SRA Life, Earth, and Physical Science Laboratories
correlation to
Alaska Science Performance Standards
Grade 6

SRA Life, Earth, and Physical Science Laboratories provide core science content in an alternate reading format. Each *SRA Science Lab* contains 180 Science Cards covering key science concepts and vocabulary. Each lab covers 90 different science topics presented at two different reading levels to meet varied student abilities. The *Teacher's Handbook* includes hands-on inquiry activities as well as vocabulary building exercises. The *Classroom Resource CD-ROM* includes Writing Strategies in Science along with tests and vocabulary games.

A1—Science as Inquiry and Process
SA: Students develop an understanding of the processes and applications of scientific inquiry.
SA1. Students develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments.
The student develops an understanding of the processes of science by:
[6] SA1.1 asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

A1—Science as Inquiry and Process
SA: Students develop an understanding of the processes and applications of scientific inquiry.
SA1. Students develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments.
The student develops an understanding of the processes of science by:
[6] SA1.2 collaborating to design and conduct simple repeatable investigations. (L)
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A1—Science as Inquiry and Process
SA: Students develop an understanding of the processes and applications of scientific inquiry.
SA2. Students develop an understanding that the processes of science require integrity, logical reasoning, skepticism, openness, communication, and peer review.
The student demonstrates an understanding of the attitudes and approaches to scientific inquiry by:
[6] SA2.1 identifying and differentiating fact from opinion.
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A1—Science as Inquiry and Process
SA: Students develop an understanding of the processes and applications of scientific inquiry.
SA3. Students develop an understanding that culture, local knowledge, history, and interaction with the environment contribute to the development of scientific knowledge, and that local applications provide opportunity for understanding scientific concepts and global issues.
The student demonstrates an understanding that interactions with the environment provide an opportunity for understanding scientific concepts by:
[6]SA3.1 gathering data to build a knowledge base that contributes to the development of questions about the local environment (e.g., moose browsing, trail usage, river erosion). (L)
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B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB1 Students develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior.
The student demonstrates an understanding of the structure and properties of matter by:
[6] SB1.1 using models to represent matter as it changes from one state to another.
Physical Science Lab, Level A: Cards 5, 6, 7, 8, 42 **Physical Science Lab, Level B:** Cards 5, 6, 7, 8, 42

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB2. Students develop an understanding that energy appears in different forms, can be transformed from one form to another, can be transferred or moved from one place or system to another, may be unavailable for use, and is ultimately conserved.
The student demonstrates am understanding of how energy can be transformed, transferred, and conserved by:
[6] SB2.1 recognizing that energy can exist in many forms (i.e., heat, light, chemical, electrical, mechanical).
Physical Science Lab, Level A: Cards 34, 36, 37, 39, 40, 41, 42, 45, 46, 47, 48, 49, 66, 67, 70, 76, 77, 78, 79, 80, 82, 83 **Physical Science Lab, Level B:** Cards 34, 36, 37, 39, 40, 41, 42, 45, 46, 47, 48, 49, 66, 67, 70, 76, 77, 78, 79, 80, 82, 83 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 3, *Energy Conversion*, pages 85-87; Hands-On Activity 5, *Making a Potato Battery*, pages 93-95; Hands-On Activity 6, *Making Sound*, pages 97-99

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB3 Students develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems.
The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by:
[6] SB3.1 recognizing that most substances can exist as a solid, liquid, or gas depending on temperature.
Physical Science Lab, Level A: Cards 5, 6, 7, 8, 42 **Physical Science Lab, Level B:** Cards 5, 6, 7, 8, 42

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB4 Students develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects.
The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by:
[6] SB4.1 stating that every object exerts gravitational force on every other object.
Physical Science Lab, Level A: Cards 57, 59 **Physical Science Lab, Level B:** Cards 57, 59

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB4 Students develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects.
The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by:
[6] SB4.making waves move through a variety of media. (L)
Physical Science Lab, Level A: Cards 16, 77, 78, 79, 80, 85, 86, 87, 88, 89, 90 **Physical Science Lab, Level B:** Cards 16, 77, 78, 79, 80, 85, 86, 87, 88, 89, 90 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 6, *Making Sound*, pages 97-99

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB1 Students develop an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection, and biological evolution.
The student demonstrates an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution.
[6] SC1.1 recognizing asexual and sexual reproduction.
Life Science Lab, Level A: Cards 58, 60, 61 **Life Science Lab, Level B:** Cards 58, 60, 61

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB1 Students develop an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection, and biological evolution.
The student demonstrates an understanding of how science explain changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution.
[6] SC1.2 recognizing that species survive by adapting to changes in their environment.
Life Science Lab, Level A: Cards 23, 24, 36, 41, 43, 65, 66, 67, 83 **Life Science Lab, Level B:** Cards 23, 24, 36, 41, 43, 65, 66, 67, 83

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB2 Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.
The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:
[6] SC2.1 using a dichotomous key to classify animals and plants into groups using external or internal features.
Life Science Lab, Level A: Cards 2, 3, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab, Level B:** Cards 2, 3, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab Teacher's Handbook:** Hands-On Activity 2, *Culturing Bacteria*, pages 81-83; Hands-On Activity 3, *Investigating Arthropods*, pages 85-87

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB2 Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.
The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:
[6] SC2.2 identifying basic behaviors (e.g., migration, communication, hibernation) used by organisms to meet the requirements of life.
Life Science Lab, Level A: Cards 24, 36, 43, 83 **Life Science Lab, Level B:** Cards 24, 36, 43, 83

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB2 Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.
The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:
[6] SC2.3 describing the levels of organization within a human body (i.e., cells, tissues, organs, systems).
Life Science Lab, Level A: Cards 5, 6, 8, 9, 10, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab, Level B:** Cards 5, 6, 8, 9, 10, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB3 Students develop an understanding that all organisms are linked to each other and their physical environments through the transfer of matter and energy.
The student demonstrates an understanding that all organisms are linked to each other and they physical environments through the transfer and transformation of matter and energy by:
[6] SC3.1 recognizing that organisms can cause physical and chemical changes (e.g., digestion, growth, respiration, photosynthesis) to matter and recognizing the importance of energy transfer in these changes.
Life Science Lab, Level A: Cards 1, 7, 9, 13, 16, 17, 45, 46, 50, 51, 76, 77 **Life Science Lab, Level B:** Cards 1, 7, 9, 13, 16, 17, 45, 46, 50, 51, 76, 77 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB3 Students develop an understanding that all organisms are linked to each other and their physical environments through the transfer of matter and energy.
The student demonstrates an understanding that all organisms are linked to each other and they physical environments through the transfer and transformation of matter and energy by:
[6] SC3.2 organizing a food web using familiar plants and animals.
Life Science Lab, Level A: Cards 76, 77 **Life Science Lab, Level B:** Cards 76, 77 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD1 Students demonstrate an understanding of Earth's geochemical cycles.
The student demonstrates an understanding of geochemical cycles by:
[6]SD1.1 exploring the rock cycle and its relationship to igneous, metamorphic, and sedimentary rocks. (L)
Earth Science Lab, Level A: Cards 6, 7, 8, 9 **Earth Science Lab, Level B:** Cards 6, 7, 8, 9

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD1 Students demonstrate an understanding of Earth's geochemical cycles.
The student demonstrates an understanding of geochemical cycles by:
[6]SD1.2 identifying the physical properties of water within the stages of the water cycle.
Earth Science Lab, Level A: Cards 47, 48, 49 **Earth Science Lab, Level B:** Cards 47, 48, 49 **Physical Science Lab, Level A:** Cards 6, 42 **Physical Science Lab, Level B:** Cards 6, 42

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD2 Students demonstrate an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth.
The student demonstrates an understanding of the forces that shape Earth by:
[6]SD2.1 describing the formation and composition (i.e., sand, silt, clay, organics) of soils.
Earth Science Lab, Level A: Cards 23, 29 **Earth Science Lab, Level B:** Cards 23, 29

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD2 Students demonstrate an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth.
The student demonstrates an understanding of the forces that shape Earth by:
[6]SD2.2 identifying and describing its layers (i.e., crust, mantle, core).
Earth Science Lab, Level A: Cards 1, 2, 88 **Earth Science Lab, Level B:** Cards 1, 2, 88

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD2 Students demonstrate an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth.
The student demonstrates an understanding of the forces that shape Earth by:
[6]SD2.3 describing how the surface can change rapidly as a result of geological activities (i.e., earthquakes, tsunamis, volcanoes, floods, landslides, avalanches).
Earth Science Lab, Level A: Cards 10, 11, 12, 13, 14, 15, 16, 17, 22, 24, 25, 26, 27, 28, 88 **Earth Science Lab, Level B:** Cards 10, 11, 12, 13, 14, 15, 16, 17, 22, 24, 25, 26, 27, 28, 88 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD3 Students demonstrate an understanding of the cyclical changes controlled by energy from the sun and by Earth's position and motion in our solar system.
The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by:
[6]SD3.1 connecting the water cycle to weather phenomena.
Earth Science Lab, Level A: Cards 43, 44, 45, 46, 47, 48, 49, 52, 53, 54 **Earth Science Lab, Level B:** Cards 43, 44, 45, 46, 47, 48, 49, 52, 53, 54 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 6, *Modeling a Tornado*, pages 93-95

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD3 Students demonstrate an understanding of the cyclical changes controlled by energy from the sun and by Earth's position and motion in our solar system.
The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by:
[6]SD3.2 identifying that energy transfer is affected by surface conditions (e.g., snow cover, asphalt, vegetation) and that this affects weather.
Earth Science Lab, Level A: Cards 56, 57, 58, 59, 60, 61 **Earth Science Lab, Level B:** Cards 56, 57, 58, 59, 60, 61

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD4 Students demonstrate an understanding of the theories regarding the evolution of the universe.
The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by:
[6]SD4.1 contrasting characteristics of planets and stars (i.e., light reflecting, light emitting, orbiting, orbited, composition).
Earth Science Lab, Level A: Cards 67, 69, 70, 71, 72, 75, 76 **Earth Science Lab, Level B:** Cards 67, 69, 70, 71, 72, 75, 76

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD4 Students demonstrate an understanding of the theories regarding the evolution of the universe.
The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by:
[6]SD4.2 defining a light year.
Earth Science Lab, Level A: Card 74 **Earth Science Lab, Level B:** Card 74

E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE1 Students develop an understanding of how scientific knowledge and technology are used in making decisions about issues, innovations, and responses to problems and everyday events.
The student demonstrates an understanding of how to integrate scientific knowledge and technology to address problems by:
[6]SE1.1 recognizing that technology cannot always provide successful solutions for problems or fulfill every human need.
Life Science Lab, Level A: Cards 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 87, 88, 89, 90 **Earth Science Lab, Level A:** Cards 37, 42, 59, 60, 61, 86 **Earth Science Lab, Level B:** Cards 37, 42, 59, 60, 61, 86 **Physical Science Lab, Level A:** Cards 38, 49 **Physical Science Lab, Level B:** Cards 38, 49

E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE2 Students develop an understanding that solving problems involves different ways of thinking, perspectives, and curiosity that lead to the exploration of multiple paths that are analyzed using scientific, technological, and social merits.
The student demonstrates an understanding that solving problems involves different ways of thinking by:
[6]SE2.1 identifying and designing a solution to a problem.
This concept is not covered at this level.

E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE2 Students develop an understanding that solving problems involves different ways of thinking, perspectives, and curiosity that lead to the exploration of multiple paths that are analyzed using scientific, technological, and social merits.
The student demonstrates an understanding that solving problems involves different ways of thinking by:
[6]SE2.2 comparing the student's work to that of peers in order to identify multiple paths that can be used to investigate a question or problem. (L)
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E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE3 Students develop an understanding of how scientific discoveries and technological innovations affect and are affected by our lives and cultures.
The student demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society by:
[6]SE3.1 describing the various effects of an innovation on a global level.
Life Science Lab, Level A: Cards 5, 49, 59, 64, 69 **Life Science Lab, Level B:** Cards 5, 49, 59, 64, 69 **Earth Science Lab, Level A:** Cards 16, 20, 31, 37, 51, 54, 70, 79, 80, 81 **Earth Science Lab, Level B:** Cards 16, 20, 31, 37, 51, 54, 70, 79, 80, 81 **Physical Science Lab, Level A:** Cards 33, 35, 70, 72, 73, 76, 81, 84, 90 **Physical Science Lab, Level B:** Cards 33, 35, 70, 72, 73, 76, 81, 84, 90

F1—Cultural, Social, Personal Perspectives, and Science
SF Students develop an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives.
SF1 Students develop an understanding of the interrelationships among individuals, cultures, societies, science, and technology.
The student demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives by:
[6] SF1.1-SF3.1 telling a local or tradition story that explains a natural event (e.g., animal adaptation, weather, rapid changes to Earth's surface) and relating it to a scientific explanation. (L)
This concept is not covered at this level.

G1—History and Nature of Science
SG Students develop an understanding that historical perspectives of scientific explanations demonstrate that scientific knowledge changes over time, building on prior knowledge.
SG2 Students develop an understanding that the advancement of scientific knowledge embraces innovation and requires empirical evidence, repeatable investigations, logical arguments, and critical review in striving for the best possible explanations of the natural world.
The student demonstrates an understanding of the bases of the advancement of scientific knowledge by:
[6] SG2.1 recognizing differences in results of repeated experiments.
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[7] SA1.1 asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

A1—Science as Inquiry and Process
SA: Students develop an understanding of the processes and applications of scientific inquiry.
SA1. Students develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments.
The student develops an understanding of the processes of science by:
[7] SA1.2 collaborating to design and conduct simple repeatable investigations, in order to record, analyze (i.e., range, mean, median, mode), interpret data, and present findings. (L)
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

A1—Science as Inquiry and Process
SA: Students develop an understanding of the processes and applications of scientific inquiry.
SA2. Students develop an understanding that the processes of science require integrity, logical reasoning, skepticism, openness, communication, and peer review.
The student demonstrates an understanding of the attitudes and approaches to scientific inquiry by:
[7] SA2.1 identifying and evaluating the sources used to support scientific statements.
Classroom Resource CD-ROM: Writing Strategy 9, 25

A1—Science as Inquiry and Process
SA: Students develop an understanding of the processes and applications of scientific inquiry.
SA3. Students develop an understanding that culture, local knowledge, history, and interaction with the environment contribute to the development of scientific knowledge, and that local applications provide opportunity for understanding scientific concepts and global issues.
The student demonstrates an understanding that interactions with the environment provide an opportunity for understanding scientific concepts by:
[7]SA3.1 designing and conducting a simple investigation about the local environment. (L)
Life Science Lab Teacher's Handbook: Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain*, pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale*, pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map*, pages 81-83; Hands-On Activity 4, *Using Sound Waves*, pages 85-87; Hands-On Activity 5, *What is in the Air?*, pages 89-91; Hands-On Activity 8, *Temperature, Salinity, and Water Density*, pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 3, *Energy Conversion*, pages 85-87

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB1 Students develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior.
The student demonstrates an understanding of the structure and properties of matter by:
[7] SB1.1 using physical properties (i.e., density, boiling point, freezing point, conductivity) to differentiate among and/or separate materials (i.e., elements, compounds, and mixtures).
Physical Science Lab, Level A: Cards 1, 2, 6, 10, 11, 12, 13, 14, 15, 16, 42 **Physical Science Lab, Level B:** Cards 1, 2, 6, 10, 11, 12, 13, 14, 15, 16, 42 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases*, pages 77-79

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB2. Students develop an understanding that energy appears in different forms, can be transformed from one form to another, can be transferred or moved from one place or system to another, may be unavailable for use, and is ultimately conserved.
The student demonstrates am understanding of how energy can be transformed, transferred, and conserved by:
[7] SB2.1 explaining that energy (i.e., heat, light, chemical, electrical, mechanical) can change form.
Physical Science Lab, Level A: Cards 34, 36, 37, 39, 40, 41, 42, 45, 46, 47, 48, 49, 66, 67, 70, 76, 77, 78, 79, 80, 82, 83 **Physical Science Lab, Level B:** Cards 34, 36, 37, 39, 40, 41, 42, 45, 46, 47, 48, 49, 66, 67, 70, 76, 77, 78, 79, 80, 82, 83 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 3, *Energy Conversion*, pages 85-87; Hands-On Activity 5, *Making a Potato Battery*, pages 93-95; Hands-On Activity 6, *Making Sound*, pages 97-99

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB3 Students develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems.
The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by:
[7] SB3.1 recognizing that most substances can exist as a solid, liquid, or gas depending on the motion of its particles.
Physical Science Lab, Level A: Cards 5, 6, 7, 8, 42 **Physical Science Lab, Level B:** Cards 5, 6, 7, 8, 42

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB4 Students develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects.
The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by:
[7] SB4.1 illustrating that unbalanced forces will cause an object to accelerate.
Physical Science Lab, Level A: Cards 54, 55, 56, 57, 58, 59 **Physical Science Lab, Level B:** Cards 54, 55, 56, 57, 58, 59 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 4, *Reducing Friction*, pages 89-91

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB4 Students develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects.
The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by:
[7] SB4.2 recognizing that electric current and magnets can exert a force on each other.
Physical Science Lab, Level A: Cards 66, 67, 74, 75, 76 **Physical Science Lab, Level B:** Cards 66, 67, 74, 75, 76

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB4 Students develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects.
The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by:
[7] SB4.3 describing the characteristics of a wave (i.e., amplitude, wavelength, and frequency).
Physical Science Lab, Level A: Cards 77, 78, 79, 80, 82, 83 **Physical Science Lab, Level B:** Cards 77, 78, 79, 80, 82, 83 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 6, *Making Sound*, pages 97-99

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB1 Students develop an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection, and biological evolution.
The student demonstrates an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution.
[7] SC1.1 comparing and contrasting asexual and sexual reproduction.
Life Science Lab, Level A: Cards 58, 60, 61 **Life Science Lab, Level B:** Cards 58, 60, 61

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB1 Students develop an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection, and biological evolution.
The student demonstrates an understanding of how science explain changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution.
[7] SC1.2 describing possible outcomes of mutations (i.e., no change, damage, benefit).
Life Science Lab, Level A: Cards 64, 65, 66 **Life Science Lab, Level B:** Cards 64, 65, 66

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB2 Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.
The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:
[7] SC2.1 describing the basic structure and function of plant and animal cells.
Life Science Lab, Level A: Cards 6, 7, 8, 9 **Life Science Lab, Level B:** Cards 6, 7, 8, 9 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells,* pages 77-79

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB2 Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.
The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:
[7] SC2.2 identifying the seven levels of classification of organisms.
Life Science Lab, Level A: Cards 2, 3, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab, Level B:** Cards 2, 3, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab Teacher's Handbook:** Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB2 Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.
The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:
[7] SC2.3 identifying and describing the functions of human organs (i.e., heart, lungs, brain).
Life Science Lab, Level A: Cards 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab, Level B:** Cards 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab Teacher's Handbook:** Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB3 Students develop an understanding that all organisms are linked to each other and their physical environments through the transfer of matter and energy.
The student demonstrates an understanding that all organisms are linked to each other and they physical environments through the transfer and transformation of matter and energy by:
[7] SC3.1 recognizing and explaining that organisms can cause physical and chemical changes (e.g., digestion, growth, respiration, photosynthesis) to matter and recognizing and explaining the importance of energy transfer in these changes.
Life Science Lab, Level A: Cards 1, 7, 9, 13, 16, 17, 45, 46, 50, 51, 76, 77 **Life Science Lab, Level B:** Cards 1, 7, 9, 13, 16, 17, 45, 46, 50, 51, 76, 77 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?*, pages 97-99

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB3 Students develop an understanding that all organisms are linked to each other and their physical environments through the transfer of matter and energy.
The student demonstrates an understanding that all organisms are linked to each other and they physical environments through the transfer and transformation of matter and energy by:
[7] SC3.2 classifying organisms within a food web as producers, consumers, or decomposers.
Life Science Lab, Level A: Cards 13, 16, 17, 76, 77 **Life Science Lab, Level B:** Cards 13, 16, 17, 76, 77

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD1 Students demonstrate an understanding of Earth's geochemical cycles.
The student demonstrates an understanding of geochemical cycles by:
[7]SD1.1 describing the rock cycle and its relationship to igneous, metamorphic, and sedimentary rocks. (L)
Earth Science Lab, Level A: Cards 6, 7, 8, 9 **Earth Science Lab, Level B:** Cards 6, 7, 8, 9

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD1 Students demonstrate an understanding of Earth's geochemical cycles.
The student demonstrates an understanding of geochemical cycles by:
[7]SD1.2 explaining the water cycle's connection to changes in the Earth's surface.
Life Science Lab, Level A: Card 87 **Life Science Lab, Level B:** Card 87 **Earth Science Lab, Level A:** Cards 22, 24, 25, 26, 27, 28 **Earth Science Lab, Level B:** Cards 22, 24, 25, 26, 27, 28

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD2 Students demonstrate an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth.
The student demonstrates an understanding of the forces that shape Earth by:
[7]SD2.1 identifying strategies (e.g., reforestation, dikes, wind breaks, off road activity guidelines) for minimizing erosion.
Life Science Lab, Level A: Cards 85, 87, 88 **Life Science Lab, Level B:** Cards 85, 87, 88 **Earth Science Lab, Level A:** Card 29 **Earth Science Lab, Level B:** Card 29

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD2 Students demonstrate an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth.
The student demonstrates an understanding of the forces that shape Earth by:
[7]SD2.2 describing how the movement of the tectonic plates results in both slow changes (formation of mountains, ocean floors, and basins) and short-term events (e.g., volcanic eruptions, seismic waves, and earthquakes on the surface.
Earth Science Lab, Level A: Cards 2, 10, 11, 12, 13, 14, 15, 16, 17, 88 **Earth Science Lab, Level B:** Cards 2, 10, 11, 12, 13, 14, 15, 16, 17, 88 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD3 Students demonstrate an understanding of the cyclical changes controlled by energy from the sun and by Earth's position and motion in our solar system.
The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by:
[7]SD3.1 describing the weather using accepted meteorological terms (e.g., pressure systems, fronts, precipitation).
Earth Science Lab, Level A: Cards 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54 **Earth Science Lab, Level B:** Cards 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 6, *Modeling a Tornado*, pages 93-95

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD3 Students demonstrate an understanding of the cyclical changes controlled by energy from the sun and by Earth's position and motion in our solar system.
The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by:
[7]SD3.2 recognizing the relationship between phase changes (i.e., sublimation, condensation, evaporation) and energy transfer.
Earth Science Lab, Level A: Cards 38, 47, 48, 49 **Earth Science Lab, Level B:** Cards 38, 47, 48, 49

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD4 Students demonstrate an understanding of the theories regarding the evolution of the universe.
The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by:
[7]SD4.1 comparing and contrasting characteristics of planets and stars (i.e., light reflecting, light emitting, orbiting, orbited, composition).
Earth Science Lab, Level A: Cards 67, 69, 70, 71, 72, 75, 76 **Earth Science Lab, Level B:** Cards 67, 69, 70, 71, 72, 75, 76

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD4 Students demonstrate an understanding of the theories regarding the evolution of the universe.
The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by:
[7]SD4.2 using light-years to describe distances between objects in the universe.
Earth Science Lab, Level A: Card 74 **Earth Science Lab, Level B:** Card 74

E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE1 Students develop an understanding of how scientific knowledge and technology are used in making decisions about issues, innovations, and responses to problems and everyday events.
The student demonstrates an understanding of how to integrate scientific knowledge and technology to address problems by:
[7]SE1.1 describing how public policy affects the student's life (e.g., public waste disposal).
Life Science Lab, Level A: Cards 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 87, 88, 89, 90 **Earth Science Lab, Level A:** Cards 37, 42, 59, 60, 61, 86 **Earth Science Lab, Level B:** Cards 37, 42, 59, 60, 61, 86

E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE2 Students develop an understanding that solving problems involves different ways of thinking, perspectives, and curiosity that lead to the exploration of multiple paths that are analyzed using scientific, technological, and social merits.
The student demonstrates an understanding that solving problems involves different ways of thinking by:
[7]SE2.1 identifying, designing, testing, and revising solutions to a local problem. (L)
Life Science Lab, Level A: Cards 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 85, 86, 87, 88, 89, 90 **Life Science Lab Teacher's Handbook:** Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab, Level A:** Cards 37, 52, 59, 60, 61, 86 **Earth Science Lab, Level B:** Cards 37, 42, 59, 60, 62, 86 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?,* pages 89-91

E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE2 Students develop an understanding that solving problems involves different ways of thinking, perspectives, and curiosity that lead to the exploration of multiple paths that are analyzed using scientific, technological, and social merits.
The student demonstrates an understanding that solving problems involves different ways of thinking by:
[7]SE2.2 comparing the student's work to that of peers in order to identify multiple paths that can be used to investigate a question or problem. (L)
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE3 Students develop an understanding of how scientific discoveries and technological innovations affect and are affected by our lives and cultures.
The student demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society by:
[7]SE3.1 recognizing the effects of a past scientific discovery, invention, or scientific breakthrough (e.g., DDT, internal combustion engine).
Life Science Lab, Level A: Cards 5, 49, 59, 64, 69, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 5, 49, 59, 64, 69, 87, 88, 89, 90 **Earth Science Lab, Level A:** Cards 16, 20, 31, 37, 42, 51, 54, 79, 80, 81, 88 **Earth Science Lab, Level B:** Cards 16, 20, 31, 37, 42, 51, 54, 79, 80, 81, 88 **Physical Science Lab, Level A:** Cards 33, 35, 70, 72, 73, 76, 81, 84, 90 **Physical Science Lab, Level B:** Cards 33, 35, 70, 72, 73, 76, 81, 84, 90

F1—Cultural, Social, Personal Perspectives, and Science
SF Students develop an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives.
SF1 Students develop an understanding of the interrelationships among individuals, cultures, societies, science, and technology.
The student demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives by:
[7] SF1.1-SF3.1 investigating the basis of knowledge (e.g., describing and predicting weather) and sharing that information. (L)
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

G1—History and Nature of Science
SG Students develop an understanding that historical perspectives of scientific explanations demonstrate that scientific knowledge changes over time, building on prior knowledge.
SG2 Students develop an understanding that the advancement of scientific knowledge embraces innovation and requires empirical evidence, repeatable investigations, logical arguments, and critical review in striving for the best possible explanations of the natural world.
The student demonstrates an understanding of the bases of the advancement of scientific knowledge by:
[7] SG2.1 explaining differences in results of repeated experiments.
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

G1—History and Nature of Science
SG Students develop an understanding that historical perspectives of scientific explanations demonstrate that scientific knowledge changes over time, building on prior knowledge.
SG3 Students develop an understanding that scientific knowledge is ongoing and subject to change as new evidence becomes available through experimental and/or observational confirmation(s).
The student demonstrates an understanding that scientific knowledge is ongoing and subject to change by:
[7] SG3.1 revising a personal idea when presented with experimental/observational data inconsistent with that personal idea (e.g., the rates of falling bodies of different masses). (L)
This concept is not covered at this level.

SRA Life, Earth, and Physical Science Laboratories
correlation to
Alaska Science Performance Standards
Grade 8

SRA Life, Earth, and Physical Science Laboratories provide core science content in an alternate reading format. Each *SRA Science Lab* contains 180 Science Cards covering key science concepts and vocabulary. Each lab covers 90 different science topics presented at two different reading levels to meet varied student abilities. The *Teacher's Handbook* includes hands-on inquiry activities as well as vocabulary building exercises. The *Classroom Resource CD-ROM* includes Writing Strategies in Science along with tests and vocabulary games.

A1—Science as Inquiry and Process
SA: Students develop an understanding of the processes and applications of scientific inquiry.
SA1. Students develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments.
The student develops an understanding of the processes of science by:
[8] SA1.1 asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

A1—Science as Inquiry and Process
SA: Students develop an understanding of the processes and applications of scientific inquiry.
SA1. Students develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments.
The student develops an understanding of the processes of science by:
[8] SA1.2 collaborating to design and conduct simple repeatable investigations, in order to record, analyze (i.e., range, mean, median, mode), interpret data, and present findings. (L)
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

A1—Science as Inquiry and Process
SA: Students develop an understanding of the processes and applications of scientific inquiry.
SA2. Students develop an understanding that the processes of science require integrity, logical reasoning, skepticism, openness, communication, and peer review.
The student demonstrates an understanding of the attitudes and approaches to scientific inquiry by:
[8] SA2.1 recognizing and analyzing differing scientific explanations and models.
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

A1—Science as Inquiry and Process
SA: Students develop an understanding of the processes and applications of scientific inquiry.
SA3. Students develop an understanding that culture, local knowledge, history, and interaction with the environment contribute to the development of scientific knowledge, and that local applications provide opportunity for understanding scientific concepts and global issues.
The student demonstrates an understanding that interactions with the environment provide an opportunity for understanding scientific concepts by:
[8]SA3.1 conducting research to learn how the local environment is used by a variety of competing interests (e.g., competition for habitat/resources, tourism, oil and mining companies, hunting groups). (L)
Classroom Resource CD-ROM: Writing Strategy 9, 25

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB1 Students develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior.
The student demonstrates an understanding of the structure and properties of matter by:
[8] SB1.1 using physical and chemical properties (i.e., density, boiling point, freezing point, conductivity, flammability) to differentiate among materials (i.e., elements, compounds, and mixtures).
Physical Science Lab, Level A: Cards 1, 2, 6, 10, 11, 12, 13, 14, 15, 16, 42 **Physical Science Lab, Level B:** Cards 1, 2, 6, 10, 11, 12, 13, 14, 15, 16, 42 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB2. Students develop an understanding that energy appears in different forms, can be transformed from one form to another, can be transferred or moved from one place or system to another, may be unavailable for use, and is ultimately conserved.
The student demonstrates am understanding of how energy can be transformed, transferred, and conserved by:
[8] SB2.1 identifying the initial source and resulting change in forms of energy in common phenomena (e.g., sun to tree to wood to stove to cabin heat).
Life Science Lab, Level A: Cards 7, 9, 16, 17 **Life Science Lab, Level B:** Cards 7, 9, 16, 17 **Physical Science Lab, Level A:** Cards 34, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 66, 67, 70, 76, 77, 78, 79, 80, 82, 83 **Physical Science Lab, Level B:** Cards 34, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 66, 67, 70, 76, 77, 78, 79, 80, 82, 83 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 3, *Energy Conversion*, pages 85-87; Hands-On Activity 5, *Making a Potato Battery*, pages 93-95; Hands-On Activity 6, *Making Sound*, pages 97-99

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB3 Students develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems.
The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by:
[8] SB3.1 exploring changes in state with increase or decrease of particle speed associated with heat transfer. (L)
Physical Science Lab, Level A: Cards 5, 6, 7, 8, 42 **Physical Science Lab, Level B:** Cards 5, 6, 7, 8, 42

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB3 Students develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems.
The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by:
[8] SB3.2 exploring through a variety of models (e.g., gumdrops and toothpicks) how atoms may bond together into well defined molecules or bond together in large arrays. (L)
Physical Science Lab, Level A: Cards 21, 22, 23, 24, 25, 26, 31, 32 **Physical Science Lab, Level B:** Cards 21, 22, 23, 24, 25, 26, 31, 32

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB4 Students develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects.
The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by:
[8] SB4.1 demonstrating (L) and explaining circular motion.
Physical Science Lab, Level A: Card 59 **Physical Science Lab, Level B:** Card 59

B1—Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.
SB4 Students develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects.
The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by:
[8] SB4.2 describing the interactions between charges.
Physical Science Lab, Level A: Cards 66, 67 **Physical Science Lab, Level B:** Cards 66, 67

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB1 Students develop an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection, and biological evolution.
The student demonstrates an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution.
[8] SC1.1 describing the role of genes in sexual reproduction (i.e., traits of the offspring).
Life Science Lab, Level A: Cards 62, 63, 64 **Life Science Lab, Level B:** Cards 62, 63, 64

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB2 Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.
The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:
[8] SC2.1 placing vertebrates into correct classes of taxonomy based on external, observable features.
Life Science Lab, Level A: Cards 2, 3, 25, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab, Level B:** Cards 2, 3, 25, 34, 35, 36, 37, 38, 39, 40

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB2 Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.
The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:
[8] SC2.2 explaining that most organisms utilize inherited and learned behaviors to meet the basic requirements of life.
Life Science Lab, Level A: Cards 1, 23, 24, 26, 41, 43, 65, 66, 83 **Life Science Lab, Level B:** Cards 1, 23, 24, 36, 41, 43, 65, 66, 83

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB2 Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.
The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:
[8] SC2.3 describing the functions and interdependence of human body systems (i.e., circulatory, respiratory, nervous).
Life Science Lab, Level A: Cards 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab, Level B:** Cards 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab Teacher's Handbook:** Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB3 Students develop an understanding that all organisms are linked to each other and their physical environments through the transfer of matter and energy.
The student demonstrates an understanding that all organisms are linked to each other and they physical environments through the transfer and transformation of matter and energy by:
[8] SC3.1 stating that energy flows and that matter cycles but is conserved within an ecosystem.
Life Science Lab, Level A: Cards 13, 16, 17, 73, 74, 75, 76, 77, 78, 79 **Life Science Lab, Level B:** Cards 13, 16, 17, 73, 74, 75, 76, 77, 78, 79

C1—Concepts of Life Science
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.
SB3 Students develop an understanding that all organisms are linked to each other and their physical environments through the transfer of matter and energy.
The student demonstrates an understanding that all organisms are linked to each other and they physical environments through the transfer and transformation of matter and energy by:
[8] SC3.2 organizing a food web that shows the cycling of matter.
Life Science Lab, Level A: Cards 76, 77 **Life Science Lab, Level B:** Cards 76, 77 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?*, pages 97-99

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD1 Students demonstrate an understanding of Earth's geochemical cycles.
The student demonstrates an understanding of geochemical cycles by:
[8]SD1.1 making connections between components of the locally observable geologic environment and the rock cycle. (L)
Earth Science Lab, Level A: Cards 6, 7, 8, 9 **Earth Science Lab, Level B:** Cards 6, 7, 8, 9

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD1 Students demonstrate an understanding of Earth's geochemical cycles.
The student demonstrates an understanding of geochemical cycles by:
[8]SD1.2 applying knowledge of the water cycle to explain changes in the Earth's surface.
Life Science Lab, Level A: Card 87 **Life Science Lab, Level B:** Card 87 **Earth Science Lab, Level A:** Cards 22, 24, 25, 26, 27, 28 **Earth Science Lab, Level B:** Cards 22, 24, 25, 26, 27, 28

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD2 Students demonstrate an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth.
The student demonstrates an understanding of the forces that shape Earth by:
[8]SD2.1 interpreting topographical maps to identify features (i.e., rivers, lakes, mountains, valleys, islands, and tundra).
Earth Science Lab, Level A: Cards 18, 19, 20 **Earth Science Lab, Level B:** Cards 18, 19, 20 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 3, *Interpreting a Topographic Map*, pages 81-83;

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD2 Students demonstrate an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth.
The student demonstrates an understanding of the forces that shape Earth by:
[8]SD2.2 using models to show the relationship between convection currents within the mantle and the large-scale movement of the surface. (L)
Earth Science Lab, Level A: Cards 10, 11, 12, 13, 14, 15, 16, 17, 88 **Earth Science Lab, Level B:** Cards 10, 11, 12, 13, 14, 15, 16, 17, 88 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD3 Students demonstrate an understanding of the cyclical changes controlled by energy from the sun and by Earth's position and motion in our solar system.
The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by:
[8]SD3.1 recognizing the relationship between the seasons and Earth's tilt relative to the sun and describing the day/night cycle as caused by the rotation of the Earth every 224 hours.
Earth Science Lab, Level A: Cards 55, 62 **Earth Science Lab, Level B:** Cards 55, 62

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD3 Students demonstrate an understanding of the cyclical changes controlled by energy from the sun and by Earth's position and motion in our solar system.
The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by:
[8]SD3.2 recognizing types of energy transfer (convection, conduction, and radiation) and how they affect weather.
Earth Science Lab, Level A: Cards 38, 39, 40, 41, 45, 46, 47, 52, 53, 54, 57 **Earth Science Lab, Level B:** Cards 38, 39, 40, 41, 45, 46, 47, 52, 53, 54, 57 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 6, *Modeling a Tornado*, pages 93-95 **Physical Science Lab, Level A:** Cards 43, 44 **Physical Science Lab, Level B:** Cards 43, 44

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD4 Students demonstrate an understanding of the theories regarding the evolution of the universe.
The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by:
[8]SD4.1 creating models of the solar system illustrating size, location/position, composition, moon/rings, and conditions. (L)
Earth Science Lab, Level A: Cards 67, 68, 69, 70, 71, 72, 73, 74 **Earth Science Lab, Level B:** Cards 67, 68, 69, 70, 71, 72, 73, 74 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 7, *Sizes in the Solar System*, pages 97-99

D1—Concepts of Earth Science
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.
SD4 Students demonstrate an understanding of the theories regarding the evolution of the universe.
The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by:
[8]SD4.2 comparing the brightness of a star to its distance and size.
Earth Science Lab, Level A: Cards 75, 76 **Earth Science Lab, Level B:** Cards 75, 76

E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE1 Students develop an understanding of how scientific knowledge and technology are used in making decisions about issues, innovations, and responses to problems and everyday events.
The student demonstrates an understanding of how to integrate scientific knowledge and technology to address problems by:
[8]SE1.1 describing how public policy affects their lives and participating diplomatically in evidence-based discussions relating to their community. (L)
Life Science Lab, Level A: Cards 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 87, 88, 89, 90 **Earth Science Lab, Level A:** Cards 37, 42, 59, 60, 61, 86 **Earth Science Lab, Level B:** Cards 37, 42, 59, 60, 61, 86

E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE2 Students develop an understanding that solving problems involves different ways of thinking, perspectives, and curiosity that lead to the exploration of multiple paths that are analyzed using scientific, technological, and social merits.
The student demonstrates an understanding that solving problems involves different ways of thinking by:
[8]SE2.1 identifying, designing, testing, and revising solutions to a local problem. (L)
Life Science Lab, Level A: Cards 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 85, 86, 87, 88, 89, 90 **Life Science Lab Teacher's Handbook:** Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab, Level A:** Cards 37, 52, 59, 60, 61, 86 **Earth Science Lab, Level B:** Cards 37, 42, 59, 60, 62, 86 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?,* pages 89-91

E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE2 Students develop an understanding that solving problems involves different ways of thinking, perspectives, and curiosity that lead to the exploration of multiple paths that are analyzed using scientific, technological, and social merits.
The student demonstrates an understanding that solving problems involves different ways of thinking by:
[8]SE2.2 comparing the student's work to that of peers in order to identify multiple paths that can be used to investigate and evaluate potential solutions to a question or problem. (L)
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

E1—Science and Technology
SE Students develop an understanding of the relationships among science, technology, and society.
SE3 Students develop an understanding of how scientific discoveries and technological innovations affect and are affected by our lives and cultures.
The student demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society by:
[8]SE3.1 predicting the possible effects of a recent scientific discovery, invention, or scientific breakthrough. (L)
Life Science Lab, Level A: Cards 5, 49, 59, 64, 69, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 5, 49, 59, 64, 69, 87, 88, 89, 90 **Earth Science Lab, Level A:** Cards 16, 20, 31, 37, 42, 51, 54, 79, 80, 81, 88 **Earth Science Lab, Level B:** Cards 16, 20, 31, 37, 42, 51, 54, 79, 80, 81, 88 **Physical Science Lab, Level A:** Cards 33, 35, 70, 72, 73, 76, 81, 84, 90 **Physical Science Lab, Level B:** Cards 33, 35, 70, 72, 73, 76, 81, 84, 90

F1—Cultural, Social, Personal Perspectives, and Science
SF Students develop an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives.
SF1 Students develop an understanding of the interrelationships among individuals, cultures, societies, science, and technology.
The student demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives by:
[8] SF1.1-SF3.1 describing how local knowledge, culture, and the technologies of various activities (e.g., hunting, fishing, subsistence) influence the development of scientific knowledge. (L)
This concept is not covered at this level.

G1—History and Nature of Science
SG Students develop an understanding that historical perspectives of scientific explanations demonstrate that scientific knowledge changes over time, building on prior knowledge.
SG2 Students develop an understanding that the advancement of scientific knowledge embraces innovation and requires empirical evidence, repeatable investigations, logical arguments, and critical review in striving for the best possible explanations of the natural world.
The student demonstrates an understanding of the bases of the advancement of scientific knowledge by:
[8] SG2.1 describing how repeating experiments improves the likelihood of accurate results.
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

G1—History and Nature of Science
SG Students develop an understanding that historical perspectives of scientific explanations demonstrate that scientific knowledge changes over time, building on prior knowledge.
SG3 Students develop an understanding that scientific knowledge is ongoing and subject to change as new evidence becomes available through experimental and/or observational confirmation(s).
The student demonstrates an understanding that scientific knowledge is ongoing and subject to change by:
[8] SG3.1 revising a personal idea when presented with experimental/observational data inconsistent with that personal idea (e.g., the rates of falling bodies of different masses). (L)
This concept is not covered at this level.