

A Correlation of
Elevate Science Modules
©2019



To the
Massachusetts
Science and Technology/Engineering
Learning Standards, Grade 8

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Introduction

This document demonstrates how ***Elevate Science Modules* ©2019** meets the Massachusetts Science and Technology/Engineering Learning Standards, Grade 8. Correlation page references are to the Student and Teacher's Editions and cited at the page level.

Pearson 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 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.

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Table of Contents

8.MS-ESS Earth and Space Sciences	4
8.MS-LS Life Science	7
8.MS-PS Physical Science	10
8.MS-ETS Technology/Engineering.....	13

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Massachusetts Science and Technology / Engineering Learning Standards	Elevate Science Modules Grades 6-8, ©2019
8.MS-ESS Earth and Space Sciences	
8.MS-ESS1 Earth's Place in the Universe	
8.MS-ESS1-1b Develop and use a model of the Earth-Sun system to explain the cyclical pattern of seasons, which includes the Earth's tilt and differential intensity of sunlight on different areas of Earth across the year.	Module SE/TE: Earth's Place in the Universe Design It!, 18 The Seasons, 19-20 Interactivity, 23 Evidence-Based Assessment, 38-39
8.MS-ESS1-2 Explain the role of gravity in ocean tides, the orbital motions of planets, their moons, and asteroids in the solar system.	Module SE/TE: Earth's Place in the Universe Quest Kick-Off, 2-3 Gravity, 21 Math Toolbox, 22 Orbital Motion, 23 Quest Check-In, 24 Connect It!, 26 Math Toolbox: High and Low Tides, 32 The Moon and Sun, 32 Tides, 32-33 Spring and Neap Tides, 33
8.MS-ESS2 Earth's Systems	
8.MS-ESS2-1 Use a model to illustrate that energy from the Earth's interior drives convection which cycles Earth's crust leading to melting, crystallization, weathering, and deformation of large rock formations, including generation of ocean sea floor at ridges, submergence of ocean sea floor at trenches, mountain building, and active volcanic chains.	Module SE/TE: Earth Systems Convection Currents, 56 Convection Currents in Earth, Figure 7: Use Models, 57 Characteristics, 61 Mineral Formation, 64-67 Connect It!, 78 The Flow of Energy in the Rock Cycle, Figure 3, 80-81 Literacy Connection: Translate Information, 80 Interactivity, 81 Cycling of Earth's Materials, 82 Model It!: Modeling the Cycling of Rock Material, 82 Lesson Check, 83 Case Study: Mighty Mauna Loa, 84-85 Review and Assess, 87

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Massachusetts Science and Technology / Engineering Learning Standards	Elevate Science Modules Grades 6-8, ©2019
<p>8.MS-ESS2-5 Interpret basic weather data to identify patterns in air mass interactions and the relationship of those patterns to local weather.</p>	<p>Module SE/TE: Cycles Influencing Weather and Climate Earth’s Insulator, 5-9 Winds, 10 Lesson 1 Check, 11 How To Predict Weather, 31-33 Global Patterns and Local Weather, 33 The Future of Meteorology, 35 Types of Severe Storms, 39- Floods and Drought, 45 Lesson 5 Check, 47 Topic Review and Assess, 50-51 Evidence-Based Assessment, 52-53</p>
<p>8.MS-ESS2-6 Describe how interactions involving the ocean affect weather and climate on a regional scale, including the influence of the ocean temperature as mediated by energy input from the Sun and energy loss due to evaporation or redistribution via ocean currents.</p>	<p>Module SE/TE: Cycles Influencing Weather and Climate How Air Masses Move, 23 Global Patterns and Local Weather, 33 Topic 2 Opener Energy in the Atmosphere and Ocean, 58-59 Global Winds, 76 Effects of Global Wind Belts, 78 Global Wind Patterns, 78-79 Jet Streams, 79 Lesson 2 Check, 80 Connect It!, 82 Surface Currents, 83-86 Factors Affecting Surface Currents, 84 Effects on Climate, 85 Topic Review and Assess, 92-93 Ocean Currents, 107 Lesson 1 Check, 112</p>

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Massachusetts Science and Technology / Engineering Learning Standards	Elevate Science Modules Grades 6-8, ©2019
8.MS-ESS3 Earth and Human Activity	
8.MS-ESS3-1 Analyze and interpret data to explain that the Earth’s mineral and fossil fuel resources are unevenly distributed as a result of geologic processes.	<p>Module SE/TE: Earth Systems Subduction and the Oceans, 105</p> <p>Module SE/TE: Changing Earth and Human Activity Coal, 58-59 Nuclear Energy, 63 Interactivity, 65 Minerals and Ores, 75-79 Case Study: Phosphorus Fiasco, 82-83 Case Study: Phosphorous Fiasco, 82-83 Lesson 4 Check, 90 uDemonstrate Lab: To Drill or Not to Drill, 96-99</p>
8.MS-ESS3-5 Examine and interpret data to describe the role that human activities have played in causing the rise in global temperatures over the past century.	<p>Module SE/TE: Relationships Within Ecosystems Damaging Biodiversity, 104</p> <p>Module SE/TE: Cycles Influencing Weather and Climate The Greenhouse Effect, 66 Greenhouse Effect, 115 Recent Climate Change, 119-122 Human Activities, 120-121 Lesson 2 Check, 123</p> <p>Module SE/TE: Earth Systems Global-to-Local: When the Ice Melts, 11 Global to Local: A New Mass Extinction?, 181</p> <p>Module SE/TE: Changing Earth and Human Activity Pollution, 64 Impact on the Earth System, 109 Connect It!, 112</p>

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Massachusetts Science and Technology / Engineering Learning Standards	Elevate Science Modules Grades 6-8, ©2019
8.MS-LS Life Science	
8.MS-LS1 From Molecules to Organisms: Structures and Processes	
8.MS-LS1-5 Construct an argument based on evidence for how environmental and genetic factors influence the growth of organisms.	<p>Module SE/TE: Systems, Reproduction, and Growth Growth and Development of Organisms, 213 Plant Responses and Growth, 214-216 Environmental Conditions, 216 Animal Growth, 217-220 External and Internal Factors, 219-220 Lesson 4 Check, 221 Case Study: Warmer Waters, Fewer Fish, 222-223 Evidence-Based Assessment, 226-227 uDemonstrate Lab: Clean and Green, 228-231</p> <p>Module SE/TE: Diversity of Life Types of Mutations, 40-41 Environmental Factors, 42-43 Genetic Engineering, 50-53 Evidence-Based Assessment, 60-61</p>
8.MS-LS1-7 Use informational text to describe that food molecules, including carbohydrates, proteins, and fats, are broken down and rearranged through chemical reactions forming new molecules that support cell growth and/or release of energy.	<p>Module SE/TE: Energy Transfer Connect It!, 22</p> <p>Module SE/TE: Systems, Reproduction, and Growth Lesson 2 Check, 133 Food and Energy, 137-139 Main Nutrients, 138-139 Chemical Digestion, 141 The Small Intestine, Liver, and Pancreas, 142-143 Lesson 3 Check, 146</p> <p>Module SE/TE: Relationships Within Ecosystems Using Energy, 17 Respiration, 17 Cellular Respiration Equation, 18 Cellular Respiration Process, 18</p>

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Massachusetts Science and Technology / Engineering Learning Standards	Elevate Science Modules Grades 6-8, ©2019
8.MS-LS3 Heredity: Inheritance and Variation of Traits	
8.MS-LS3-1 Develop and use a model to describe that structural changes to genes (mutations) may or may not result in changes to proteins, and if there are changes to proteins there may be harmful, beneficial, or neutral changes to traits.	Module SE/TE: Diversity of Life Genetic Mutations, Figure 4, 40 Model It!: Mutations and Protein Construction, 41 Mutation Effects, 43 Mutations in Reproduction, 44-46 Nondisjunction, Figure 8, 44 Protein Changes, 46 Lesson 4 Check, Develop Models, 47 Mutations, 92- Mutations, 92-93 Proteins, 116-117 Lesson 5 Check, 120 Topic Review and Assess, 122-123
8.MS-LS3-2 Construct an argument based on evidence for how asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. Compare and contrast advantages and disadvantages of asexual and sexual reproduction.	Module SE/TE: Systems, Reproduction, and Growth Topic Review and Assess, 50-51 Reproductive System, 119 Connect It!, 182 Asexual and Sexual Reproduction, 183-185 Asexual Reproduction, 183 Sexual Reproduction, 184 Model It!: Develop Models, 184 Comparing Types of Reproduction, 185 Inherited Traits, 186-188 Model It!: Apply Concepts, 187 Environmental Factors, 190 Lesson 1 Check, 191 Asexual Reproduction, 196 Lesson 2 Check, 200 Topic Review and Assess, 224-225

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Massachusetts Science and Technology / Engineering Learning Standards	Elevate Science Modules Grades 6-8, ©2019
<p>8.MS-LS3-3(MA) Communicate through writing and in diagrams that chromosomes contain many distinct genes and that each gene holds the instructions for the production of specific proteins, which in turn affects the traits of an individual.</p>	<p>Module SE/TE: Systems, Reproduction, and Growth Model It!: Develop Models, 184 Sexual Reproduction, 184 Inherited Traits, 186-188 Model It!: Apply Concepts, 187 Acquired Traits, 189 Lesson 1 Check, 191 Topic Review and Assess, 224-225</p> <p>Module SE/TE: Diversity of Life Connect It!, 16 Chromosomes and Genes, 17-19 Genes on Chromosomes, 18 Math Toolbox, 19 Model It! , 20 Chromosomes Size; Tracking Traits, Figure 4, 39 Genes and Natural Selection, 86-87</p>
<p>8.MS-LS3-4(MA) Develop and use a model to show that sexually reproducing organisms have two of each chromosome in their nucleus, and hence two variants (alleles) of each gene that can be the same or different from each other, with one random assortment of each chromosome passed down to offspring from both parents.</p>	<p>Module SE/TE: Systems, Reproduction, and Growth Sexual Reproduction, 184 Comparing Types of Reproduction, 185 Inherited Traits, 186-188 Incomplete Dominance, 187 Model It!, 187 Codominance, 187 Multiple Alleles, 188 Lesson 1 Check, 191</p> <p>Module SE/TE: Diversity of Life Genes and Alleles, 7 Alleles Affect Inheritance, 7-8 Number of Chromosomes, 18 Types of Chromosomes, 38</p>

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Massachusetts Science and Technology / Engineering Learning Standards	Elevate Science Modules Grades 6-8, ©2019
8.MS-LS4 Biological Evolution: Unity and Diversity	
8.MS-LS4-4 Use a model to describe the process of natural selection, in which genetic variations of some traits in a population increase some individuals' likelihood of surviving and reproducing in a changing environment. Provide evidence that natural selection occurs over many generations.	Module SE/TE: Diversity of Life Quest Kick-Off, 68-69 How Natural Selection Works, 83 Selection, 84-85 Model It! Natural Selection in Action, 85 Lesson 2 Check, Develop a Model, 88 Beyond Natural Selection, 91 Lesson 5 Check, 120 Topic Review and Assess, 122-123 Quest Findings, 125
8.MS-LS4-5 Synthesize and communicate information about artificial selection, or the ways in which humans have changed the inheritance of desired traits in organisms.	Module SE/TE: Diversity of Life Connect It!, 48 Artificial Selection, 49 Selective Breeding, 49 Gene Therapy in Humans, 52 Lesson 5 Check, 57 Evidence-Based Assessment, 60-61
8.MS-PS Physical Science	
8.MS-PS1 Matter and Its Interactions	
8.MS-PS1-1 Develop a model to describe that (a) atoms combine in a multitude of ways to produce pure substances which make up all of the living and nonliving things that we encounter, (b) atoms form molecules and compounds that range in size from two to thousands of atoms, and (c) mixtures are composed of different proportions of pure substances.	Module SE/TE: Structure and Properties of Matter Atoms, 8 Molecules, 9 Model It! Molecules and Atoms, 9 Hands-On Lab, 10 Evidence-Based Assessment, 36-37 Module SE/TE: Atoms and Chemical Reactions The First Theories on Atoms, 6 Rutherford's Model, 7-8 Thomson's Model, 7 Bohr's Model, 8 Cloud Model, 9 Model It! Models of an Atom, 9 Math Toolbox, Exploring Isotopes, 12 Lesson 1 Check, 13 Plan It!: The Right Tool for the Job, 70

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Massachusetts Science and Technology / Engineering Learning Standards	Elevate Science Modules Grades 6-8, ©2019
<p>8.MS-PS1-2 Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.</p>	<p>Module SE/TE: Structure and Properties of Matter Connect It!, 24 Chemical Changes in Matter, 27-29 Examples of Chemical Change, 28 Math Toolbox: Conservation of Mass, 29 Math Toolbox: Energy in Chemical Reactions, 31</p> <p>Module SE/TE: Atoms and Chemical Reactions Quest Kickoff: How can you use chemistry to solve a culinary mystery?, 2-3 Connect It!, 78 Changing Matter, 79-80 Chemical Change, 80 Evidence of Chemical Reactions, 82-83 Formation of a Precipitate, 83 Gas Production, 83 Energy Graphs for Chemical Reaction, 85 Other Factors, 87 Topic Review and Assess, 108-109 Evidence-Based Assessment, 110-111 uDemonstrate Lab: Evidence of Chemical Change, 112-115</p>

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Massachusetts Science and Technology / Engineering Learning Standards	Elevate Science Modules Grades 6-8, ©2019
<p>8.MS-PS1-4 Develop a model that describes and predicts changes in particle motion, relative spatial arrangement, temperature, and state of a pure substance when thermal energy is added or removed.</p>	<p>Module SE/TE: Structure and Properties of Matter Temperature and Thermal Energy, 30 Thermal Energy and Changes in Matter, 31 Math Toolbox, Energy in Chemical Reactions, 31 Physical Properties of Liquids, 52 Describing Gases, 53 Lesson 1 Check, 54 The Effect of Pressure, 61 Lesson 2 Check, 64</p> <p>Module SE/TE: Energy Transfer How Thermal Energy and Temperature Are Related, 57-59 Model It!, 58 Lesson 1 Check, 60 It's All Connected: Glassblowing, 61 Question It!, 67 Thermal Expansion, 75 Lesson 3 Check, 79 Topic Review and Assess, 80-81</p>
<p>8.MS-PS1-5 Use a model to explain that atoms are rearranged during a chemical reaction to form new substances with new properties. Explain that the atoms present in the reactants are all present in the products and thus the total number of atoms is conserved.</p>	<p>Module SE/TE: Structure and Properties of Matter Math Toolbox: Conservation of Mass, 29 Topic Review and Assess, 34-35</p> <p>Module SE/TE: Atoms and Chemical Reactions Quest Kickoff: How can you use chemistry to solve a culinary mystery?, 2-3 Evidence of Chemical Reactions, 82-83 Structure of an Equation, 92 Model It!, 92 Law of Conservation of Mass, 94-95 Lesson 3 Check, 97 uDemonstrate Lab: Evidence of Chemical Change, 112-115</p>

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Massachusetts Science and Technology / Engineering Learning Standards	Elevate Science Modules Grades 6-8, ©2019
8.MS-PS2 Motion and Stability: Forces and Interactions	
8.MS-PS2-1 Develop a model that demonstrates Newton’s third law involving the motion of two colliding objects.	Module SE/TE: Forces Quest Kickoff: How can you take the crash out of a collision?, 2-3 Newton's Third Law of Motion, 29-31 Hands-On Lab, 29 Balanced and Action-Reaction Forces, 30 Newton’s Laws Together, 31 Question It!: Newton's Third Law of Motion, 31 Lesson 3 Check, 32 Topic Review and Assess, 44-45 Quest Findings, 47 uDemonstrate Lab: Stopping on a Dime, 48-51
8.MS-PS2-2 Provide evidence that the change in an object’s speed depends on the sum of the forces on the object (the net force) and the mass of the object.	Module SE/TE: Forces Changes in Acceleration and Mass, 27 Calculating Force, 27 Calculations with Newton’s Second Law, 28 Math Toolbox: Using Newton's Second Law, 28 uDemonstrate Lab: Stopping on a Dime, 48-51
8.MS-ETS Technology/Engineering	
8.MS-ETS2 Materials, Tools, and Manufacturing	
8.MS-ETS2-4(MA) Use informational text to illustrate that materials maintain their composition under various kinds of physical processing; however, some material properties may change if a process changes the particulate structure of a material.	Grade 8: Structure and Properties of Matter Quest Kickoff: How can you use solids, liquids and gases to lift a car?, 44-45 Particles of a Solid, 48 Physical Properties of Liquids, 52 Physical Properties of Gases, 53 Particles of a Gas, 53 Connect It!, 56 Case Study: Rising to the Occasion: Charles's Law in the Oven!, 76-77 Topic Review and Assess, 78-79 Module SE/TE: Energy Transfer Specific Heat, 74-75

**A Correlation of Elevate Science Modules, Grades 6-8, ©2019
To the
Massachusetts Science and Technology/Engineering Learning Standards**

Massachusetts Science and Technology / Engineering Learning Standards	Elevate Science Modules Grades 6-8, ©2019
<p>8.MS-ETS2-5(MA) Present information that illustrates how a product can be created using basic processes in manufacturing systems, including forming, separating, conditioning, assembling, finishing, quality control, and safety. Compare the advantages and disadvantages of human vs. computer control of these processes.</p>	<p>Grade 8: Structure and Properties of Matter uEngineer It! Gathering Speed with Superconductors, 32</p> <p>Module SE/TE: Energy Transfer uEngineer It!: Prosthetics on the Move, 21</p> <p>Module SE/TE: Waves and Information Technologies Supporting Content: Case Study: Super Ultra-High Definition, 86-87 Hands-On Lab, 82</p>