

A Correlation of
Elevate Science Modules
Grades 6-8 ©2019



To the
Indiana
2016 Academic Standards for Science
Grade 8

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To the
Indiana Academic Standards for Science, Grade 8**

Introduction

This document demonstrates how ***Elevate Science* ©2019** meets the Indiana Academic Standards for Science, Grades 6-8. Correlation page references are to the Student and Teacher's Editions and cited at the page level.

Savvas Learning Company is proud to introduce ***Elevate Science*** 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 tasks, open-ended Quests, uDemonstrate performance-based labs, 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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8.PS Physical Science	
<p>8.PS.1 Create models to represent the arrangement and charges of subatomic particles in an atom (protons, neutrons and electrons). Understand the significance that the currently 118 known chemical elements combine to form all the matter in the universe.</p>	<p>Atoms and Chemical Reactions SE/TE: Development of Atomic Theory, 5–9 A Modern Model of the Atom, 10–12 Case Study: Unlocking the Power of the Atom, 14–15 Organizing the Elements, 17–18 Using the Periodic Table, 19–21 Periods in the Periodic Table, 22–23 Groups in the Periodic Table, 24–26 <i>For supporting content, please see:</i> Bonding, 30–31 Bonding and Periodic Properties, 32–35 Bonding and Compounds, 39 Ionic Bonding, 40–41 Covalent Bonding, 42–44 Properties of Compounds, 45–46</p> <p>Structure and Properties of Matter SE/TE: Components of Matter, 8–10 Hands-on Lab, 9 Interactivity, 10 Topic 1 Evidence-Based Assessment, 36-37 TE Only: Focus on Mastery!, Develop Models, 9</p>
<p>8.PS.2 Illustrate with diagrams (drawings) how atoms are arranged in simple molecules. Distinguish between atoms, elements, molecules, and compounds.</p>	<p>Structure and Properties of Matter SE/TE: Components of Matter, 8–10 Hands-on Lab, 9 Interactivity, 10 Topic 1 Evidence-Based Assessment, 36-37 <i>For supporting content, please see:</i> Chemical Changes in Matter, 27–29</p> <p>Atoms and Chemical Reactions SE/TE: Bonding, 30–31 Bonding and Periodic Properties, 32–35</p>
<p>8.PS.3 Use basic information provided for an element (atomic mass, atomic number, symbol, and name) to determine its place on the Periodic Table. Use this information to find the number of protons, neutrons, and electrons in an atom.</p>	<p>Atoms and Chemical Reactions SE/TE: Organizing the Elements, 17–18 Using the Periodic Table, 19–21 Periods in the Periodic Table, 22–23 The Metal Groups, Figure 6, 24 Groups with Metalloids and Nonmetals, Figure 7, 25 The Remaining Elements, Figure 8, 26 Groups in the Periodic Table, 24–26 Topic 1 Evidence-Based Assessment, 58-59</p>

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8.PS.4 Identify organizational patterns (radius, atomic number, atomic mass, properties and radioactivity) on the Periodic Table.	Atoms and Chemical Reactions SE/TE: Organizing the Elements, 17–18 Using the Periodic Table, 19–21 Periods in the Periodic Table, 22–23 Hands-On Lab, 24 Groups in the Periodic Table, 24–26
8.PS.5 Investigate the property of density and provide evidence that properties, such as density, do not change for a pure substance.	Structure and Properties of Matter SE/TE: Determining Density, 18–19 Interactivity, 19 Hands-On Lab, 19 Using Density, 20
8.PS.6 Compare and contrast physical change vs. chemical change. Analyze the properties of substances before and after substances interact to determine if a chemical reaction has occurred	Structure and Properties of Matter SE/TE: Physical Changes in Matter, 25–26 Hands-On Lab, 25 Chemical Changes in Matter, 27–29 Hands-On Lab, 29 TE Only: Investigate, 25 Synthesize, 31 Atoms and Chemical Reactions SE/TE: Changing Matter, 79–80 Building and Breaking Chemical Bonds, 81 Evidence of Chemical Reactions, 82–83 Changes in Energy, 84 Energy Graphs for Chemical Reactions, 85 It's All Connected: The Art of Chemical Change, 89
8.PS.7 Balance chemical equations to show how the total number of atoms for each element does not change in chemical reactions and as a result, mass is always conserved in a closed system. (Law of Conservation of Mass.)	Atoms and Chemical Reactions SE/TE: Chemical Equations, 91–93 Law of Conservation of Mass, 94–95 Types of Chemical Reactions, 96
8.ESS Earth and Space Science	
8.ESS.1 Research global temperatures over the past century. Compare and contrast data in relation to the theory of climate change.	Cycles Influencing Weather and Climate SE/TE: Studying Earth's Climate, 115–118 Recent Climate Change, 119–122 Case Study: The Carbon Cycle, 124–125 <i>For supporting content, please see:</i> Impact of Rising Temperatures, 127–132

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<p>8.ESS.2 Create a diagram or carry out a simulation to describe how water is cycled through the earth's crust, atmosphere and oceans. Explain how the water cycle is driven by energy from the sun and the force of gravity.</p>	<p>Earth Systems SE/TE: The Water Cycle, 25–26 Figure 2, 26 Review and Assess, #17, 37 <i>For supporting content, please see:</i> Distribution of Earth's Water, 27 Surface Water, 28–29 Groundwater, 30</p> <p>Cycles Influencing Weather and Climate SE/TE: Water Enters the Atmosphere, 13–15 Water Leaves the Atmosphere, 16–18 The Water Cycle, 19</p>
<p>8.ESS.3 Research how human consumption of finite natural resources (i.e. coal, oil, natural gas, and clean water) and human activities have had an impact on the environment (i.e. causes of air, water, soil, light, and noise pollution).</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 <i>For supporting content, please see:</i> 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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<p>8.LS Life Science</p> <p>8.LS.1 Compare and contrast the transmission of genetic information in sexual and asexual reproduction. Research organisms that undergo these two types of reproduction.</p>	<p>Systems, Reproduction, and Growth SE/TE: Asexual and Sexual Reproduction, 183–185 Inherited Traits, 186–188 Genes and the Environment, 189–190 Structures for Reproduction, 196–199 <i>For supporting content, please see:</i> Plant Reproduction, 193 Reproductive Strategies, 206–209</p> <p>Diversity of Life SE/TE: Case Study: Cephalopods, 14–15 Mutations in Reproduction, 44–46</p>
<p>8.LS.2 Demonstrate how genetic information is transmitted from parent to offspring through chromosomes via the process of meiosis. Explain how living things grow and develop.</p>	<p>Diversity of Life SE/TE: Forming Sex Cells, 21–23 Interactivity, 22 TE Only: Differentiated Instruction, 23</p> <p>Systems, Reproduction, and Growth SE/TE: The Functions of Cell Division, 95 The Cell Cycle, 96–100 Hands-On Lab, 96 Interactivity, 100</p>
<p>8.LS.3 Create and analyze Punnett squares to calculate the probability of specific traits being passed from parents to offspring using different patterns of inheritance.</p>	<p>Diversity of Life SE/TE: Probability and Heredity, 9–11 uDemonstrate Lab, Make the Right Call!, 62-65</p> <p>Systems, Reproduction, and Growth SE/TE: Plant Life Cycles, 194–195 Animal Growth, 217–220</p>
<p>8.LS.4 Differentiate between and provide examples of acquired and genetically inherited traits.</p>	<p>Systems, Reproduction, and Growth SE/TE: Inherited Traits, 186–188 Genes and the Environment, 189–190 Interactivity, 189 Hands-On Lab, 189</p>

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<p>8.LS.5 Explain how factors affecting natural selection (competition, genetic variations, environmental changes, and overproduction) increase or decrease a species' ability to survive and reproduce.</p>	<p>Relationships Within Ecosystems SE/TE: Adaptations and Survival, 79–80 Competition and Predation, 81–83 Ecosystem Disruptions and Population Survival, 92–93 Factors Affecting Biodiversity, 100–102 Human Impact, 103–104</p>
<p>8.LS.6 Create models to show how the structures of chromatin, chromosomes, chromatids, genes, alleles and deoxyribonucleic acid (DNA) molecules are related and differ.</p>	<p>Diversity of Life SE/TE: Alleles Affect Inheritance, 7–8 Chromosomes and Genes, 17–19 Hands-On Lab, 17 Math Toolbox, 19 Using a Pedigree, 20 Forming Sex Cells, 21–23 Interactivity, 22 The Genetic Code, 27 DNA Replication, 28–29 Design It!, 29 Making Proteins, 30–33 Literacy Connection, 30</p> <p>TE Only: Focus on Mastery!, 20</p> <p>Systems, Reproduction, and Growth SE/TE: Organelles in the Cytoplasm, 76</p>
<p>8.LS.7 Recognize organisms are classified into taxonomic levels according to shared characteristics. Explain how an organism's scientific name correlates to these shared characteristics.</p>	<p>Systems, Reproduction, and Growth SE/TE: Classifying Organisms, 17–21 Hands-On Lab, 21 Evolution and Classification, 22–23 Hands-On Lab, Investigate, 22 Extraordinary Science: Classification: What's a Panda?, 25 <i>For supporting content, please see:</i> Microorganisms, 27 Viruses, 28–29 Bacteria, 30–32 Protists, 33 Fungi, 34–35</p> <p>Diversity of Life SE/TE: Linnaeus' System of Classification, 72 Organizing Life, Figure 2, 72</p>

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8.LS.8 Explore and predict the evolutionary relationships between species looking at the anatomical differences among modern organisms and fossil organisms.	<p>Diversity of Life SE/TE: Darwin’s Journey, 75–78 The Fossil Record, 99–101 Fossil Evidence of Evolution, 102–103 Comparisons of Anatomy, 104–105 Case Study: Could Dinosaurs Roar?, 110–111</p> <p>Systems, Reproduction, and Growth SE/TE: Evolution and Classification, 22–23</p>
8.LS.9 Examine traits of individuals within a species that may give them an advantage or disadvantage to survive and reproduce in stable or changing environment.	<p>Diversity of Life SE/TE: Artificial Selection, 49 Evolution by Natural Selection, 81–87 Processes of Evolution, 91–94 Sexual Selection, 95</p> <p>Relationships Within Ecosystems SE/TE: Adaptations and Survival, 79–80</p>
8.LS.10 Gather and synthesize information about how humans alter organisms genetically through a variety of methods.	<p>Diversity of Life SE/TE: Artificial Selection, 49 Genetic Engineering, 50–53 Practical Uses for DNA, 54–56 Topic 1, Evidence-Based Assessment, 60-61 Gene Transfer Between Species, 118–119</p>
8.LS.11 Investigate how viruses and bacteria affect the human body.	<p>Systems, Reproduction, and Growth SE/TE: Viruses, 28–29 Bacteria, 30–32 uEngineer It! A Disease Becomes a Cure, 37 Homeostasis, 132 Case Study: Agents of Infection, 134–135</p>

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<p>6-8.E Engineering</p> <p>6-8.E.1 Identify the criteria and constraints of a design 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>Forces SE/TE: uEngineer It!, Electromagnetism in Action, 81</p> <p>Systems, Reproduction, and Growth SE/TE: uEngineer It! Gardening in Space, 201</p> <p>Structure and Properties of Matter SE/TE: uEngineer It! Gathering Speed with Superconductors, 33 uEngineer It!, From “Ink” to Objects: 3D Printing, 55</p> <p>All modules: Science and Engineering Practices Handbook, End of Text: Design a Solution Test and Evaluate a Solution Communicate the Solution Redesign and Retest the Solution</p>
<p>6-8.E.2 Evaluate competing design solutions using a systematic process to identify how well they meet the criteria and constraints of the problem.</p>	<p>Systems, Reproduction, and Growth SE/TE: uDemonstrate Lab: Design and Build a Microscope, 108, 109 uEngineer It! Artificial Skin, 123</p> <p>Structure and Properties of Matter SE/TE: uDemonstrate Lab: Help Out the Wildlife, 38-41</p> <p>All modules: Science and Engineering Practices Handbook, End of Text: Test and Evaluate a Solution Redesign and Retest the Solution</p>
<p>6-8.E.3 Analyze data from investigations 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.</p>	<p>Forces SE/TE: uEngineer It! Generating Energy from Potholes, 33</p> <p>Systems, Reproduction, and Growth SE/TE: uDemonstrate Lab, Design and Build a Microscope, 106-107</p> <p>All modules: Science and Engineering Practices Handbook, End of Text: Design a Solution Test and Evaluate a Solution Communicate the Solution Redesign and Retest the Solution</p>

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<p>6-8.E.4 Develop a prototype to generate data for repeated investigations and modify a proposed object, tool, or process such that an optimal design can be achieved.</p>	<p>Energy Transfer SE/TE: uEngineer It! Prosthetics on the Move, 21 uEngineer It! Shockwave to the Future, 69</p> <p>Forces SE/TE: uEngineer It! Generating Energy from Potholes, 33</p> <p>Waves and Information Technologies SE/TE: uEngineer It! A Life-Saving Mistake, 75</p> <p>Systems, Reproduction, and Growth SE/TE: uEngineer It! Gardening in Space, 201</p> <p>Structure and Properties of Matter SE/TE: uEngineer It! Gathering Speed with Superconductors, 33</p> <p>Cycles Influencing Weather and Climate SE/TE: uEngineer It! Windmills of the Future, 81</p> <p>All modules: Science and Engineering Practices Handbook, End of Text: Design a Solution Test and Evaluate a Solution Communicate the Solution Redesign and Retest the Solution</p>

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