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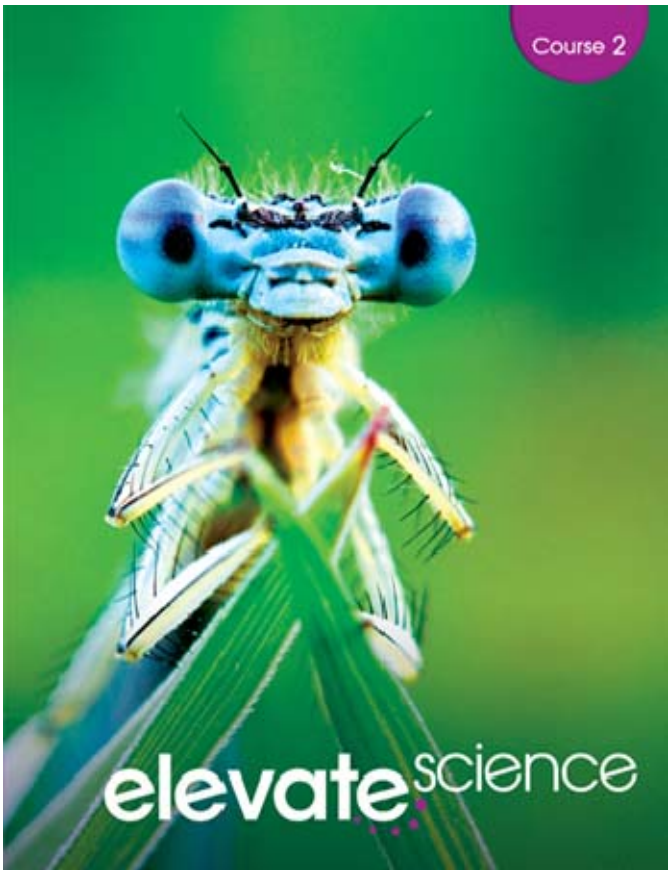

To the

Arkansas 5-8 Science Standards
Topic Arrangement

Grade 7

Pearson

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Introduction

This document demonstrates how ***Elevate Science ©2019*** meets the Arkansas 5-8 Science Standards, Topic Arrangement. Correlation page references are to the Student and Teacher's Editions and cited at the page level.

Pearson 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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GRADE SEVEN	
Structure and Properties of Matter	
7-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures. (Clarification Statement: Emphasis is on developing models of molecules that vary in complexity. Examples of simple molecules could include ammonia and methanol. Examples of extended structures could include sodium chloride or diamonds. Examples of molecular-level models could include drawings, 3-D ball and stick structures, or computer representations showing different molecules with different types of atoms.) (Assessment Boundary: Assessment does not include valence electrons and bonding energy, discussing the ionic nature of subunits of complex structures, or a complete depiction of all individual atoms in a complex molecule or extended structure.)	This standard is addressed in Elevate Science Course 1, Topic 1: Introduction to Matter. See also Elevate Science Course 3, Topic 1: Atoms and the Periodic Table.
7-PS1-3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. (Clarification Statement: Emphasis is on natural resources that undergo a chemical process to form a synthetic material. Examples of new materials could include new medicine, foods, and alternative fuels.) (Assessment Boundary: Assessment is limited to qualitative information.)	This standard is addressed in Elevate Science Course 3, Topic 2: Chemical Reactions.

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7-PS1-4 Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. (Clarification Statement: Emphasis is on qualitative molecular-level models of solids, liquids, and gases to show that adding or removing thermal energy increases or decreases kinetic energy of the particles until a change of state occurs. Examples of models could include drawings or diagrams. Examples of particles could include molecules or inert atoms. Examples of pure substances could include water, carbon dioxide, and helium.)	This standard is addressed in Elevate Science Course 1, Topic 4: Thermal Energy.
Chemical Reactions	
7-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. (**AR** Clarification Statement: Examples of reactions could include burning sugar or steel wool, fat reacting with sodium hydroxide, and mixing zinc with hydrochloric acid.) (Assessment Boundary: Assessment is limited to analysis of the following properties: density, melting point, boiling point, solubility, flammability, and odor.)	This standard is addressed in Elevate Science Course 1, Topic 1: Introduction to Matter. See also Elevate Science Course 3, Topic 2: Chemical Reactions.
7-PS1-5 Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. (Clarification Statement: Emphasis is on law of conservation of matter and on physical models or drawings, including digital forms that represent atoms.) (Assessment Boundary: Assessment does not include the use of atomic masses, balancing symbolic equations, or intermolecular forces.)	This standard is addressed in Elevate Science Course 1, Topic 1: Introduction to Matter. See also Elevate Science Course 3, Topic 2: Chemical Reactions.

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7-PS1-6 Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.* (**AR** Clarification Statement: Emphasis is on the design, controlling the transfer of energy to the environment, and modification of a device using factors such as type and concentration of a substance. Examples of designs could involve chemical processes such as dissolving ammonium chloride or calcium chloride or chemical reactions such as burning.) (Assessment Boundary: Assessment is limited to the criteria of amount, time, and temperature of substance in testing the device.)	This standard is addressed in Elevate Science Course 3, Topic 2: Chemical Reactions.
Interdependent Relationships in Ecosystems	
7-LS2-2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. (Clarification Statement: 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. Examples of types of interactions could include competitive, predatory, and mutually beneficial.)	**SE/TE:** 201, 212, 232–233, 236, 239, 243, 245–252, 266–267, 278–279, 282–285
7-LS2-5 Evaluate competing design solutions for maintaining biodiversity and ecosystem services.* (Clarification Statement: Examples of ecosystem services could include water purification, nutrient recycling, or prevention of soil erosion. Examples of design solution constraints could include scientific, economic, and social considerations.)	**SE/TE:** 232–235, 254–265, 268–276, 277

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Matter and Energy in Organisms and Ecosystems	
7-LS1-6 Construct a scientific explanation based on evidence for the role of photo-synthesis in the cycling of matter and flow of energy into and out of organisms. (Clarification Statement: Emphasis is on tracing movement of matter and flow of energy.) (Assessment Boundary: Assessment does not include the biochemical mechanisms of photosynthesis.)	**SE/TE:** 1, 40–48, 49, 60–61, 214
7-LS1-7 Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. (Clarification Statement: Emphasis is on describing that molecules are broken apart and put back together and that in this process, energy is released.) (Assessment Boundary: Assessment does not include details of the chemical reactions for photosynthesis or respiration.)	**SE/TE:** 40–48, 50–57, 58–59, 60–61, 94
7-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. (Clarification Statement: Emphasis is on cause and effect relationships between resources and growth of individual organisms and the numbers of organisms in ecosystems during periods of abundant and scarce resources.)	**SE/TE:** 190–193, 194–201, 202–203, 224–225, 228–231, 232–233, 241, 245–252, 278–285
7-LS2-3 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. (Clarification Statement: Emphasis is on describing the conservation of matter and flow of energy into and out of various ecosystems, and on defining the boundaries of the system.) (Assessment Boundary: Assessment does not include the use of chemical reactions to describe the processes.)	**SE/TE:** 1, 40–48, 49, 60–61, 190–193, 204–212, 213, 214–222, 224–231, 268–276, 282–285

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7-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. (Clarification Statement: Emphasis is on recognizing patterns in data and making warranted inferences about changes in populations, and on evaluating empirical evidence supporting arguments about changes to ecosystems.)	**SE/TE:** 232–233, 246–252, 254–265, 266–267, 274, 278–285
Earth's Systems	
7-ESS2-1 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. (**AR** Clarification Statement: Emphasis is on the processes of melting, crystallization, weathering, deformation, and sedimentation, which act together to form minerals and rocks through the cycling of Earth's materials. Arkansas specific examples of geologic materials include Karst, bauxite, and diamonds.) (Assessment Boundary: Assessment does not include the identification and naming of minerals.)	This standard is addressed in Elevate Science Course 1, Topic 5: Introduction to Earth's Systems; and Topic 7: Minerals and Rocks in the Geosphere.
7-ESS3-1 Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. (Clarification Statement: Emphasis is on how these resources are limited and typically non-renewable, and how their distributions are significantly changing as a result of removal by humans. Examples of uneven distributions of resources as a result of past processes include but are not limited to petroleum (locations of the burial of organic marine sediments and subsequent geologic traps), metal ores (locations of past volcanic and hydrothermal activity associated with subduction zones), and soil (locations of active weathering and/or deposition of rock).)	**SE/TE:** 286–289, 290–299, 300–306, 308–317, 318–324, 326–333, 371, 378, 380–381

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History of Earth	
7-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. (Clarification Statement: Emphasis is on how processes change Earth's surface at time and spatial scales that can be large (such as slow plate motions or the uplift of large mountain ranges) or small (such as rapid landslides or microscopic geochemical reactions), and how many geoscience processes (such as earthquakes, volcanoes, and meteor impacts) usually behave gradually but are punctuated by catastrophic events. Examples of geoscience processes include surface weathering and deposition by the movements of water, ice, and wind. Emphasis is on geoscience processes that shape local geographic features, where appropriate.)	This standard is addressed in Elevate Science Course 1, Topic 8: Plate Tectonics; and Topic 9: Earth's Surface Systems.
7-ESS2-3 Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. (Clarification Statement: Examples of data include similarities of rock and fossil types on different continents, the shapes of the continents (including continental shelves), and the locations of ocean structures (such as ridges, fracture zones, or trenches).) (Assessment Boundary: Paleomagnetic anomalies in oceanic and continental crust are not assessed.)	This standard is addressed in Elevate Science Course 1, Topic 8: Plate Tectonics. See also Course 3, Topic 6: History of Earth.

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Human Impacts	
7-ESS3-2 Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (Clarification Statement: Emphasis is on how some natural hazards, such as volcanic eruptions and severe weather, are preceded by phenomena that allow for reliable predictions, but others, such as earthquakes, occur suddenly and with no notice, and thus are not yet predictable. Examples of natural hazards can be taken from interior processes (such as earthquakes and volcanic eruptions), surface processes (such as mass wasting and tsunamis), or severe weather events (such as hurricanes, tornadoes, and floods). Examples of data can include the locations, magnitudes, and frequencies of the natural hazards. Examples of technologies can be global (such as satellite systems to monitor hurricanes or forest fires) or local (such as building basements in tornado-prone regions or reservoirs to mitigate droughts).)	This standard is addressed in Elevate Science Course 1, Topic 6: Weather in the Atmosphere and Topic 8: Plate Tectonics.
Engineering, Technology, and Applications of Science	
7-ETS1-1 Define the criteria and constraints of a design problem with sufficient precision 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. (**AR** Clarification Statement: Examples could include designing technologies (e.g., levees, dams, storm shelters) and determining their ability to mitigate the effects of future weather events.	**SE/TE:** 64–67, 234–235, 252, 265, 288–289, 330–333, 513

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7-ETS1-2 Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (**AR** Clarification Statement: Examples could include evaluating human technologies (e.g., levees, dams, storm shelters) and determining their ability to mitigate the effects of future weather events.)	**SE/TE:** 252, 265, 479, 489, 513, 540–543
7-ETS1-3 Analyze data from tests 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. (**AR** Clarification Statement: Examples could include performing a school energy audit, evaluating the recycling program in the school or local area, or determining alternative transportation options for residents in rural or urban areas.)	**SE/TE:** 64-67, 489, 513, 554-555
7-ETS1-4 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. (**AR** Clarification Statement: Examples could include creating a variety of devices that perform an assortment of tasks (such as design and test airplane wings and determine the success of the design by how far the airplane can be piloted).	**SE/TE:** 64–67, 132–135, 265, 330–333, 415, 424–425, 479, 489, 513, 540–543