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A Correlation of

Elevate Science Modules
Grades 6-8 ©2019

To the

Arkansas
2015 Science Standards
Grade 8

Prepared by Savvas Learning Company, formerly Pearson K12 Learning

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Introduction

The following document demonstrates how the ***Elevate Science Modules ©2019*** program supports Arkansas 2015 Science Standards for Grades 6-8. Correlation references include the Student Edition, Teacher Edition, and online Realize™ digital resources.

Savvas Learning Company is proud to introduce ***Elevate Science Modules*** for Middle Grades – where exploration is the heart of science! Designed to address the rigors of new science standards, students will experience science up close and personal, using real-world, relevant phenomena to solve project-based problems. Our newest program prepares students for the challenges of tomorrow, building strong reasoning skills and critical thinking strategies as they engage in explorations, formulate claims, and gather and analyze data that promote evidence-based arguments. The blended print and digital curriculum covers all Next Generation Science Standards at every grade level.

Elevate Science helps teachers transform learning, promote innovation, and manage their classroom.

Transform science classrooms by immersing students in active, three-dimensional learning.
Elevate Science engages students with real-world phenomena, open-ended Quests, uDemonstrate performance-based tasks, and in the engineering/design process with uEngineer It! investigations.

- A new 3-D learning model enhances best practices.
- Engineering-focused features infuse STEM learning.
- Phenomena-based activities put students at the heart of a Quest for knowledge.

Innovate learning by focusing on 21st century skills.
Students are encouraged to think, collaborate, and innovate! With ***Elevate Science***, students explore STEM careers, experience engineering activities, and discover our scientific and technological world. The content, strategies, and resources of Elevate Science equip the science classroom for scientific inquiry and science and engineering practices.

- Problem-based learning Quests put students on a journey of discovery.
- STEM connections help integrate curriculum.
- Coding and innovation engage students and build 21st century skills.

Manage the classroom with confidence.
Teachers will lead their class in asking questions and engaging in argumentation. Evidence-based assessments provide new options for monitoring student understanding.

- Professional development offers practical point-of-use support.
- Embedded standards in the program allow for easy integration.
- ELL and differentiated instruction strategies help instructors reach every learner.
- Interdisciplinary connections relate science to other subjects.

Designed for today's classroom, preparing students for tomorrow's world. ***Elevate Science*** promises to:

- Elevate thinking.
- Elevate learning.
- Elevate teaching.

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Performance Expectation 8-PS2-5: Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.	**Forces SE/TE:** Quest Kickoff, 54-55 Electric Force, Fields, and Energy, 57-59 Question It!, 59 Static Electricity, 62-63 Magnetic Force and Energy, 67-68 Magnetic Fields, 69-72 Topic 2 Evidence-Based Assessment, 96-97 uDemonstrate Lab, 98-101 **Realize™ Digital Resources:** **Forces: Electricity and Magnetism** >Topic Launch: Electricity and Magnetism>Quest Kickoff: Light as a Feather? >Lesson 1: Electric Force>Inquiry Warm-Up Lab: Uncanny Attractions >Lesson 2: Magnetic Force>Quest Check-In Lab: Tracking Levitation
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Energy	
Performance Expectation 8-PS3-1: Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. [Clarification Statement: Emphasis is on descriptive relationships between kinetic energy and mass separately from kinetic energy and speed. Examples could include riding a bicycle at different speeds, rolling different sizes of rocks downhill, and getting hit by a whiffle ball versus a tennis ball.]	**Energy Transfer SE/TE:** Kinetic Energy, 15-16 Math Toolbox, 16 Topic 1 Review and Assess, #8, #9, 42-43 **Realize™ Digital Resources:** **Energy Transfer: Energy** >Lesson 2: Kinetic Energy and Potential Energy>Interactivity: Interpret Kinetic Energy Graphs;>uInvestigate Lab: Mass, Velocity, and Kinetic Energy
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Performance Expectation 8-ESS1-1: Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.	**Earth's Place in the Universe SE/TE:** The Seasons, 19-20 The Appearance of the Moon, 27-29 Two Types of Eclipses, 30 Eclipses, 31 Model It!, 31 Topic 1 Review and Assess, #17, #19, 36-37 Topic 1 Evidence-Based Assessment, 38-39 uDemonstrate Lab, 40-43 **Realize™ Digital Resources:** **Earth's Place in the Universe: Earth-Sun-Moon System** >Lesson 3: Phases and Eclipses>Interactivity: Our View of the Moon;>Interactivity: Eclipses;>Worksheet: Eclipses;>Virtual Lab: Shadows in Space
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• Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models.	**Earth's Place in the Universe SE/TE:** Movement in the Sky, 8-9 Motions of the Moon, 28 **Realize™ Digital Resources:** **Earth's Place in the Universe: Earth-Sun-Moon System** >Lesson 1: Movement in Space>uInvestigate Lab: Watching the Skies >Lesson 3: Phases and Eclipses>uInvestigate Lab: How Does the Moon Move?
ESS1.B: Earth and the Solar System	
• This model of the solar system can explain eclipses of the sun and the moon. Earth's spin axis is fixed in direction over the short-term but tilted relative to its orbit around the sun. The seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year.	**Earth's Place in the Universe SE/TE:** How Earth Moves, 17-18 The Seasons, 19-20 Two Types of Eclipses, 30 Eclipses, 31 Topic 1 Evidence-Based Assessment, 38-39 **Realize™ Digital Resources:** **Earth's Place in the Universe: Earth-Sun-Moon System** >Lesson 3: Phases and Eclipses>Interactivity: Eclipses;>Worksheet: Eclipses;>Virtual Lab: Shadows in Space

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Science and Engineering Practices	
Developing and Using Models	
• Develop and use a model to describe phenomena.	**Earth's Place in the Universe SE/TE:** Model It!, 31 Topic 1 Review and Assess, #17, #19, 36-37 Topic 1 Evidence-Based Assessment, #3, #4, 38-39 uDemonstrate Lab, 40-43 **Realize™ Digital Resources:** **Earth's Place in the Universe: Earth-Sun-Moon System** >Lesson 3: Phases and Eclipses>Interactivity: Eclipses;>Worksheet: Eclipses;>Virtual Lab: Shadows in Space
Crosscutting Concepts	
Patterns	
• Patterns can be used to identify cause-and-effect relationships.	**Earth's Place in the Universe SE/TE:** Lesson 2 Check, #2, 24 Topic 1 Evidence-Based Assessment, #4, 38-39 uDemonstrate Lab, 40-43 **Realize™ Digital Resources:** **Earth's Place in the Universe: Earth-Sun-Moon System** >Lesson 3: Phases and Eclipses>Interactivity: Eclipses;>Worksheet: Eclipses
Connections to Nature of Science	
Scientific Knowledge Assumes an Order and Consistency in Natural Systems	
• Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation.	**Earth's Place in the Universe SE/TE:** How Earth Moves, 17-18 The Seasons, 19-20 Gravity, 21 Orbital Motion, 23 Phases of the Moon, 29

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Performance Expectation 8-ESS1-2: Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.	**Earth's Place in the Universe SE/TE:** Gravity, 21 Understanding the Solar System, 49-52 Formation and Development of Stars, 73 From Stars to Galaxies, 83-85 Topic 2 Evidence-Based Assessment, 94-95 **Realize™ Digital Resources:** **Earth's Place in the Universe: Solar System and the Universe** >Lesson 1: Solar System Objects>Interactivity: Solar System;>Worksheet: Solar System;>uInvestigate Lab: Pulling Planets >Lesson 4: Galaxies>uInvestigate Lab: Model the Milky Way
Disciplinary Core Ideas	
ESS1.A: The Universe and Its Stars	
• Earth and its solar system are part of the Milky Way galaxy, which is one of many galaxies in the universe.	**Earth's Place in the Universe SE/TE:** Galaxies, 85 Extraordinary Science, 91
ESS1.B: Earth and the Solar System	
• The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them.	**Earth's Place in the Universe SE/TE:** Understanding the Solar System, 49-52 Structure of the Sun, 53-54 Features of the Sun, 55 The Solar System, 56-57
• The solar system appears to have formed from a disk of dust and gas, drawn together by gravity.	**Earth's Place in the Universe SE/TE:** Solar System Formation, 58 Lesson 1 Check, #2, 59 Topic 2 Review and Assess, #4, 92-93
Science and Engineering Practices	
Developing and Using Models	
• Develop and use a model to describe phenomena.	**Realize™ Digital Resources:** **Earth's Place in the Universe: Solar System and the Universe** >Lesson 1: Solar System Objects>uInvestigate Lab: Pulling Planets >Lesson 4: Galaxies>uInvestigate Lab: Model the Milky Way

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Crosscutting Concepts	
Systems and System Models	
• Models can be used to represent systems and their interactions.	**Realize™ Digital Resources:** **Earth's Place in the Universe: Solar System and the Universe** >Lesson 1: Solar System Objects>uInvestigate Lab: Pulling Planets >Lesson 4: Galaxies>uInvestigate Lab: Model the Milky Way
Connections to Nature of Science	
Scientific Knowledge Assumes an Order and Consistency in Natural Systems	
• Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation.	**Earth's Place in the Universe SE/TE:** Gravity, 21
Performance Expectation 8-ESS1-3: Analyze and interpret data to determine scale properties of objects in the solar system.	**Earth's Place in the Universe SE/TE:** Distances in the Solar System, 50 Math Toolbox, 50 The Solar System, 56-57 Case Study: Comparing Solar System Objects, 60-61 **Realize™ Digital Resources:** **Earth's Place in the Universe: Solar System and the Universe** >Topic Launch: Solar System and the Universe>uConnect Lab: Planetary Measures >Lesson 1: Solar System Objects>Interactivity: Distance Learning
Disciplinary Core Ideas	
ESS1.B: Earth and the Solar System	
• The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them.	**Earth's Place in the Universe SE/TE:** Understanding the Solar System, 49-52 The Solar System, 56-57
Science and Engineering Practices	
• Analyze and interpret data to determine similarities and differences in findings.	**Realize™ Digital Resources:** **Earth's Place in the Universe: Solar System and the Universe** >Topic Launch: Solar System and the Universe>uConnect Lab: Planetary Measures >Lesson 1: Solar System Objects>Interactivity: Distance Learning

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Crosscutting Concepts	
Scale, Proportion, and Quantity	
• Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.	**Earth's Place in the Universe SE/TE:** The Solar System, 56-57 **Realize™ Digital Resources:** **Earth's Place in the Universe: Solar System and the Universe** >Topic Launch: Solar System and the Universe>uConnect Lab: Planetary Measures
Connections to Engineering, Technology, and Applications of Science	
Interdependence of Science, Engineering, and Technology	
• Engineering advances have led to important discoveries in virtually every field of science and scientific discoveries have led to the development of entire industries and engineered systems.	**Earth's Place in the Universe SE/TE:** Collecting Space Data, 63-65 uEngineer It!, 71
History of Earth	
Performance Expectation 8-ESS1-4: Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.	**Earth Systems SE/TE:** Connect It!, 164 The Geologic Time Scale, 165-167 Dividing Geologic Time, 168-169 Lesson 2 Check, #5, 170 Major Events in the Paleozoic Era, 173-175 Major Events in the Mesozoic Era, 176-177 Major Events in the Cenozoic Era, 178 How Scientists Organize Earth's History, 179 Topic 4 Evidence-Based Assessment, 184-185 uDemonstrate Lab, 186-189 **Realize™ Digital Resources:** **Earth Systems: History of Earth** >Lesson 2: Geologic Time Scale>Interactivity: A Very Grand Canyon
Disciplinary Core Ideas	
ESS1.C: The History of Planet Earth	
• The geologic time scale interpreted from rock strata provides a way to organize Earth's history. Analyses of rock strata and the fossil record provide only relative dates, not an absolute scale.	**Earth Systems SE/TE:** Determining Relative Ages of Rocks, 156-158 The Geologic Time Scale, 165-167 Dividing Geologic Time, 168-169 How Scientists Organize Earth's History, 179 Topic 4 Evidence-Based Assessment, 184-185

Arkansas 2015 Science Standards Grade 8	Elevate Science ©2019 Grades 6-8 Modules
Science and Engineering Practices	
Constructing Explanations and Designing Solutions	
• 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.	**Earth Systems SE/TE:** Connect It!, 164 Lesson 2 Check, #5, 170 Topic 4 Evidence-Based Assessment, #4, 184-185 uDemonstrate Lab, 186-189 **Realize™ Digital Resources:** **Earth Systems: History of Earth** >Lesson 2: Geologic Time Scale>Interactivity: A Very Grand Canyon
Crosscutting Concepts	
Scale, Proportion, and Quantity	
• Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.	**Earth Systems SE/TE:** The Geologic Time Scale, 166-167 Question It!, 169 How Scientists Organize Earth's History, 178 **Realize™ Digital Resources:** **Earth Systems: History of Earth** >Topic Launch: History of Earth>uConnect Lab: Dividing History >Lesson 2: Geologic Time Scale>Interactivity: On the Clock;>uInvestigate Lab: Going Back in Time

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Growth, Development, and Reproduction of Organisms	
Performance Expectation 8-LS3-1: Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.	**Diversity of Life SE/TE:** Case Study: Cephalopods Special Edition, 14-15 Types of Mutations, 40-41 Model It!, 41 Mutation Effects, 43 Mutations in Reproduction, 44-46 Genetic Evidence for a Common Ancestor, 114-115 Proteins, 116-117 **Realize™ Digital Resources:** **Diversity of Life: Genes and Heredity** >Lesson 3: Genetic Coding and Protein Synthesis>uInvestigate Lab: Modeling Protein Synthesis
Disciplinary Core Ideas	
LS3.A: Inheritance of Traits	
• Genes are located in the chromosomes of cells, with each chromosome pair containing two variants of each of many distinct genes. Each distinct gene chiefly controls the production of specific proteins, which in turn affects the traits of the individual. Changes (mutations) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits.	**Diversity of Life SE/TE:** Chromosomes and Genes, 17-19 Making Proteins, 30-33 Lesson 3 Check, #5, 34 Chromosomes Size, 39 Types of Mutations, 40-41 Protein Changes, 46 Proteins, 116-117 **Realize™ Digital Resources:** **Diversity of Life: Genes and Heredity** >Lesson 3: Genetic Coding and Protein Synthesis>uInvestigate Lab: Modeling Protein Synthesis
LS3.B: Variation of Traits	
• In addition to variations that arise from sexual reproduction, genetic information can be altered because of mutations. Though rare, mutations may result in changes to the structure and function of proteins. Some changes are beneficial, others harmful, and some neutral to the organism.	**Diversity of Life SE/TE:** Chromosomes and Variation, 38-39 Types of Mutations, 40-41 Mutation Effects, 43 Mutations in Reproduction, 44-46 Topic 1 Review and Assess, #15, 58-59 Mutations, 87 Effects of Mutations, 93

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Science and Engineering Practices	
Developing and Using Models	
• Develop and use a model to describe phenomena.	**Diversity of Life SE/TE:** Model It!, 41 **Realize™ Digital Resources:** **Diversity of Life: Genes and Heredity** >Lesson 3: Genetic Coding and Protein Synthesis>uInvestigate Lab: Modeling Protein Synthesis
Crosscutting Concepts	
Structure and Function	
• Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the shapes, composition, and relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function.	**Realize™ Digital Resources:** **Diversity of Life: Genes and Heredity** >Lesson 3: Genetic Coding and Protein Synthesis>uInvestigate Lab: Modeling Protein Synthesis
Performance Expectation 8-LS4-5: Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.	**Diversity of Life SE/TE:** Artificial Selection, 49 Genetic Engineering, 50-53 Controversies of DNA Use, 56 Topic 1 Evidence-Based Assessment, 60-61 **Realize™ Digital Resources:** **Diversity of Life: Genes and Heredity** >Lesson 5: Genetic Technologies>Interactivity: Solving Problems with Genetics;>Enrichment: Advances in Genetics
Disciplinary Core Ideas	
LS4.B: Natural Selection	
• In artificial selection, humans have the capacity to influence certain characteristics of organisms by selective breeding. One can choose desired parental traits determined by genes, which are then passed on to offspring.	**Diversity of Life SE/TE:** Artificial Selection, 49 Artificial Selection, 82
Science and Engineering Practices	
Obtaining, Evaluating, and Communicating Information	
• 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.	**Diversity of Life SE/TE:** Topic 1 Evidence-Based Assessment, 60-61 **Realize™ Digital Resources:** **Diversity of Life: Genes and Heredity** >Lesson 5: Genetic Technologies>Interactivity: Solving Problems with Genetics;>Enrichment: Advances in Genetics

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Crosscutting Concepts	
Cause and Effect	
• Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.	**Diversity of Life SE/TE:** Lesson 5 Check, #3, 57
Connections to Engineering, Technology, and Applications of Science	
Interdependence of Science, Engineering, and Technology	
• Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.	**Diversity of Life SE/TE:** Genetic Engineering, 50-53 **Realize™ Digital Resources:** **Diversity of Life: Genes and Heredity** >Lesson 5: Genetic Technologies>Interactivity: Solving Problems with Genetics;>Enrichment: Advances in Genetics
Connections to Nature of Science	
Science Addresses Questions About the Natural and Material World	
• Scientific knowledge can describe the consequences of actions but does not necessarily prescribe the decisions that society takes.	**Diversity of Life SE/TE:** Controversies of DNA Use, 56 Lesson 5 Check, #3, #7, 57 Topic 1 Evidence-Based Assessment, 60-61 **Realize™ Digital Resources:** **Diversity of Life: Genes and Heredity** >Lesson 5: Genetic Technologies>Interactivity: Solving Problems with Genetics

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Natural Selection and Adaptations	
Performance Expectation 8-LS4-1: Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.	**Diversity of Life SE/TE:** Connect It!, 98 The Fossil Record, 99-101 Fossil Evidence of Evolution, 102-103 Beginning and End of Species, 106 Lesson 4 Check, #4, 109 Case Study: Could Dinosaurs Roar?, 110-111 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Topic Launch: Natural Selection and Change Over Time>uConnect Lab: Walking Whales? >Lesson 4: Evidence in the Fossil Record>Interactivity: Along the Canyon Wall;>Interactivity: Fossils Around the World;>Enrichment: The Horse Fossil Record
Disciplinary Core Ideas	
LS4.A: Evidence of Common Ancestry and Diversity	
• The collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found or through radioactive dating) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth.	**Diversity of Life SE/TE:** The Fossil Record, 99-101 Fossil Evidence of Evolution, 102-103 Beginning and End of Species, 106 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 4: Evidence in the Fossil Record>Interactivity: Along the Canyon Wall;>Interactivity: Fossils Around the World;>Enrichment: The Horse Fossil Record
Science and Engineering Practices	
• Analyze and interpret data to determine similarities and differences in findings.	**Diversity of Life SE/TE:** Many Types of Terrapins, 107 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 4: Evidence in the Fossil Record>Interactivity: Along the Canyon Wall;>Interactivity: Fossils Around the World

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Connections to Nature of Science	
Scientific Knowledge is Based on Empirical Evidence	
• Science knowledge is based upon logical and conceptual connections between evidence and explanations.	**Diversity of Life SE/TE:** Many Kinds of Fossils, 100 Reading Check, 103 Many Types of Terrapins, 107 Lesson 4 Check, #5, 109 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 4: Evidence in the Fossil Record>Interactivity: Along the Canyon Wall;>Interactivity: Fossils Around the World
Crosscutting Concepts	
Patterns	
• Graphs, charts, and images can be used to identify patterns in data.	**Diversity of Life SE/TE:** Lesson 4 Check, #5, 109 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 4: Evidence in the Fossil Record>Interactivity: Fossils Around the World;>Enrichment: The Horse Fossil Record
Connections to Nature of Science	
Scientific Knowledge Assumes an Order and Consistency in Natural Systems	
• Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation.	**Diversity of Life SE/TE:** How Fossils Form, 100 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 4: Evidence in the Fossil Record>uInvestigate Lab: Finding Proof;>Interactivity: Fossils Around the World

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Performance Expectation 8-LS4-2: Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.	**Diversity of Life SE/TE:** Homologous Structures, 104 Math Toolbox, 105 Lesson 4 Check, #3, 109 uDemonstrate Lab, 126-129 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 4: Evidence in the Fossil Record>Interactivity: Legs, Arms, Wings, and Flippers
Disciplinary Core Ideas	
LS4.A: Evidence of Common Ancestry and Diversity	
• Anatomical similarities and differences between various organisms living today and between them and organisms in the fossil record, enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent.	**Diversity of Life SE/TE:** Homologous Structures, 104 Math Toolbox, 105 uDemonstrate Lab, 126-129 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 4: Evidence in the Fossil Record>Interactivity: Legs, Arms, Wings, and Flippers
Science and Engineering Practices	
Constructing Explanations and Designing Solutions	
• Apply scientific ideas to construct an explanation for real-world phenomena, examples, or events.	**Diversity of Life SE/TE:** Lesson 4 Check, #3, 109 uDemonstrate Lab, 126-129 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 4: Evidence in the Fossil Record>Interactivity: Legs, Arms, Wings, and Flippers
Crosscutting Concepts	
Patterns	
• Patterns can be used to identify cause and effect relationships.	**Diversity of Life SE/TE:** uDemonstrate Lab, 126-129 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 4: Evidence in the Fossil Record>Interactivity: Legs, Arms, Wings, and Flippers

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Connections to Nature of Science	
Scientific Knowledge Assumes an Order and Consistency in Natural Systems	
• Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation.	**Diversity of Life SE/TE:** Math Toolbox, 105 uDemonstrate Lab, 126-129 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 4: Evidence in the Fossil Record>Interactivity: Legs, Arms, Wings, and Flippers
Performance Expectation 8-LS4-3: Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.	**Diversity of Life SE/TE:** Embryological Development, 104 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 5: Other Evidence of Evolution>Interactivity: Tiny Clues
Disciplinary Core Ideas	
LS4.A: Evidence of Common Ancestry and Diversity	
• Comparison of the embryological development of different species also reveals similarities that show relationships not evident in the fully- formed anatomy.	**Diversity of Life SE/TE:** Embryological Development, 104 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 5: Other Evidence of Evolution>Interactivity: Tiny Clues
Science and Engineering Practices	
• Analyze displays of data to identify linear and nonlinear relationships.	**Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 5: Other Evidence of Evolution>Interactivity: Tiny Clues
Crosscutting Concepts	
Patterns	
• Graphs, charts, and images can be used to identify patterns in data.	**Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 5: Other Evidence of Evolution>Interactivity: Tiny Clues

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Performance Expectation 8-LS4-4: 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.	**Diversity of Life SE/TE:** Galapagos Organisms, 76-77 How Natural Selection Works, 83-85 Model It!, 85 Lesson 2 Check, #5, 88 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 2: Natural Selection>Interactivity: Mice Selection on the Prairie;>Interactivity: Lessons From the Potato Famine
Disciplinary Core Ideas	
LS4.B: Natural Selection	
• Natural selection leads to the predominance of certain traits in a population, and the suppression of others.	**Diversity of Life SE/TE:** How Natural Selection Works, 83-85 Lesson 2 Check, #4, 88 Sexual Selection, 95 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 2: Natural Selection>Interactivity: Mice Selection on the Prairie
Science and Engineering Practices	
Constructing Explanations and Designing Solutions	
• Construct an explanation that includes qualitative or quantitative relationships between variables that describe phenomena.	**Diversity of Life SE/TE:** Lesson 2 Check, #5, 88 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 2: Natural Selection>Interactivity: Mice Selection on the Prairie;>Interactivity: Lessons From the Potato Famine
Crosscutting Concepts	
Cause and Effect	
• Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.	**Diversity of Life SE/TE:** Lesson 2 Check, #5, 88 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 2: Natural Selection>Interactivity: Mice Selection on the Prairie

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Performance Expectation 8-LS4-6: Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.	**Diversity of Life SE/TE:** Connect It!, 80 Evolution by Natural Selection, 81-85 Math Toolbox, 84 Model It!, 85 Lesson 2 Check, #4, 88 Sexual Selection, 95 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 2: Natural Selection>Interactivity: Mice Selection on the Prairie;>Virtual Lab: Natural Selection in Butterfly Behavior
Disciplinary Core Ideas	
LS4.C: Adaptation	
• Adaptation by natural selection acting over generations is one important process by which species change over time in response to changes in environmental conditions. Traits that support successful survival and reproduction in the new environment become more common; those that do not become less common. Thus, the distribution of traits in a population changes.	**Diversity of Life SE/TE:** How Natural Selection Works, 83-85 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 2: Natural Selection>Interactivity: Species Adaptation;>Worksheet: Species Adaptation
Science and Engineering Practices	
Using Mathematics and Computational Thinking	
• Use mathematical representations to support scientific conclusions and design solutions.	**Diversity of Life SE/TE:** Math Toolbox, 84 **Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 2: Natural Selection>Interactivity: Mice Selection on the Prairie;>Virtual Lab: Natural Selection in Butterfly Behavior
Crosscutting Concepts	
Cause and Effect	
• Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.	**Realize™ Digital Resources:** **Diversity of Life: Natural Selection and Change Over Time** >Lesson 2: Natural Selection>Interactivity: Mice Selection on the Prairie;>Virtual Lab: Natural Selection in Butterfly Behavior

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Engineering, Technology, and the Application of Science	
Performance Expectation 8-ETS1-1: 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.	**Structure and Properties of Matter SE/TE:** uEngineer It!, 55 **Earth Systems SE/TE:** uEngineer It!, 59 **Diversity of Life SE/TE:** uEngineer It!, 89 **Realize™ Digital Resources:** **Forces: Forces and Motion** >Lesson 1: Describing Motion and Force>Quest Check-In Interactivity: Define Criteria and Constraints **Changing Earth and Human Activity: Earth's Surface Systems** >Lesson 2: Erosion and Deposition>Quest Check-In Lab: Ingenious Island Part I **Systems, Reproduction, and Growth: Reproduction and Growth** >Lesson 4: Factors Influencing Growth>Quest Check-In Interactivity: Make Your Construction Case
Disciplinary Core Ideas	
ETS1.A: Defining and Delimiting Engineering Problems	
• The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.	**Structure and Properties of Matter SE/TE:** Define the Problem, 94-95

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Science and Engineering Practices	
Asking Questions and Defining Problems	
• Define a design problem that can be solved through the development of an object, tool, process or system and includes multiple criteria and constraints, including scientific knowledge that may limit possible solutions.	**Structure and Properties of Matter SE/TE:** uEngineer It!, 55 **Earth Systems SE/TE:** uEngineer It!, 59 **Diversity of Life SE/TE:** uEngineer It!, 89 **Realize™ Digital Resources:** **Forces: Forces and Motion** >Lesson 1: Describing Motion and Force>Quest Check-In Interactivity: Define Criteria and Constraints **Changing Earth and Human Activity: Earth's Surface Systems** >Lesson 2: Erosion and Deposition>Quest Check-In Lab: Ingenious Island Part I **Systems, Reproduction, and Growth: Reproduction and Growth** >Lesson 4: Factors Influencing Growth>Quest Check-In Interactivity: Make Your Construction Case
Crosscutting Concepts	
Influence of Science, Engineering, and Technology on Society and the Natural World	
• All human activity draws on natural resources and has both short and long-term consequences, positive as well as negative, for the health of people and the natural environment.	**Cycles Influencing Weather and Climate SE/TE:** uEngineer It!, 135 **Changing Earth and Human Activity SE/TE:** Using Energy Resources, 64 uEngineer It!, 73 Humans and Minerals, 80 Human Impacts, 88-89 Using Natural Resources, 108-109 Wetlands, 129 Human Activities, 140-141

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• The uses of technologies and limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions.	**Atoms and Chemical Reactions SE/TE:** uEngineer It!, 77 Impact of Synthetic Materials, 103-104 **Cycles Influencing Weather and Climate SE/TE:** uEngineer It!, 21 uEngineer It!, 135 **Earth Systems SE/TE:** uEngineer It!, 59 uEngineer It!, 131 **Realize™ Digital Resources:** **Earth Systems: Plate Tectonics** >Lesson 3: Earthquakes and Tsunami Hazards>Interactivity: Earthquake Engineering
Performance Expectation 8-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	**Energy Transfer SE/TE:** uEngineer It!, 21 **Cycles Influencing Weather and Climate SE/TE:** uEngineer It!, 21 **Systems, Reproduction, and Growth SE/TE:** uEngineer It!, 37 uEngineer It!, 123 **Relationships Within Ecosystems SE/TE:** uEngineer It!, 13 **Realize™ Digital Resources:** **Energy Transfer: Thermal Energy** >Lesson 3: Heat and Materials>Quest Check-In Lab: Keep the Heat In
Disciplinary Core Ideas	
ETS1.B: Developing Possible Solutions	
• There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.	**Energy Transfer SE/TE:** Test and Evaluate a Solution, 98

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Science and Engineering Practices	
• Evaluate competing design solutions based on jointly developed and agreed-upon design criteria.	**Energy Transfer SE/TE:** uEngineer It!, 21 **Cycles Influencing Weather and Climate SE/TE:** uEngineer It!, 21 **Systems, Reproduction, and Growth SE/TE:** uEngineer It!, 37 uEngineer It!, 123 **Relationships Within Ecosystems SE/TE:** uEngineer It!, 13 **Realize™ Digital Resources:** **Energy Transfer: Thermal Energy** >Lesson 3: Heat and Materials>Quest Check-In Lab: Keep the Heat In
Performance Expectation 8-ETS1-3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.	**Forces SE/TE:** uEngineer It!, 33 **Cycles Influencing Weather and Climate SE/TE:** uEngineer It!, 81 **Realize™ Digital Resources:** **Changing Earth and Human Activity: Earth's Surface Systems** >Lesson 3: Water Erosion>Quest Check-In Lab: Ingenious Island Part II
Disciplinary Core Ideas	
ETS1.B: Developing Possible Solutions	
• There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.	**Forces SE/TE:** Test and Evaluate a Solution, 112
• Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors.	**Forces SE/TE:** Test and Evaluate a Solution, 112 Redesign and Retest the Solution, 113
ETS1.C: Optimizing the Design Solution	
• Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process - that is, some of the characteristics may be incorporated into the new design.	**Forces SE/TE:** Test and Evaluate a Solution, 112 Redesign and Retest the Solution, 113

Arkansas 2015 Science Standards Grade 8	Elevate Science ©2019 Grades 6-8 Modules
Science and Engineering Practices	
Developing and Using Models	
• Develop a model to generate data to test ideas about designed systems, including those representing inputs and outputs.	**Forces SE/TE:** uEngineer It!, 33 **Cycles Influencing Weather and Climate SE/TE:** uEngineer It!, 81 **Realize™ Digital Resources:** **Changing Earth and Human Activity: Earth's Surface Systems** >Lesson 3: Water Erosion>Quest Check-In Lab: Ingenious Island Part II
Performance Expectation 8-ETS1-4: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.	**Structure and Properties of Matter SE/TE:** uEngineer It!, 33 **Changing Earth and Human Activity SE/TE:** uEngineer It!, 145 **Realize™ Digital Resources:** **Energy Transfer: Thermal Energy** >Lesson 2: Heat Transfer>Interactivity: Solar Oven Design;>Worksheet: Solar Oven Design
Disciplinary Core Ideas	
ETS1.B: Developing Possible Solutions	
• A solution needs to be tested, and then modified on the basis of the test results, in order to improve it.	**Structure and Properties of Matter SE/TE:** Test and Evaluate a Solution, 96 Redesign and Retest the Solution, 97
• Models of all kinds are important for testing solutions.	**Structure and Properties of Matter SE/TE:** Scientific Models, 88 Design a Solution, 96
ETS1.C: Optimizing the Design Solution	
• The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.	**Structure and Properties of Matter SE/TE:** Test and Evaluate a Solution, 96 Redesign and Retest the Solution, 97

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Arkansas 2015 Science Standards Grade 8	Elevate Science ©2019 Grades 6-8 Modules
Science and Engineering Practices	
Developing and Using Models	
• Develop a model to generate data to test ideas about designed systems, including those representing inputs and outputs.	**Structure and Properties of Matter SE/TE:** uEngineer It!, 33 **Changing Earth and Human Activity SE/TE:** uEngineer It!, 145 **Realize™ Digital Resources:** **Energy Transfer: Thermal Energy** >Lesson 2: Heat Transfer>Interactivity: Solar Oven Design;>Worksheet: Solar Oven Design

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