Outdoor Air Pollution, 114–116 Sources of Freshwater Pollution, 138–139 Sources of Ocean Pollution, 140–141 For related content, please see: Nuclear Energy, 63 Controlling Air Pollution, 118–119 Global to Local: Working Together to Reduce Air Pollution, 121 Land as a Resource, 123–124 Importance of Soil Management, 125–128 Sustainable Forest Management, 130–132 Water as a Resource, 137 Reducing Water Pollution, 142–143</p> <p>Cycles Influencing Weather and Climate SE/TE: Recent Climate Change, 119–122</p> <p>Relationships Within Ecosystems SE/TE: Human Impact, 103–104</p>

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Life Sciences: Students develop an understanding of patterns and how genetic information is passed from generation to generation. They also develop the understanding of how traits within populations change over time.	
Life Science Standards	
8.L3U1.9 Construct an explanation of how genetic variations occur in offspring through the inheritance of traits or through mutations.	Diversity of Life SE/TE: Diversity of Life, 37 Chromosomes and Variation, 38–39 Types of Mutations, 40–41 Environmental Factors, 42–43 Mutations in Reproduction, 44–46 How Natural Selection Works, 83 Genes and Natural Selection, 86–87 Mutations, 92–94
8.L3U3.10 Communicate how advancements in technology have furthered the field of genetic research and use evidence to support an argument about the positive and negative effects of genetic research on human lives.	Diversity of Life SE/TE: Artificial Selection, 49 Genetic Engineering, 50–53 Practical Uses for DNA, 54–56 Lesson 5 Check, 57 Topic 1 Review and Assess, 59 For related content, please see: uEngineer It! Reinventing DNA as Data Storage, 35
8.L4U1.11 Develop and use a model to explain how natural selection may lead to increases and decreases of specific traits in populations over time.	Diversity of Life SE/TE: How Natural Selection Works, 83 Model It!, 85 Genes and Natural Selection, 86–87 Evolution by Natural Selection, 81–87 Lesson 2 Check, 88
8.L4U1.12 Gather and communicate evidence on how the process of natural selection provides an explanation of how new species can evolve.	Diversity of Life SE/TE: Diversity of Life, 37 Mutations in Reproduction, 44–46 Evolution by Natural Selection, 81–87 Lesson 2 Check, 88

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