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To the

Minnesota 2019 Academic Standards in Science Grade 7

Prepared by Savvas Learning Company, formerly Pearson K12 Learning

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To the
Minnesota K-12 Academic Standards in Science, Grade 7

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.

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LS: Heredity: inheritance and Variation of Traits	
7L.1.1.1.1 Ask questions about the processes and outcomes of various methods of communication between cells of multicellular organisms. (P: 1, CC: 6, CI: LS1) Examples of questions about processes and outcomes may include questions about disruptions to normal communication processes in the human body, such as in cancer, diabetes, paralysis, or other disorders.	**SE/TE:** The Essential Question: CCC Structure and Function, 59 Cells Working Together, 79-80 Levels of Organization, 132-133 Fighting Diseases, 148 Nervous System, 177-178
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LS: From Molecules to Organisms: Structures and Processes	
7L.1.2.1.1 Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. (P: 3, CC: 3, CI: LS1) Emphasis is on developing evidence that living things are made of cells, distinguishing between living and non-living things, and understanding that living things may be made of one cell or of many and varied cells.	**SE/TE:** Hands-on Lab: Life in a Drop of Pond Water, 33 Interactivity: So Many Cells, 39 Evidence-Based Assessment, 52-53 uDemonstrate Lab: It's Alive!, 54-57

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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.	
LS: Ecosystems: Interactions, Energy, and Dynamics	
7L.2.1.1.1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.** (P: 4, CC: 2, CI: LS2) Emphasis is on cause and effect relationships between resources and growth of individual organisms and the number or organisms in ecosystems during periods of abundant and scarce resources. Examples may include populations of MN deer, moose, wolf, scavengers or aquatic populations in Lake Superior or algal blooms in lakes and ponds. Examples of evidence may include the use of flow charts to organize and sequence the algorithm, and to show relationships.	**SE/TE:** Quest Kick-Off, 250-251 Math Toolbox: Graphing Population Changes, 256 Lesson 1 Check, #2-#3, 259 Case Study: The Case of the Disappearing Cerulean Warbler, 260-261 Quest Findings, 285 uDemonstrate Lab: Last Remains, 286-289 Math Toolbox: Predator-Prey Interactions, 299 Lesson 1 Check, #3, 303 Math Toolbox: Room to Roam, 318 Evidence-Based Assessment, 338-339 uDemonstrate Lab: Changes in an Ecosystem, 340-343
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3.1.1 Students will be able to develop, revise, and use models to represent their understanding of phenomena or systems as they develop questions, predictions and/or explanations and communicate ideas to others.	
LS: From Molecules to Organisms: Structures and Processes	
7L.3.1.1.1 Develop and use a model to describe the function of a cell as a whole and describe the way cell parts contribute to the cell's function. (P: 2, CC: 6, CI: LS1) Emphasis is on the cell functioning as a whole system and the primary role of identified parts of the cell, specifically the nucleus, chloroplasts, mitochondria, cell membrane, and cell wall.	**SE/TE:** Model It!: Bacterial Cell Structures, 30 Plant Cell Features, Figure 2, 40 Quest Kick-Off, 60-61 Connect It!, 72 Plant and Animal Differences, 74-75 Organelles in the Cytoplasm, 76-77 Model It!: The Substance of Life, 77 Figure 5: The Right Cell for the Job, 79 Quest Check-In: SEP Develop Models, 81 Quest Check-In, 89 Lesson 4 Check, 97 Evidence-Based Assessment, 120-121
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LS: Ecosystems: Interactions, Energy, and Dynamics	
7L.3.1.1.3 Develop and use a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. (P: 2, CC: 5, CI: LS2) Emphasis is on describing the conservation of matter and flow of energy into and out of various ecosystems.	**SE/TE:** uEngineer It!: An Artificial Leaf, 107 uConnect Lab: Every Breath You Take, 251A-251B Life and Death in an Alaskan Stream, Figure 2, 264-265 Figure 3: Food Chain, 266 Model It!: Food Web, 267 Figure 5: Energy Pyramid, 268 Math Toolbox: Relationships in an Energy Pyramid, 269 Connect It!, 272 Conservation of Matter and Energy, 273 Figure 3: The Water Cycle, 275 Figure 4: The Carbon and Oxygen Cycles, 276-277 Figure 5: Nitrogen Cycle, 278 Lesson 3 Check, #3, 280 Evidence-Based Assessment, 284-285 uDemonstrate Lab: Last Remains, 286-289 Interactions Between Cycles of an Ecosystem, 330
LS: Heredity: inheritance and Variation of Traits	
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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 construct causal explanations of phenomena or identify weaknesses in explanations developed by themselves or others.	
LS: From Molecules to Organisms: Structures and Processes	
7L.3.2.1.1 Construct an explanation based on evidence for how environmental and genetic factors influence the growth of organisms and/or populations. (P: 6, CC: 2, CI: LS1, ETS2) Examples of environmental factors may include local environmental conditions such as availability of food, light, space, and water. Examples of genetic factors may include large breed cattle and species of grass affecting growth of organisms. Examples of evidence may include drought decreasing plant growth, fertilizer increasing plant growth, different varieties of plant seeds growing at different rates in different conditions, and fish growing larger in large ponds than they do in small ponds. Examples of human activity may include agricultural practices, phosphorus and nitrogen loading in lakes, hybridization and breeding practices.	**SE/TE:** The Essential Question, 195 Quest Kickoff: How can we reduce the impact of construction on plants and animals?, 196-197 Relate Text to Visuals, 205 Genes and the Environment, 205-206 Lesson 2 Quest Check-In, 216 Connect It!, 228 Growth and Development of Organisms, 229 Plant Responses and Growth, 230-232 Animal Growth, 233-236 Math Toolbox: Human Malnutrition and Height, 236 Lesson 4 Check, 237 Lesson 4 Quest Check-In, 237 Case Study: Warmer Waters, Fewer Fish, 238-239 Topic 4 Review and Assess: #16. #17, 241 Evidence-Based Assessment, 242-243 Quest Findings, 243 uDemonstrate Lab: Clean and Green, 244-247
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LS: Evolution: Unity and Diversity	
7L.3.2.1.3 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. (P: 6, CC: 1, CI: LS4) Emphasis is on explanations of the evolutionary relationships among organisms in terms of similarity of differences of the gross appearance of anatomical structures.	**SE/TE:** Quest Kick-Off, 2-3 Evolution and Classification, 22-23 Lesson 2 Check, 24 Reading the Past, Figure 4, 418 Reading Check: Summarize Text, 418 Fossils, Figure 5, 419 Question it: Interpret Diagrams, 447 Evolution of the Modern Elephant, 447 Comparisons of Anatomy, 448-449 Lesson 4 Check, 453 Case Study: Could Dinosaurs Roar?, 454-455 Genetic Evidence for a Common Ancestor, 458-459 Extraordinary Science: DNA, Fossils, and Evolution, 465 Topic Review and Assess, 467 uDemonstrate Lab: A Bony Puzzle, 470-473
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4.0 Communicating reasons, arguments and ideas to others	
4.1 Arguing 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.	
LS: From Molecules to Organisms: Structures and Processes	
7L.4.1.1.1 Support or refute an explanation by arguing from evidence for how the body is a system of interacting subsystems composed of groups of cells. (P: 7, CC: 4, CI: LS1) Emphasis is on the conceptual understanding that cells form tissues and tissues form organs specialized for particular body functions. Examples may include arguments that deal with the interaction of subsystems within a system and the normal functioning of those systems.	**SE/TE:** Cells Make Up an Organism, 80 uConnect Lab, 129A-129B Organs and Systems, Reading Check: Summarize Text, 133 Figure 5: Organ Systems in the Human Body, 136-137 Lesson 1 Check, 138 Systems Working Together, 141-145 Lesson Check, 149 Case Study: Agents of Infection, 150-151 The Digestive System as a Whole, Write Arguments, 161 Literacy Connection: Draw Evidence, 169 Reading Check: Draw Evidence, 171 Lesson 4 Check, 175 Quest Check-In, 175 Topic Review and Assess, 186-187 Evidence-Based Assessment, 188-189 uDemonstrate Lab: Reaction Research, 190-193

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7L.4.1.1.2 Support or refute an explanation by arguing from evidence and scientific reasoning for how animal behavior and plant structures affect the probability of successful reproduction. (P: 7, CC: 2, CI: LS1) Examples of behaviors that affect the probability of animal reproduction may include nest building to protect young, herding of animals to protect young from predators, and vocalization and/or colorful plumage to attract mates for breeding. Examples of animal behaviors that affect the probability of plant reproduction may include transferring pollen or seeds, and creating conditions for seed germination and growth. Examples of plant structures may include bright flowers attracting butterflies that transfer pollen, flower nectar and odors that attract insects that transfer pollen, and hard shells on nuts that squirrels bury.	**SE/TE:** Reproduction, 7 Life Produces More Life, 8-9 uConnect Lab: To Care or Not to Care, 197A-197B Plant Reproduction, 209 Nonvascular and Seedless Vascular Plants, 210 Structures for Reproduction, 212-215 Lesson 2 Check, 216 uEngineer It!: Gardening in Space, 217 Connect It!, 218 Communication, 221 Figure 3: Parenting Behavior: Distinguish Relationship, 222 Math Toolbox: Survivorship Curves, 223 Figure 5, Working Together: Integrate Information, 224 Migratory Behaviors, 225 Lesson 3 Check, 226 Quest Check-In, 226 Extraordinary Science: Avian Artists, 227 Topic Review and Assess, 240-241 Evidence-Based Assessment, 242-243

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4.1.2 Students will be able to argue from evidence to justify the best solution to a problem or to compare and evaluate competing designs, ideas, or methods.*	
LS: Ecosystems: Interactions, Energy, and Dynamics	
7L.4.1.2.1 Construct an argument supported by empirical evidence that changes in physical or biological components of an ecosystem affect populations.* (P: 7, CC: 7, CI: LS2) Emphasis is on recognizing patterns in data and making warranted inferences about changes in populations, and on evaluating empirical evidence supporting arguments about changes and/or impacts to ecosystems. Examples of physical components may include human-built structures like urban developments, or dams.	**SE/TE:** Factors That Limit Population Growth, 258 Lesson 1 Check, 259 Quest Check-In, 259 The Essential Question, 291 uConnect Lab: How Communities Change, 293A-293B Model It!: Pioneers, 307 Changes to Populations, Figure 4, 308 Lesson 2 Check, 310 Niche Diversity, 316 Math Toolbox: Room to Roam, 318 Human Impact, 319 Reading Check: Determine Conclusions, 320 Reading Check: Construct Explanations, 322 Lesson 3 Check, 323 Quest Check-In, 323 Case Study: The Dependable Elephant, 324-325 Literacy Connection: Write Arguments, 332 Topic Review and Assess, 336-337 uDemonstrate Lab: Changes in an Ecosystem, 340-343
7L.4.1.2.2 Evaluate competing design solutions for maintaining biodiversity or ecosystem services.* (P: 7, CC: 2, CI: LS2, ETS2) Emphasis is on evaluating a solution that reduces environmental harm while still benefiting humans. Examples of ecosystem services (natural processes within ecosystems that humans also benefit from) may include water purification as it cycles through Earth's systems, nutrient recycling, climate stabilization, decomposition of wastes, and pollination. Examples of design solution constraints may include scientific, economic, and social considerations.	**SE/TE:** Quest Kickoff: Should an Animal Crossing Be Constructed in My Community?, 292-293 Hands-on-Lab, 323 Hands-on-Lab, 332 Design It!: Ecological Restoration, 333 Lesson 4 Check, 334 uEngineer It!: From Bulldozers to Biomes, 335

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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.	
7L.4.2.2.1 Gather multiple sources of information and communicate how Minnesota American Indian Tribes and communities and other cultures use knowledge to predict or interpret patterns of interactions among organisms across multiple ecosystems. (P: 8, CC: 1, CI: LS2, ETS2) Examples of cultures may include those within the local context of the learning community and within the context of Minnesota. Emphasis is on predicting consistent patterns of interactions in different ecosystems in terms of the relationships among and between organisms and abiotic components of ecosystems.	**SE/TE:** uConnect Lab: How Communities Change, 293A-293B Competition and Predation, 297-299 Symbiotic Relationships, 300-302 Lesson Check, 303 Model It!, Pioneers, 307 Lesson 2 Check, 310 Case Study: The Dependable Elephant, 324-325 Topic Review and Assess, 336 uDemonstrate Lab: Changes in an Ecosystem, 340-343