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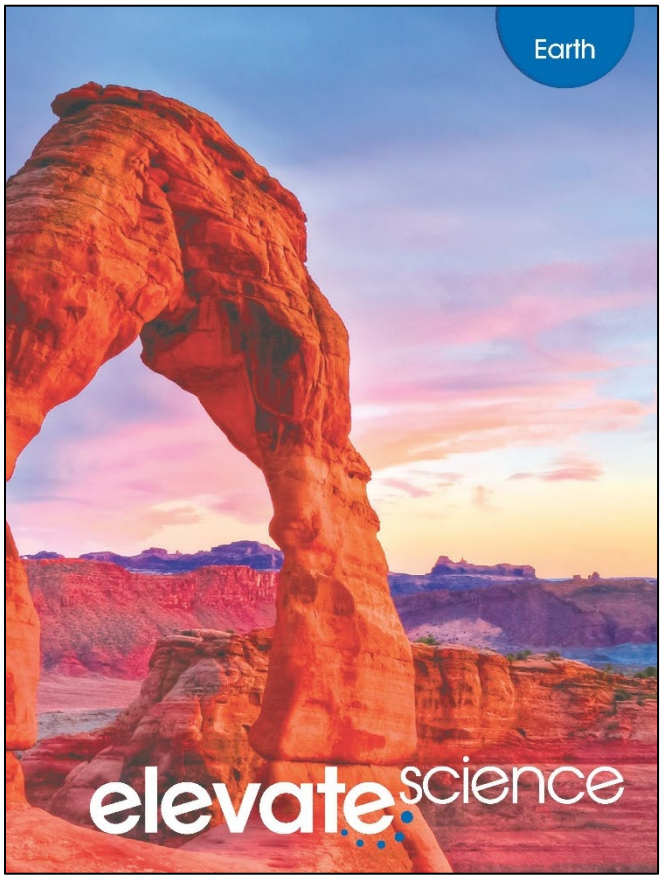

To the

Minnesota 2019 Academic Standards in Science Grade 6

Prepared by Savvas Learning Company, formerly Pearson K12 Learning

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To the
Minnesota K-12 Academic Standards in Science, Grade 6

Introduction

This document demonstrates how the ***Minnesota Elevate Science: Life, Earth, and Physical ©2021*** program supports the Minnesota Academic Standards in Science, Grades 6-8. 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 cover 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 Minnesota Elevate Science: Earth ©2021
To the
Minnesota K-12 Academic Standards in Science, Grade 6

Table of Contents

Minnesota K-12 Academic Standards in Science, Grade 6	Elevate Science: Earth Minnesota ©2021
1.0 Exploring phenomena or engineering problems	
1.1Asking questions and defining problems	
1.1.1 Students will be able to ask questions about aspects of the phenomena they observe, the conclusions they draw from their models or scientific investigations, each other's ideas, and the information they read.	
ESS: Earth's Place in the Universe	
6E.1.1.1.1 Ask questions that arise from observations of patterns in the movement of night sky objects to test the limitations of a solar system model. (P: 1, CC: 1, CI: ESS1) Emphasis is on students questioning the limitations of their own models and questioning the kinds of revisions needed to account for new data. Examples of observations may include the student's own observations or observations made by others. Examples of night sky objects include the Moon, constellations, and planets.	See supporting content: **SE/TE**: Hands-On Lab: Watching the Skies, 494 Reflect, 515 Lunar Motion, 516 Moon Phases, Figure 3, 517 Two Types of Eclipses, Figure 4, 518 Model It!: Solar and Lunar Eclipses, 519 Topic 1 Review and Assess, #18, 525 Evidence-Based Assessment, 526-527 uDemonstrate Lab: Modeling Lunar Phases, 528-531
ESS: Earth's Systems and Processes	
6E.1.1.1.2 Ask questions to examine an interpretation about the relative ages of different rock layers within a sequence of several rock layers. (P: 1, CC: 1, CI: ESS1) Emphasis is on the interpretation of rock layers using geologic principles like superposition and cross-cutting relationships.	**TE Only:** Focus on Mastery!, 363 Focus on Mastery!, 365 See supporting content: Quest Kickoff: How do paleontologists know where to look for fossils?, 364-365 Connect It!, 366 Determining Relative Ages of Rocks, 368-370 Lesson 1 Check, 373 Connect It!, 376 Quest Check-In, 382 Topic Review and Assess, 394-395 Evidence-Based Assessment, 396-397 uDemonstrate Lab: Core Sampling Through Time, 398-401

Minnesota K-12 Academic Standards in Science, Grade 6	Elevate Science: Earth Minnesota ©2021
ESS: Human Impacts and Sustainability in Earth's Systems	
6E.1.1.1.3 Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. (P: 1, CC: 7, CI: ESS3) Emphasis is on the major role that human activities play in causing the rise in global temperatures. Examples of factors include human activities (such as fossil fuel combustion, cement production, and agricultural activity) and natural processes (such as changes in incoming solar radiation or volcanic activity). Examples of evidence can include tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities.	**SE/TE:** Global to Local: A New Mass Extinction?, 393 Quest Kickoff: How can I help reduce my school's carbon footprint?, 446-447 Lesson 2 Check, #5, 467 The Greenhouse Effect, 410 Climate, The Essential Question: How have natural processes and human activities changed Earth's Climate?, 445 Human Activities, 464-465 Case Study: The Carbon Cycle, 468-469 uEngineer It!: Changing Climate Change, 479 Evidence-Based Assessment, #2, 483 uDemonstrate Lab: An Ocean of a Problem, 484-486
1.2 Planning and carrying out investigations	
1.2.1 Students will be able to design and conduct investigations in the classroom, laboratory, and/or field to test students' ideas and questions, and will organize and collect data to provide evidence to support claims the students make about phenomena.	
ESS: Weather and Climate	
6E.1.2.1.1 Collect data and use digital data analysis tools to identify patterns to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.** (P: 3, CC: 2, CI: ESS2) Emphasis is on how weather at a fixed location changes in response to moving air masses and to interactions at frontal boundaries between air masses. Examples of weather data may include temperature, air pressure, precipitation, and wind. Examples of data analysis may include weather maps, diagrams, and visualizations or may be obtained through laboratory experiments (such as with condensation).	**SE/TE:** Quest Kickoff: How can you prepare for severe weather?, 46-47 Air Pressure, 51-52 Major Air Masses, 67-68 uInvestigate: Weather Fronts, 69 Model It!: Develop Models, 71 Cyclones and Anticyclones, 72 Quest Check-In, 73 Global Patterns and Local Weather, 77 Math Toolbox: Isobars, 78 The Future of Meteorology, 79 Lesson 4 Check, 80 Case Study: The Case of the Runaway Hurricane, 92-93 Evidence-Based Assessment, 96-97 Quest Findings, 97 Global Winds, 420 Global Wind Patterns, 422-423 Evidence-Based Assessment, 438-439

Minnesota K-12 Academic Standards in Science, Grade 6	Elevate Science: Earth Minnesota ©2021
2.0 Looking at data and empirical evidence to understand phenomena or solve problems	
2.1 Analyzing and interpreting data	
2.1.1 Students will be able to represent observations and data in order to recognize patterns in the data, the meaning of those patterns, and possible relationships between variables.	
ESS: Earth's Place in the Universe	
6E.2.1.1.1 Analyze and interpret data to determine similarities and differences among features and processes occurring on solar system objects. (P: 4, CC: 3, CI: ESS1) Examples of objects may include moons, planets, comets or asteroids. Example features may include characteristics of an object's atmosphere, surface or interior. Examples of processes may include erosion, deposition, cratering, or volcanism.	**SE/TE:** Quest Kickoff: How do we look for things that can't be seen?, 534-535 Understanding the Solar System, 537-540 The Solar System, Figure 7, 544-545 Lesson 1 Check, 547 Case Study: Comparing Solar System Objects, 548-549 Star Color and Temperature, Figure 5, 565 uDemonstrate Lab: Scaling Down the Solar System, 584-587
ESS: Earth's Systems and Processes	
6E.2.1.1.2 Analyze and interpret data on the distribution of fossils, rocks, continental shapes, and seafloor structures to provide evidence of past plate motions. (P: 4, CC: 1, CI: ESS2) Examples of data may include similarities of rock and fossil types on different continents, the shapes of the continents (including the continental shelves), and the locations of ocean floor features such as ridges and trenches.	**SE/TE:** uConnect Lab: How Are Earth's Continents Linked Together?, 152 Connect It!, 156 Evidence from Land Features, 158 Evidence from Fossils, 158 Mid-Ocean Ridges, 160 Model It!: Predict North America's Movement, 163 It's All Connected: The Slow Acceptance of Continental Drift, 165 Connect It!, 166 The Theory of Plate Tectonics, 167-170 Plate Boundaries, 171-174 Lesson 2 Check, 175 Case Study: Australia on the Move, 176-177 New Landforms from Plate Movement, 181-182

Minnesota K-12 Academic Standards in Science, Grade 6	Elevate Science: Earth Minnesota ©2021
ESS: Human Impacts and Sustainability in Earth's Systems	
6E.2.1.1.3 Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.* (P: 4, CC: 1, CI: ESS3, ETS1) Examples of natural hazards may be taken from interior processes (such as earthquakes and volcanic eruptions), surface processes (such as mass wasting and tsunamis), or severe weather events. Examples of data may include the locations, magnitudes, and frequencies of the natural hazards. Examples of technologies may include building tornado shelters or barriers to protect from flooding.	**SE/TE:** Quest Kickoff: How can you prepare for severe weather?, 46-47 Winter Storms, 84 Storm Safety, 90 Lesson 5 Check, 91 Case Study: The Case of the Runaway Hurricane, 92-93 Quest Kickoff: How safe is it to hike around Mount Rainier?, 154-155 Math Toolbox: Finding an Epicenter, 185 uEngineer It!: Designing to Prevent Destruction, 189 Quest Findings, 203 uDemonstrate Lab: Modeling Sea-Floor Spreading, 204-207 Quest Kickoff: How can I design and build an artificial island?, 210-211 uEngineer It!: Ground Shifting Advances, 221 Math Toolbox: Major Landslides and Mudflows, 225 Quest Check-In, 228 uDemonstrate Lab: Materials on a Slope, 256-259

Minnesota K-12 Academic Standards in Science, Grade 6	Elevate Science: Earth Minnesota ©2021
3.0 Developing possible explanations of phenomena or designing solutions to engineering problems	
3.1 Developing and using models	
3.1.1 Students will be able to develop, revise, and use models to represent the students' understanding of phenomena or systems as they develop questions, predictions and/or explanations, and communicate ideas to others.	
ESS: Earth's Place in the Universe	
6E.3.1.1.1 Develop and use scale models of solar system objects to describe the sizes of objects, the location of objects, and the motion of the objects; and include the role that gravity and inertia play in controlling that motion. (P: 2, CC: 3, CI: ESS1) Emphasis is on the regularity of the motion and accounting for Earth-based visual observations of the motion of these objects in our sky. Emphasis is also on recognizing the limitations of any of the models. Examples may include physical models (such as the analogy of distance along a football field or computer visualizations of orbits) or conceptual models (such as mathematical proportions relative to the size of familiar objects such as students' school or state). Not included are Kepler's Laws and retrograde motion of planets.	**SE/TE:** Quest Kickoff: How can we look for things that can't be seen?, 534-535 Case Study: Comparing Solar System Objects, 548-549 Lesson 3 Check, 569 The Andromeda Galaxy, 574 Evidence-Based Assessment, 582-583 uDemonstrate Lab: Scaling Down the Solar System, 584-585

Minnesota K-12 Academic Standards in Science, Grade 6	Elevate Science: Earth Minnesota ©2021
Earth's Systems and Processes	
6E.3.1.1.2 Develop a model, based on observational evidence, to describe the cycling and movement of Earth's rock material and the energy that drives these processes. (P: 2, CC: 5, CI: ESS2) Emphasis of the practice is on using observations of processes like weathering and erosion of soil and rock, deposition of sediment, and crystallization of lava to inform model development. Emphasis of the core idea is on how these processes operate over geologic time to form rocks and minerals through the cycling of Earth's materials. Examples of models may be conceptual or physical.	**SE/TE:** Quest Kickoff: How can you predict the effects of a forest fire?, 2-3 Model It!: Sea Ice and Climate, 8 Lesson 1 Check, 10 Quest Findings, 39 Quest Kickoff: How can you depict Earth processes in a movie script?, 104-105 Model It!: Modeling Earth's Interior, 112-113 Convection Currents, 114 Mantle Convection, 115 Mineral Formation, 122-125 Lesson 2 Check, 126 Igneous Rock Formation, 131 Sequencing Sedimentary Rock Formation, 132 Metamorphic Changes, 133 Literacy Connection: Translate Information, 138 (Continued) The Flow of Energy in the Rock Cycle, 138-139 Model It!: Modeling the Cycling of Rock Material, 140 Lesson 4 Check, 141 Case Study: Might Mauna Loa, 142-143 Topic Review and Assess, 144-145 uDemonstrate Lab: The Rock Cycle in Action, 148-151

Minnesota K-12 Academic Standards in Science, Grade 6	Elevate Science: Earth Minnesota ©2021
ESS: Earth's Systems and Processes	
6E.3.1.1.3 Develop a model, based on observational and experimental evidence, to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. (P: 2, CC: 5, CI: ESS2) Emphasis of the practice is on developing a way to represent the mechanisms of water changing state, the global movements of water and energy, and on how the observational and experimental evidence supports the model. Examples of models may be conceptual or physical.	**SE/TE:** Model It!: Sea Ice and Climate, 8 The Water Cycle, 25-26 Plan It!: Building a Reservoir, 29 Groundwater, 30 The Ocean Floor, 32 Case Study: The Case of the Shrinking Sea, 34-35 Topic Review and Assess, 37 uDemonstrate Lab: Modeling a Watershed, 40-43 Forming a Cloud, 58 Water Droplets, 60 Model It!: Identify Patterns, 63 Lesson 2 Check, 64 uEngineer It!: Catching Water With a Net, 65 uDemonstrate Lab: Water from Trees, 98-101

Minnesota K-12 Academic Standards in Science, Grade 6	Elevate Science: Earth Minnesota ©2021
3.2 Constructing explanations and designing solutions	
3.2.1 Students will be able to apply scientific principles and empirical evidence (primary or secondary) to explain the causes of phenomena or identify weaknesses in explanations developed by the students or others.	
6E.3.2.1.1 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. (P: 6, CC: 3, CI: ESS1) Emphasis is on how analyses of rock formations and the fossils they contain are used to establish relative ages of major events in Earth's history. Examples of major events may include the evolution or extinction of particular organisms, the formation of mountain chains and the formation of ocean basins. Not included is using radioactive decay to age date rocks.	**SE/TE:** Quest Kickoff: How do paleontologists know where to look for fossils?, 364-365 Connect It!, 366 Absolute Age, 367 Using Fossils, 369 Reading Check: Write Explanatory Texts, 370 Lesson Check, 373 Case Study: Rewriting the History of Your Food, 374-375 Connect It!, 376 The Geologic Time Scale, 377-379 Dividing Geologic Time, 380-381 Question It!: Modeling Geologic Time, 381 Lesson 2 Check, 382 Model It!, 389 Topic Review and Assess, 394-395 Lesson Check, 392 Evidence-Based Assessment, 396-397 Topic Review and Assess, 394-395 Evidence-Based Assessment, 396-397 Quest Findings, 397 uDemonstrate Lab: Core Sampling Through Time, 398-401
6E.3.2.1.2 Construct a scientific explanation based on evidence for how the uneven distribution of Earth's mineral, energy, or groundwater resources is the result of past geological processes. (P: 6, CC: 2, CI: ESS3) Emphasis is on how these resources are limited and typically non-renewable on a human timeframe. Examples of uneven distribution of resources may include petroleum (like in the North Dakota Bakken Shale), metal ores (like iron in the rocks of Minnesota's Iron Range), or groundwater in the different regions of Minnesota.	**SE/TE:** Mineral Distribution, 125 Lesson 2 Check, 126 Quest Kickoff: How could natural resources have saved a ghost town?, 262-263 Connect It!, 264 Natural Resources, 265 Oil, 268-269 Distribution of Uranium, 271 Lesson 1 Check, 273 Lesson 2 Check, 280 Distribution of Minerals, 286-287 Humans and Minerals, 288 Lesson 3 Check, 289

Minnesota K-12 Academic Standards in Science, Grade 6	Elevate Science: Earth Minnesota ©2021
(Continued)	(Continued) Quest Check-In, 289 Case Study: Phosphorus Fiasco, 290-291 Water on Earth, 293-295 Human Impacts, 296-297 Lesson 4 Check, 298 Quest Check-In, 298 It's All Connected: The Pseudoscience of Water Dowsing, 299 Evidence-Based Assessment, 302-303 uDemonstrate Lab: To Drill or Not to Drill, 304-307
6E.3.2.1.3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.* (P: 6, CC: 2, CI: ESS3, ETS1) Emphasis of the practice is on applying scientific principles about Earth's natural processes (like how water moves through the ground and air) to designing solutions to problems caused by human activity. Emphasis of the core idea is on how human activity impacts Earth's environments. Examples of parts of the design process may include assessing the kinds of solutions that are feasible, and designing and evaluating solutions that may reduce those impacts. Examples of human activities that impact the environment may include withdrawing too much water from aquifers, altering stream flow by building dams or levees, increasing runoff caused by impermeable surfaces like parking lots, or adding undesirable materials to the air, water or land.	**SE/TE:** Plan It!: Household Energy Use, 272 uEngineer It!: Micro-Hydro Power, 281 Design It!: Sustainable Fishing, 297 Quest Kickoff: How can you help your school reduce its impact on Earth's Systems, 310-311 Plan It! Reducing Waste in Factories, 351 uEngineer It!: From Wastewater to Tap Water, 353 Quest Findings, 357 Energy-Efficient Technologies, Design It!, 476 uEngineer It!: Changing Climate Change, 479

Minnesota K-12 Academic Standards in Science, Grade 6	Elevate Science: Earth Minnesota ©2021
4.0 Communicating reasons, arguments and ideas to others	
4.1 Engaging in Argument from Evidence	
4.1.1 Students will be able to engage in argument from evidence for the explanations the students construct, defend and revise their interpretations when presented with new evidence, critically evaluate the scientific arguments of others, and present counter arguments.	
6E.4.1.1.1 Construct an argument, supported by evidence, for how geoscience processes have changed Earth's surface at varying time and spatial scales. (P: 7, CC: 3, CI: ESS2) Emphasis is on how processes like erosion, deposition, mountain building, and volcanism affect the surface of Earth. Some processes, like mountain building take a long time. Other processes, like landslides, happen quickly. Examples may include how weathering, erosion and glacial activity have shaped the surface of Minnesota.	**SE/TE:** Quest Kickoff: How safe is it to hike around Mount Rainier?, 154-155 Math Toolbox: Rates of Plate Movement, 172 Lesson 2 Check, 175 Case Study: Australia on the Move, 176-177 Anticlines and Synclines, 182 Lesson 3 Check, 188 Lesson 4 Check, 199 Topic Review and Assess, 200-201 Evidence-Based Assessment, 202-203 uDemonstrate Lab: Modeling Sea-Floor Spreading, 204-207 Quest Kickoff: How can I design and build an artificial island?, 210-211 Connect It!, 212 Lesson 1 Check, 220 Connect It!, 222 Lesson 2 Check, 228 Connect It!, 230 Groundwater Changes of Earth's Surface, 237-238 Lesson 3 Check, 239 Case Study: Buyer Beware!, 240-241 Glacial Erosion, 245 Landforms Formed by Wave Erosion, 249 Lesson 4 Check, 251 Topic Review and Assess, 252-253 Quest Findings, 255 Evidence-Based Assessment, 254-255 uDemonstrate Lab: Materials on a Slope, 256-259

Minnesota K-12 Academic Standards in Science, Grade 6	Elevate Science: Earth Minnesota ©2021
4.2 Obtaining, evaluating and communicating information	
4.2.2 Students will be able to gather information about and communicate the methods that are used by various cultures, especially those of Minnesota American Indian Tribes and communities, to develop explanations of phenomena and design solutions to problems.	
ESS: Earth's Place in the Universe	
4.2.2 Communicate how a series of models, including those used by Minnesota American Indian Tribes and communities and other cultures, are used to explain how motion in the Earth-Sun-Moon system causes the cyclic patterns of lunar phases, eclipses and seasons. (P: 8, CC: 1, CI: ESS1) Examples of cultures may include those within the local context of the learning community and within the context of Minnesota. Emphasis is on students questioning the limitations of their models and revising them to account for new observations. Models may be physical, graphical or conceptual.	**SE/TE:** Quest Kickoff: How are tides related to our place in space?, 490-491 Case Study: The Ptolemaic Model, 503-504 The Seasons, 507-508 Orbital Motion, Figure 6, 511 It's All Connected: Tracking Time in the Sky, 513 Lunar Motion, Figure 2, 516 Phases of the Moon, 517-518 Model It!: Solar and Lunar Eclipses, 519 Spring and Neap Tides, 521 Topic Review and Assess, 525 Evidence-Based Assessment, 526-527 Quest Findings, 527 uDemonstrate Lab: Modeling Lunar Phases, 528-531