

A Correlation of
Elevate Science
Course 3, ©2019



To the
Nebraska
College and Career Ready Standards
for Science, Grade 8

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Introduction

This document demonstrates how the *Elevate Science* ©2019 program supports Nebraska College and Career Ready Standards for Science. Correlation page references are to the Student and Teacher’s Editions and cited at the page level.

Savvas 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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SC.8.1 Forces and Interactions	
SC.8.1.1 Gather, analyze, and communicate evidence of forces and interactions.	
SC.8.1.1.A Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.	SE/TE: Quest Kickoff: How can you take the crash out of a collision?, 118-119 Newton's Third Law of Motion, 145-147 Action-Reaction Pairs, 145 Balanced and Action-Reaction Forces, 146 Detecting Forces and Motion, 146 Hands-On Lab: Newton Scooters, 146 Question It!: Newton's Third Law of Motion, 147 Newton's Laws Together, 147 Quest Check-In, 148 Lesson 3 Check, 148 Topic Review and Assess, 160-161 Evidence-Based Assessment, 162-163 Quest Findings, 163
SC.8.1.1.B 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.	SE/TE: Hands-On Lab: Newton Scooters, 146 uEngineer It! Generating Energy from Potholes, 147 Quest Findings, 163
SC.8.1.1.C Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.	SE/TE: Math Toolbox: Effects of Net Force, 126 Newton's Second Law of Motion, 142-143 Interactivity, 144 Newton's Laws, Figure 6, 147 Interactivity, 148 uDemonstrate Lab: Stopping on a Dime, 164-167
SC.8.1.1.D Ask questions about data to determine the factors that affect the strength of electrical and magnetic forces.	SE/TE: This standard is addressed in Elevate Science, Course 2, Topic 9, Lesson 1: Electricity and Magnetism, and Lesson 2: Magnetic Force.

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SC.8.1.1.E Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.	SE/TE: Factors That Affect Gravity, 154-155 Literacy Connection: Write Arguments, 155 Extraordinary Science: Spacetime Curvature and Gravitational Waves, 159 Quest Check-in, 448 Gravity and Orbits, 445-447 Tides, 456-457
SC.8.1.1.F 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.	SE/TE: This standard is addressed in Elevate Science, Course 2, Topic 9, Lesson 1: Electricity and Magnetism, and Lesson 2: Magnetic Force.
SC.8.2 Waves and Electromagnetic Radiation	
SC.8.2.2 Gather, analyze, and communicate evidence of waves and electromagnetic radiation.	
SC.8.2.2.A Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.	SE/TE: This standard is addressed in Elevate Science, Course 2, Topic 8, Lesson 1: Wave Properties.
SC.8.2.2.B Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.	SE/TE: This standard is addressed in Elevate Science, Course 2, Topic 8, Lesson 1: Wave Properties.
SC.8.2.2.C Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.	SE/TE: This standard is addressed in Elevate Science, Course 2, Topic 10, Lesson 2: Signals; and Lesson 3: Communication and Technology.
SC.8.4 Energy	
SC.8.4.3 Gather, analyze, and communicate evidence of energy.	
SC.8.4.3.A 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.	SE/TE: This standard is addressed in Elevate Science, Course 1, Topic 3, Lesson 2: Kinetic Energy and Potential Energy.
SC.8.4.3.B Develop a model to describe that when the arrangement of objects interacting at a distance changes, then different amounts of potential energy are stored in the system.	SE/TE: Gravitational Potential Energy, 156 Forces and Motion, 157 Model It!: Develop Models, 157 See also Elevate Science Course 2, Topic 9, Lesson 1: Electricity and Magnetism.

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SC.8.9 Heredity: Inheritance and Variation of Traits	
SC.8.9.4 Gather, analyze, and communicate evidence of the inheritance and variation of traits.	
SC.8.9.4.A Develop and use a model to describe why structural changes to genes (mutations) may result in harmful, beneficial, or neutral effects to structure and function of organisms.	SE/TE: Types of Mutations, 208-209 Model It! Mutations and Protein Construction, 209 Mutation Effects, 211 Mutations in Reproduction, 212-214 Figure 8: Nondisjunction, 212 Lesson 4 Check, 215
SC.8.9.4.B Gather and synthesize information about technologies that have changed the way humans influence inheritance of desired traits in organisms.	SE/TE: Connect It!, 216 Selective Breeding, 217 Artificial Selection, 217 Video, 221 Controversies of DNA Use, 224 Lesson 5 Check, 225 Evidence-Based Assessment, 228-229

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SC.8.10 Natural Selection and Adaptations	
SC.8.10.5 Gather, analyze, and communicate evidence of natural selection and adaptations.	
SC.8.10.5.A 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.	SE/TE: Mary Anning’s Fossils, 242 Figure 4: Reading the Past, 242 Fossils, 243 Lesson 1 Check, 247 uEngineer It! Fossils from Bedrock, 257 The Fossil Record, 267-269 Hands-On Lab: Finding Proof, 269 Fossil Evidence of Evolution, 270-271 Lesson 4 Check, 277 Evidence-Based Assessment, 292-293 Quest Kickoff: How Do paleontologists know where to look for fossils?, 300-301 Using Fossils, 305 Model It! Using Fossils to Match Rock Layers, 305 Lesson 1 Check, 309 Quest Connection, 309 Case Study: Rewriting the History of Your Food, 310-311 uEngineer It! Tiny Fossil, Big Accuracy, 319 Topic 6 Review and Assess, 332-333 uDemonstrate Lab: Core Sampling Through Time, 334-337
SC.8.10.5.B Apply scientific ideas to construct an explanation for the anatomical similarities and differences among and between modern and fossil organisms to infer evolutionary relationships.	SE/TE: Comparisons of Anatomy, 272-273 Math Toolbox: Homologous Anatomical Structures, 273 Case Study: Could Dinosaurs Roar?, 278-279 Extraordinary Science: DNA, Fossils, and Evolution, 289 uDemonstrate Lab: A Bony Puzzle, 294-297

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SC.8.10.5.C 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.	SE/TE: Diversity of Life, 205 Chromosomes and Variation, 206-207 Environmental Factors, 210-211 Galapagos Organisms, 244-245 Question It!: We Got the Beak!, 245 Hands-On Lab: How Do Species Change Over Time?, 245 Lesson 1 Check, 247 Quest Check-In, 247 Hands-On Lab: Variation in a Population, 250 How Natural Selection Works, 251 Selection, 252-253 Model It!: Natural Selection in Action, 253 Genes and Natural Selection, 254-255 Lesson 2 Check, 256
C.8.10.5.D Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.	SE/TE: How Natural Selection Works, 251 Math Toolbox: Hatching for Success, 252 Lesson 2 Check, 256 Selection, 252-253
SC.8.11 Space Systems	
SC.8.11.6 Gather, analyze, and communicate evidence of the interactions among bodies in space.	
SC.8.11.6.A 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.	SE/TE: Stars, Planets and the Moon, 429 Movement in the Sky, 432-433 How Earth Moves, 441-442 Design It!, 442 The Seasons, 443-444 Connect It!, 450 The Appearance of the Moon, 451-452 Hands-On Lab: How Does the Moon Move?, 452 Phases of the Moon, 453-454 Eclipses, 455 Model It!: Solar and Lunar Eclipses, 455 Lesson 3 Check, 458 Topic Review and Assess, 462-463 uDemonstrate Lab: Modeling Lunar Phases, 464-467

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<p>SC.8.11.6.B Develop and use a model to describe the role of gravity in the motions within the galaxy and the solar system.</p>	<p>SE/TE: Gravity and Orbits, 445-447 Math Toolbox: Gravity vs. Distance, 446 Figure 6: Orbital Motions, 447 Understanding the Solar System, 473 Hands-On Lab: Pulling Planets, 475 Case Study: Comparing Solar System Objects, 484-485 Evidence-Based Assessment, 518-519</p>
<p>SC.8.11.6.C Analyze and interpret data to determine scale properties of objects in the solar system.</p>	<p>SE/TE: Understanding the Solar System, 473 Distances in the Solar System, 474 Math Toolbox: Converting Units of Distance, 474 Comparing the Sun and Planets, 475 Smaller Solar System Objects, 475 Hands-On Lab: Pulling Planets, 475 Structure of the Sun, 476 Hands-On Lab: Layers of the Sun, 476 The Sun's Atmosphere, 478 Model It!: The Sun's Atmosphere, 478 Features of the Sun, 479 Figure 7: The Solar System, 480-481 Lesson 1 Check, 483 Quest Check-In, 483 Comparing Solar System Objects, 484-485 uDemonstrate Lab: Scaling Down the Solar System, 520-523</p>

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SC.8.14 History of Earth	
SC.8.14.7 Gather, analyze, and communicate evidence to explain Earth's history.	
SC.8.14.7.A 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.	SE/TE: Describing the Ages of Rocks, 303 Determining Relative Ages of Rocks, 304-305 Using Fossils to Match Rock Layers, 305 Determining Absolute Ages of Rocks, 307-308 Quest Connection, 312 The Geologic Time Scale, 313-315 Dividing Geologic Time, 316-317 Question It!: Modeling Geologic Time, 317 Lesson 2 Check, 318 Evidence-Based Assessment, 332-333