

SRA Life, Earth, and Physical Science Laboratories
correlation to
Ohio Content Academic Standards: Science
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.

Earth and Space Sciences
Earth Systems
1. Describe the rock cycle and explain that there are sedimentary, igneous, and metamorphic rocks that have distinct properties (e.g., color, texture) and are formed in different ways.
Earth Science Lab, Level A: Cards 6, 7, 8, 9
Earth Science Lab, Level B: Cards 6, 7, 8, 9

Earth and Space Sciences
Earth Systems
2. Explain that rocks are made of one or more minerals.
Earth Science Lab, Level A: Cards 3, 4, 5, 6, 7, 8
Earth Science Lab, Level B: Cards 3, 4, 5, 6, 7, 8
Earth Science Lab Teacher's Handbook: Hands On Activity 1, <i>Identifying Minerals with the Mohs Scale</i> , pages 73-75

Earth and Space Sciences
Earth Systems
3. Identify minerals by their characteristic properties.
Earth Science Lab, Level A: Cards 3, 4, 5
Earth Science Lab, Level B: Cards 3, 4, 5
Earth Science Lab Teacher's Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i> , pages 73-75

Life Sciences
Characteristics and Structure of Life
1. Explain that many of the basic functions of organisms are carried out by or within cells and are similar in all organisms.
Life Science Lab, Level A: Cards 5, 6, 7, 8, 9, 10
Life Science Lab, Level B: Cards 5, 6, 7, 8, 9, 10
Life Science Lab Teacher's Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79

Life Sciences
Characteristics and Structure of Life
2. Explain that multicellular organisms have a variety of specialized cells, tissues, organs and organ systems that perform specialized functions.
Life Science Lab, Level A: Cards 6, 7, 8, 9, 16, 17, 18, 19, 21, 22, 25, 27, 31, 32, 34, 35, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58
Life Science Lab, Level B: Cards 6, 7, 8, 9, 16, 17, 18, 19, 21, 22, 25, 27, 31, 32, 34, 35, 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, <i>Examining Cells</i> , pages 77-79; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91

Life Sciences
Characteristics and Structure of Life
3. Identify how plant cells differ from animal cells (e.g., cell wall and chloroplasts).
Life Science Lab, Level A: Cards 6, 7 Life Science Lab, Level B: Cards 6, 7 Life Science Lab Teacher's Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79

Life Sciences
Heredity
4. Recognize that an individual organism does not live forever; therefore reproduction is necessary for the continuation of every species and traits are passed on to the next generation through reproduction.
Life Science Lab, Level A: Cards 1, 60, 61 Life Science Lab, Level B: Cards 1, 60, 61

Life Sciences
Heredity
5. Describe that in asexual reproduction all the inherited traits come from a single parent.
Life Science Lab, Level A: Card 60 Life Science Lab, Level B: Card 60

Life Sciences
Heredity
6. Describe that in sexual reproduction an egg and sperm unite and some traits come from each parent, so the offspring is never identical to either of its parents.
Life Science Lab, Level A: Cards 61, 62 Life Science Lab, Level B: Cards 61, 62

Life Sciences
Heredity
7. Recognize the likenesses between parents and offspring (e.g., eye color, flower color) are inherited. Other likenesses, such as table manners are learned.
Life Science Lab, Level A: Cards 61, 62, 63, 64 Life Science Lab, Level B: Cards 61, 62, 63, 64

Life Sciences
Diversity and Interdependence of Life
8. Describe how organisms may interact with one another.
Life Science Lab, Level A: Cards 71, 73, 74, 75, 76, 77 Life Science Lab, Level B: Cards 71, 73, 74, 75, 76, 77 Life Science Lab Teacher's Handbook: Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99

Physical Sciences
Nature of Matter
1. Explain that equal volumes of different substances usually have different masses.
Physical Science Lab, Level A: Card 2 Physical Science Lab, Level B: Card 2

Physical Sciences
Nature of Matter
2. Describe that in a chemical change new substances are formed with different properties than the original substance (e.g., rusting, burning).
Physical Science Lab, Level A: Cards 9, 27, 28, 29, 30 Physical Science Lab, Level B: Cards 9, 27, 28, 29, 30 Physical Science Lab Teacher's Handbook: Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83

Physical Sciences
Nature of Matter
3. Describe that in a physical change (e.g., state, shape and size) the chemical properties of a substance remain unchanged.
Physical Science Lab, Level A: Cards 6, 7, 8 Physical Science Lab, Level B: Cards 6, 7, 8

Physical Sciences
Nature of Matter
4. Describe that chemical and physical changes occur all around us (e.g., in the human body, cooking and industry).
Physical Science Lab, Level A: Cards 6, 8, 9, 27, 28, 29, 30 Physical Science Lab, Level B: Cards 6, 8, 9, 27, 28, 29, 30 Physical Science Lab Teacher's Handbook: Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83

Physical Sciences
Nature of Energy
5. Explain that the energy found in nonrenewable resources such as fossil fuels (e.g., oil, coal, and natural gas) originally came from the sun and may renew slowly over millions of years.
Life Science Lab, Level A: Card 84 Life Science Lab, Level B: Card 84 Earth Science Lab, Level A: Card 35 Earth Science Lab, Level B: Card 35 Physical Science Lab, Level A: Card 38 Physical Science Lab, Level B: Card 38

Physical Sciences
Nature of Energy
6. Explain that energy derived from renewable resources such as wind and water is assumed to be available indefinitely.
Physical Science Lab, Level A: Cards 42, 46, 47, 48, 49 Physical Science Lab, Level B: Cards 42, 46, 47, 48, 49

Physical Sciences
Nature of Energy
7. Describe how electric energy can be produced from a variety of sources (e.g., sun, wind and coal).
Physical Science Lab, Level A: Cards 46, 47, 48, 49
Physical Science Lab, Level B: Cards 46, 47, 48, 49

Physical Sciences
Nature of Energy
8. Describe how renewable and nonrenewable energy resources can be managed (e.g., fossil fuels, trees and water).
Life Science Lab, Level A: Cards 84, 89, 90
Life Science Lab, Level B: Cards 84, 89, 90
Earth Science Lab, Level A: Cards 35, 90
Earth Science Lab, Level B: Cards 35, 90
Physical Science Lab, Level A: Cards 34, 46, 47, 48, 49
Physical Science Lab, Level B: Cards 34, 46, 47, 48, 49

Science and Technology
Understanding Technology
1. Explain how technology influences the quality of life.
Life Science Lab, Level A: Cards 49, 59, 64, 69, 83, 87, 88, 89, 90
Life Science Lab, Level B: Cards 49, 59, 64, 69, 83, 87, 88, 89, 90
Life Science Lab Teacher’s Handbook: Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab, Level A: Cards 16, 20, 31, 37, 51, 54, 79, 80, 81, 88
Earth Science Lab, Level B: Cards 16, 20, 31, 37, 51, 54, 79, 80, 81, 88
Physical Science Lab, Level A: Cards 33, 35, 76, 81, 84, 90
Physical Science Lab, Level B: Cards 33, 35, 76, 81, 84, 90

Science and Technology
Understanding Technology
2. Explain how decisions about the use of products and systems can result in desirable or undesirable consequences (e.g., social and environmental).
Life Science Lab, Level A: Cards 83, 84, 87, 88, 89, 90
Life Science Lab, Level B: Cards 83, 84, 87, 88, 89, 90
Life Science Lab Teacher’s Handbook: Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab, Level A: Cards 20, 31, 37, 42, 51, 54, 59, 60, 61, 79, 80, 81, 86, 88
Earth Science Lab, Level B: Cards 20, 31, 37, 42, 51, 54, 59, 60, 61, 79, 80, 81, 86, 88
Earth Science Lab Teacher’s Handbook: Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91
Physical Science Lab, Level A: Cards 33, 35, 71, 72, 81, 84, 90
Physical Science Lab, Level B: Cards 33, 35, 71, 72, 81, 84, 90

Science and Technology
Understanding Technology
3. Describe how automation (e.g., robots) has changed manufacturing including manual labor being replaced by highly-skilled jobs.
This concept is not covered at this level.

Science and Technology
Understanding Technology
4. Explain how the usefulness of manufactured parts of an object depend on how well their properties allow them to fit and interact with other materials.
Physical Science Lab, Level A: Card 35 Physical Science Lab, Level B: Card 35

Science and Technology
Abilities to Do Technological Design
5. Design and build a product or create a solution to a problem given one constraint (e.g., limits of cost and time for design and production, supply of materials and environmental effects).
This concept is not covered at this level.

Scientific Inquiry
Doing Scientific Inquiry
1. Explain that there are not fixed procedures for guiding scientific investigations; however, the nature of an investigation determines the procedures needed.
Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 5, <i>Making Fossils</i> , pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i> , pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i> , pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i> , pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i> , pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i> , pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i> , pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i> , pages 101-103
Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i> , pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i> , pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i> , pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i> , pages 93-95; Hands-On Activity 6, <i>Making Sound</i> , pages 97-99
Classroom Resource CD-ROM: Writing Strategy 11, 15

Scientific Inquiry
Doing Scientific Inquiry
2. Choose the appropriate tools or instruments and use relevant safety procedures to complete scientific investigations.
Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 5, <i>Making Fossils</i> , pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i> , pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i> , pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i> , pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i> , pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i> , pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i> , pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i> , pages 101-103
Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i> , pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i> , pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i> , pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i> , pages 93-95; Hands-On Activity 6, <i>Making Sound</i> , pages 97-99

Scientific Inquiry
Doing Scientific Inquiry
3. Distinguish between observation and inference.
<p>Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i>, pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i>, pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i>, pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i>, pages 89-91; Hands-On Activity 5, <i>Making Fossils</i>, pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i>, pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i>, pages 101-103</p> <p>Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i>, pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i>, pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i>, pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i>, pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i>, pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i>, pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i>, pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i>, pages 101-103</p> <p>Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i>, pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i>, pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i>, pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i>, pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i>, pages 93-95; Hands-On Activity 6, <i>Making Sound</i>, pages 97-99</p> <p>Classroom Resource CD-ROM: Writing Strategy 11, 17</p>

Scientific Inquiry
Doing Scientific Inquiry
4. Explain that a single example can never prove that something is always correct, but sometimes a single example can disprove something.
<p>Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i>, pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i>, pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i>, pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i>, pages 89-91; Hands-On Activity 5, <i>Making Fossils</i>, pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i>, pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i>, pages 101-103</p> <p>Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i>, pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i>, pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i>, pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i>, pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i>, pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i>, pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i>, pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i>, pages 101-103</p> <p>Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i>, pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i>, pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i>, pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i>, pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i>, pages 93-95; Hands-On Activity 6, <i>Making Sound</i>, pages 97-99</p>

Scientific Ways of Knowing
Nature of Science
1. Identify that hypotheses are valuable even when they are not supported.
<p>Life Science Lab Teacher’s Handbook: Hands-On Activity 3, <i>Investigating Arthropods</i>, pages 85-87</p> <p>Physical Science Lab Teacher’s Handbook: Hands-On Activity 2, <i>Chemical Reaction Rates</i>, pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i>, pages 85-87</p> <p>Classroom Resource CD-ROM: Writing Strategy 8, 15</p>

Scientific Ways of Knowing
Ethical Practices
2. Describe why it is important to keep clear, thorough and accurate records.
Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 5, <i>Making Fossils</i> , pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i> , pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i> , pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i> , pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i> , pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i> , pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i> , pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i> , pages 101-103
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Scientific Ways of Knowing
Science and Society
3. Identify ways scientific thinking is helpful in a variety of everyday settings.
Classroom Resource CD-ROM: Writing Strategy 1-30

Scientific Ways of Knowing
Science and Society
4. Describe how the pursuit of scientific knowledge is beneficial for any career and for daily life.
This concept is not covered at this level.

Scientific Ways of Knowing
Science and Society
5. Research how men and women of all countries and cultures have contributed to the development of science.
Life Science Lab, Level A: Cards 2, 5, 46, 59 Life Science Lab, Level B: Cards 2, 5, 46, 59
Earth Science Lab, Level A: Cards 10, 68, 72, 78 Earth Science Lab, Level B: Cards 10, 68, 72, 78
Physical Science Lab, Level A: Cards 3, 7, 17, 55 Physical Science Lab, Level B: Cards 3, 7, 17, 55

SRA Life, Earth, and Physical Science Laboratories
correlation to
Ohio Content Academic Standards: Science
Grade 7

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.

Earth and Space Sciences
Earth Systems
1. Explain the biogeochemical cycles which move materials between the lithosphere (land), hydrosphere (water) and atmosphere (air).
Life Science Lab, Level A: Cards 78, 79 Life Science Lab, Level B: Cards 78, 79
Earth Science Lab, Level A: Card 47 Earth Science Lab, Level B: Card 47

Earth and Space Sciences
Earth Systems
2. Explain that Earth's capacity to absorb and recycle materials naturally (e.g., smoke, smog and sewage) can change the environmental quality depending on the length of time involved (e.g., global warming).
Life Science Lab, Level A: Cards 87, 88, 89, 90 Life Science Lab, Level B: Cards 87, 88, 89, 90 Life Science Lab Teacher's Handbook: Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab, Level A: Cards 37, 42, 59, 60, 61, 86 Earth Science Lab, Level B: Cards 37, 42, 59, 60, 61, 86 Earth Science Lab Teacher's Handbook: Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91

Earth and Space Sciences
Earth Systems
3. Describe the water cycle and explain the transfer of energy between the atmosphere and hydrosphere.
Earth Science Lab, Level A: Cards 45, 46, 47, 48, 49, 52, 53, 54, 87 Earth Science Lab, Level B: Cards 45, 46, 47, 48, 49, 52, 53, 54, 87 Earth Science Lab Teacher's Handbook: Hands-On Activity 6, <i>Modeling a Tornado</i> , pages 93-95

Earth and Space Sciences
Earth Systems
4. Analyze data on the availability of fresh water that is essential for life and for most industrial and agricultural processes. Describe how rivers, lakes and groundwater can be depleted or polluted becoming less hospitable to life and even becoming unavailable or unsuitable for life.
Earth Science Lab, Level A: Cards 82, 83, 84, 85, 86 Earth Science Lab, Level B: Cards 82, 83, 84, 85, 86

Earth and Space Sciences
Earth Systems
5. Make simple weather predictions based on the changing cloud types associated with frontal systems.
Earth Science Lab, Level A: Cards 45, 46, 48, 49, 50, 51
Earth Science Lab, Level B: Cards 45, 46, 48, 49, 50, 51

Earth and Space Sciences
Earth Systems
6. Determine how weather observations and measurements are combined to produce weather maps and that data for a specific location at one point in time can be displayed in a station model.
Earth Science Lab, Level A: Cards 50, 51
Earth Science Lab, Level B: Cards 50, 51

Earth and Space Sciences
Earth Systems
7. Read a weather map to interpret local, regional and national weather.
Earth Science Lab, Level A: Cards 50, 51, 56, 57, 58
Earth Science Lab, Level B: Cards 50, 51, 56, 57, 58

Earth and Space Sciences
Earth Systems
8. Describe how temperature and precipitation determine climatic zones (biomes) (e.g., desert, grasslands, forests, tundra and alpine).
Life Science Lab, Level A: Card 81
Life Science Lab, Level B: Card 81
Earth Science Lab, Level A: Cards 55, 56, 57, 58
Earth Science Lab, Level B: Cards 55, 56, 57, 58

Earth and Space Sciences
Earth Systems
9. Describe the connection between the water cycle and weather-related phenomena (e.g., tornadoes, floods, droughts and hurricanes).
Earth Science Lab, Level A: Cards 47, 52, 53, 54, 56
Earth Science Lab, Level B: Cards 47, 52, 53, 54, 56

Life Sciences
Characteristics and Structure of Life
1. Investigate the great variety of body plans and internal structures found in multicellular organisms.
Life Science Lab, Level A: Cards 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41
Life Science Lab, Level B: Cards 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41
Life Science Lab Teacher's Handbook: Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87

Life Sciences
Diversity and Interdependence of Life
2. Investigate how organisms or populations may interact with one another through symbiotic relationships and how some species have become so adapted to each other that neither could survive without the other (e.g., predator-prey, parasitism, mutualism, and commensalisms).
Earth Science Lab, Level A: Cards 73, 74, 75, 76, 77
Earth Science Lab, Level B: Cards 73, 74, 75, 76, 77

Life Sciences
Diversity and Interdependence of Life
3. Explain how the number of organisms an ecosystem can support depends on adequate biotic (living) resources (e.g., plants, animals) and abiotic (non-living) resources (e.g., light, water and soil).
Life Science Lab, Level A: Cards 70, 71, 72, 86, 87, 88, 89, 90
Life Science Lab, Level B: Cards 70, 71, 72, 86, 87, 88, 89, 90

Life Sciences
Diversity and Interdependence of Life
4. Investigate how overpopulation impacts an ecosystem.
Life Science Lab, Level A: Cards 72, 86
Life Science Lab, Level B: Cards 72, 86

Life Sciences
Diversity and Interdependence of Life
5. Explain that some environmental changes occur slowly while others occur rapidly (e.g., forest and pond succession, fires and decomposition).
Life Science Lab, Level A: Cards 67, 80, 84, 85, 86, 87, 88, 89, 90
Life Science Lab, Level B: Cards 67, 80, 84, 85, 86, 87, 88, 89, 90
Earth Science Lab, Level A: Cards 59, 60, 61
Earth Science Lab, Level B: Cards 59, 60, 61

Life Sciences
Diversity and Interdependence of Life
6. Summarize the ways that natural occurrences and human activity affect the transfer of energy in Earth’s ecosystems (e.g., fire, hurricanes, roads, and oil spills).
Life Science Lab, Level A: Cards 84, 86, 87, 88, 89, 90
Life Science Lab, Level B: Cards 84, 86, 87, 88, 89, 90
Life Science Lab Teacher’s Handbook: Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab, Level A: Cards 15, 17, 37, 42, 52, 53, 54, 59, 60, 61, 86
Earth Science Lab, Level B: Cards 15, 17, 37, 42, 52, 53, 54, 59, 60, 61, 86
Earth Science Lab Teacher’s Handbook: Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91

Life Sciences
Diversity and Interdependence of Life
7. Explain that photosynthetic cells convert solar energy into chemical energy that is used to carry out life functions or is transferred to consumers and used to carry out their life functions.
Life Science Lab, Level A: Cards 7, 16, 17, 76
Life Science Lab, Level B: Cards 7, 16, 17, 76
Earth Science Lab, Level A: Card 89
Earth Science Lab, Level B: Card 89

Life Sciences
Evolutionary Theory
8. Investigate the great diversity among organisms.
Life Science Lab, Level A: Cards 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 86
Life Science Lab, Level B: Cards 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 86

Physical Sciences
Nature of Matter
1. Investigate how matter can change forms but the total amount of matter remains constant.
Physical Science Lab, Level A: Cards 5, 6, 7, 8, 9
Physical Science Lab, Level B: Cards 5, 6, 7, 8, 9

Physical Sciences
Nature of Energy
2. Describe how an object can have potential energy due to the position or chemical composition and can have kinetic energy due to its motion.
Physical Science Lab, Level A: Cards 36, 37, 39, 40, 41, 42
Physical Science Lab, Level B: Cards 36, 37, 39, 40, 41, 42

Physical Sciences
Nature of Energy
3. Identify different forms of energy (e.g., electrical, mechanical, chemical, thermal, nuclear, radiant and acoustic).
Physical Science Lab, Level A: Cards 34, 41, 42, 45, 46, 47, 48, 49, 66, 67, 68, 74, 79, 83
Physical Science Lab, Level B: Cards 34, 41, 42, 45, 46, 47, 48, 49, 66, 67, 68, 74, 79, 83
Physical Science Lab Teacher’s Handbook: Hands-On Activity 5, <i>Making a Potato Battery</i> , pages 93-95; Hands-On Activity 6, <i>Making Sound</i> , pages 97-99

Physical Sciences
Nature of Energy
4. Explain how energy can change forms but the total amount of energy remains constant.
Physical Science Lab, Level A: Cards 37, 38, 41, 42, 45, 46, 47, 48, 49, 68, 76, 83
Physical Science Lab, Level B: Cards 37, 38, 41, 42, 45, 46, 47, 48, 49, 68, 76, 83

Physical Sciences
Nature of Energy
5. Trace energy transformations in a simple closed system (e.g., a flashlight).
Physical Science Lab, Level A: Cards 27, 29, 41, 70, 76
Physical Science Lab, Level B: Cards 27, 29, 41, 70, 76
Physical Science Lab Teacher’s Handbook: Hands-On Activity 5, <i>Making a Potato Battery</i> , pages 93-95

Science and Technology
Understanding Technology
1. Explain how needs, attitudes, and values influence the direction of technological development in various cultures.
Life Science Lab, Level A: Cards 2, 5, 46, 59, 64, 69
Life Science Lab, Level B: Cards 2, 5, 46, 59, 64, 69
Earth Science Lab, Level A: Cards 10, 68, 72, 78, 79, 80, 81
Earth Science Lab, Level B: Cards 10, 68, 72, 78, 79, 80, 81
Physical Science Lab, Level A: Cards 3, 7, 17, 55
Physical Science Lab, Level B: Cards 3, 7, 17, 55

Science and Technology
Understanding Technology
2. Describe how decisions to develop and use technologies often put environmental and economic concerns in direct competition with each other.
Life Science Lab, Level A: Cards 84, 86, 87, 88, 89, 90 Life Science Lab, Level B: Cards 84, 86, 87, 88, 89, 90 Life Science Lab Teacher’s Handbook: Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103 Earth Science Lab, Level A: Cards 35, 37, 42, 59, 60, 61 Earth Science Lab, Level B: Cards 35, 37, 42, 59, 60, 61 Earth Science Lab Teacher’s Handbook: Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91 Physical Science Lab, Level A: Card 34 Physical Science Lab, Level B: Card 34

Science and Technology
Understanding Technology
3. Recognize that science can only answer some questions and technology can only solve some human problems.
Life Science Lab, Level A: Cards 2, 5, 49, 64, 69, 84, 89 Life Science Lab, Level B: Cards 2, 5, 49, 64, 69, 84, 89 Earth Science Lab, Level A: Cards 10, 16, 31, 51, 54, 68, 70, 72, 78, 79, 80, 81, 86 Earth Science Lab, Level B: Cards 10, 16, 31, 51, 54, 68, 70, 72, 78, 79, 80, 81, 86 Physical Science Lab, Level A: Cards 33, 34, 35, 71, 72, 73, 81, 84 Physical Science Lab, Level B: Cards 33, 34, 35, 71, 72, 73, 81, 84

Science and Technology
Abilities to Do Technological Design
4. Design and build a product or create a solution to a problem given two constraints (e.g., limits if cost and time for design and production or supply of materials and environmental effects).
This concept is not covered at this level.

Scientific Inquiry
Doing Scientific Inquiry
1. Explain that variables and controls can affect the results of an investigation and that ideally one variable should be tested at a time; however it is not always possible to control all variables.
Life Science Lab Teacher’s Handbook: Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103 Earth Science Lab Teacher’s Handbook: Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i> , pages 101-103 Physical Science Lab Teacher’s Handbook: Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83 Classroom Resource CD-ROM: Writing Strategy 15, 23

Scientific Inquiry
Doing Scientific Inquiry
2. Identify simple independent and dependent variables.
Life Science Lab Teacher’s Handbook: Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab Teacher’s Handbook: Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i> , pages 101-103
Physical Science Lab Teacher’s Handbook: Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83
Classroom Resource CD-ROM: Writing Strategy 15, 23

Scientific Inquiry
Doing Scientific Inquiry
3. Formulate and identify questions to guide scientific investigations that connect to science concepts and can be answered through scientific investigations.
Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 5, <i>Making Fossils</i> , pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i> , pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i> , pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i> , pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i> , pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i> , pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i> , pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i> , pages 101-103
Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i> , pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i> , pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i> , pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i> , pages 93-95; Hands-On Activity 6, <i>Making Sound</i> , pages 97-99
Classroom Resource CD-ROM: Writing Strategy 8, 15

Scientific Inquiry
Doing Scientific Inquiry
4. Choose the appropriate tools and instruments and relevant safety procedures to complete scientific investigations.
Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 5, <i>Making Fossils</i> , pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i> , pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i> , pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i> , pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i> , pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i> , pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i> , pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i> , pages 101-103
Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i> , pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i> , pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i> , pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i> , pages 93-95; Hands-On Activity 6, <i>Making Sound</i> , pages 97-99
Classroom Resource CD-ROM: Writing Strategy 15

Scientific Inquiry
Doing Scientific Inquiry
5. Analyze alternative scientific explanations and predictions and recognize that there may be more than one good way to interpret a given set of data.
<p>Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i>, pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i>, pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i>, pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i>, pages 89-91; Hands-On Activity 5, <i>Making Fossils</i>, pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i>, pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i>, pages 101-103</p> <p>Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i>, pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i>, pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i>, pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i>, pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i>, pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i>, pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i>, pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i>, pages 101-103</p> <p>Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i>, pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i>, pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i>, pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i>, pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i>, pages 93-95; Hands-On Activity 6, <i>Making Sound</i>, pages 97-99</p> <p>Classroom Resource CD-ROM: Writing Strategy 15, 22</p>

Scientific Inquiry
Doing Scientific Inquiry
6. Identify faulty reasoning and statements that go beyond the evidence or misinterpret the evidence.
<p>Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i>, pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i>, pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i>, pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i>, pages 89-91; Hands-On Activity 5, <i>Making Fossils</i>, pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i>, pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i>, pages 101-103</p> <p>Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i>, pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i>, pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i>, pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i>, pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i>, pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i>, pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i>, pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i>, pages 101-103</p> <p>Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i>, pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i>, pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i>, pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i>, pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i>, pages 93-95; Hands-On Activity 6, <i>Making Sound</i>, pages 97-99</p>

Scientific Inquiry
Doing Scientific Inquiry
7. Use graphs, tables, and charts to study physical phenomena and infer mathematical relationships between variables (e.g., speed and density).
Life Science Lab Teacher’s Handbook: Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i> , pages 73-75; Hands-On Activity 3, <i>Interpreting a Topographic Map</i> , pages 81-83; Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91; Hands-On Activity 7, <i>Sizes in the Solar System</i> , pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i> , pages 101-103
Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i> , pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i> , pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i> , pages 89-91; Hands-On Activity 6, <i>Making Sound</i> , pages 97-99
Classroom Resource CD-ROM: Writing Strategy 15, 16, 22, 24

Scientific Ways of Knowing
Ethical Practices
1. Show that the reproducibility of results is essential to reduce bias in scientific investigations.
Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 5, <i>Making Fossils</i> , pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i> , pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i> , pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i> , pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i> , pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i> , pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i> , pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i> , pages 101-103
Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i> , pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i> , pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i> , pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i> , pages 93-95; Hands-On Activity 6, <i>Making Sound</i> , pages 97-99

Scientific Ways of Knowing
Ethical Practices
2. Describe how repetition of an experiment may reduce bias.
<p>Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i>, pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i>, pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i>, pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i>, pages 89-91; Hands-On Activity 5, <i>Making Fossils</i>, pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i>, pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i>, pages 101-103</p> <p>Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i>, pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i>, pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i>, pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i>, pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i>, pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i>, pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i>, pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i>, pages 101-103</p> <p>Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i>, pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i>, pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i>, pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i>, pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i>, pages 93-95; Hands-On Activity 6, <i>Making Sound</i>, pages 97-99</p>

Scientific Ways of Knowing
Science and Society
3. Describe how the work of science requires a variety of human abilities and qualities that are helpful in daily life (e.g., reasoning, creativity, skepticism, and openness).
<p>Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i>, pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i>, pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i>, pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i>, pages 89-91; Hands-On Activity 5, <i>Making Fossils</i>, pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i>, pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i>, pages 101-103</p> <p>Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i>, pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i>, pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i>, pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i>, pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i>, pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i>, pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i>, pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i>, pages 101-103</p> <p>Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i>, pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i>, pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i>, pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i>, pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i>, pages 93-95; Hands-On Activity 6, <i>Making Sound</i>, pages 97-99</p>

SRA Life, Earth, and Physical Science Laboratories
correlation to
Ohio Content Academic Standards: Science
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.

Earth and Space Sciences
The Universe
1. Describe how objects in the solar system are in regular and predictable motions that explain such phenomena as days, years, seasons, eclipses, tides, and moon cycles.
Earth Science Lab, Level A: Cards 62, 64, 65, 66
Earth Science Lab, Level B: Cards 62, 64, 65, 66

Earth and Space Sciences
The Universe
2. Explain that gravitational force is the dominant force determining motions in the solar system and in particular keeps the planets in orbit around the sun.
Earth Science Lab, Level A: Cards 67, 68
Earth Science Lab, Level B: Cards 67, 68
Physical Science Lab, Level A: Cards 57, 59
Physical Science Lab, Level B: Cards 57, 59

Earth and Space Sciences
The Universe
3. Compare the orbits and composition of comets and asteroids with that of Earth.
Earth Science Lab, Level A: Cards 68, 69, 73
Earth Science Lab, Level B: Cards 68, 69, 73

Earth and Space Sciences
The Universe
4. Describe the effect that asteroids or meteoroids have when moving through space and sometimes entering planetary atmospheres (e.g., meteor-“shooting star” and meteorite).
Earth Science Lab, Level A: Card 73
Earth Science Lab, Level B: Card 73

Earth and Space Sciences
The Universe
5. Explain that the universe consists of billions of galaxies that are classified by shape.
Earth Science Lab, Level A: Card 77
Earth Science Lab, Level B: Card 77

Earth and Space Sciences
The Universe
6. Explain interstellar distances are measured in light years (e.g., the nearest star beyond the sun is 4.3 light years away).
Earth Science Lab, Level A: Card 74
Earth Science Lab, Level B: Card 74

Earth and Space Sciences
The Universe
7. Examine the life cycle of a star and predict the next likely stage of a star.
Earth Science Lab, Level A: Cards 75, 76
Earth Science Lab, Level B: Cards 75, 76

Earth and Space Sciences
The Universe
8. Name and describe tools used to study the universe (e.g., telescopes, probes, satellites, and spacecraft).
Earth Science Lab, Level A: Cards 79, 80, 81
Earth Science Lab, Level B: Cards 79, 80, 81

Earth and Space Sciences
Earth Systems
9. Describe the interior structure of Earth and Earth's crust as divided into tectonic plates riding on top of the slow moving currents of magma in the mantle.
Earth Science Lab, Level A: Cards 11, 12, 13, 14
Earth Science Lab, Level B: Cards 11, 12, 13, 14
Earth Science Lab Teacher's Handbook: Hands-On Activity 2, <i>Plate Boundaries in Action</i> , pages 77-79

Earth and Space Sciences
Earth Systems
10. Explain that most major geological events (e.g., earthquakes, volcanic eruptions, hot spots and mountain building) result from plate motion.
Earth Science Lab, Level A: Cards 11, 12, 13, 14, 15, 16, 17, 88
Earth Science Lab, Level B: Cards 11, 12, 13, 14, 15, 16, 17, 88
Earth Science Lab Teacher's Handbook: Hands-On Activity 2, <i>Plate Boundaries in Action</i> , pages 77-79

Earth and Space Sciences
Earth Systems
11. Use models to analyze the size and shape of Earth, its surface and its interior (e.g., globes, topographic maps, satellite images).
Earth Science Lab, Level A: Cards 1, 2, 18, 19, 20
Earth Science Lab, Level B: Cards 1, 2, 18, 19, 20
Earth Science Lab Teacher's Handbook: Hands-On Activity 3, <i>Interpreting a Topographic Map</i> , pages 81-83

Earth and Space Sciences
Earth Systems
12. Explain that some processes involved in the rock cycle are directly related to thermal energy and forces in the mantle that drive plate motions.
Earth Science Lab, Level A: Cards 6, 7, 8, 9
Earth Science Lab, Level B: Cards 6, 7, 8, 9

Earth and Space Sciences
Earth Systems
13. Describe how landforms are created through a combination of destructive (e.g., weathering and erosion) and constructive processes (e.g., crustal deformation, volcanic eruptions and deposition of sediment).
Earth Science Lab, Level A: Cards 14, 15, 16, 17, 21, 22, 24, 25, 26, 27, 28
Earth Science Lab, Level B: Cards 14, 15, 16, 17, 21, 22, 24, 25, 26, 27, 28

Earth and Space Sciences
Earth Systems
14. Explain that folding, faulting and uplifting can rearrange the rock layers so the youngest is not always found on top.
Earth Science Lab, Level A: Cards 9, 30
Earth Science Lab, Level B: Cards 9, 30

Earth and Space Sciences
Earth Systems
15. Illustrate how the three primary types of plate boundaries (transform, divergent, and convergent) cause different landforms (e.g., mountains, volcanoes and ocean trenches).
Earth Science Lab, Level A: Cards 10, 11, 12, 13, 14, 15, 17, 88
Earth Science Lab, Level B: Cards 10, 11, 12, 13, 14, 15, 17, 88

Life Sciences
Heredity
1. Describe that asexual reproduction limits the spread of detrimental characteristics through a species and allows for genetic continuity.
Life Science Lab, Level A: Card 60
Life Science Lab, Level B: Card 60

Life Sciences
Heredity
2. Recognize that in sexual reproduction new combinations of traits are produced which may increase or decrease an organism's chances for survival.
Life Science Lab, Level A: Cards 61, 62, 63, 64
Life Science Lab, Level B: Cards 61, 62, 63, 64

Life Sciences
Evolutionary Theory
3. Explain why variations in structure, behavior or physiology allow some organisms to enhance their reproductive success and survival in a particular environment.
Life Science Lab, Level A: Cards 65, 66
Life Science Lab, Level B: Cards 65, 66

Life Sciences
Evolutionary Theory
4. Explain that diversity of species is developed through gradual processes over many generations (e.g., fossil record).
Life Science Lab, Level A: Cards 65, 66, 67, 68
Life Science Lab, Level B: Cards 65, 66, 67, 68

Life Sciences
Evolutionary Theory
5. Investigate how an organism adapted to a particular environment may become extinct if the environment, as shown by the fossil record, changes.
Life Science Lab, Level A: Cards 65, 66, 67, 68, 86 Life Science Lab, Level B: Cards 65, 66, 67, 68, 86
Earth Science Lab, Level A: Cards 33, 34 Earth Science Lab, Level B: Cards 33, 34

Physical Sciences
Forces and Motion
1. Describe how the change in the position (motion) of an object is always judged and described in comparison to a reference point.
Physical Science Lab, Level A: Card 50 Physical Science Lab, Level B: Card 50

Physical Sciences
Forces and Motion
2. Explain that motion describes the change in the position of an object (characterized by a speed and direction) as time changes.
Physical Science Lab, Level A: Cards 50, 51, 52 Physical Science Lab, Level B: Cards 50, 51, 52

Physical Sciences
Forces and Motion
3. Explain that an unbalanced force acting on an object changes that object's speed and/or direction.
Physical Science Lab, Level A: Cards 54, 55, 56 Physical Science Lab, Level B: Cards 54, 55, 56

Physical Sciences
Nature of Energy
4. Demonstrate that waves transfer energy.
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, <i>Making Sound</i> , pages 97-99

Physical Sciences
Nature of Energy
5. Demonstrate that vibrations in materials may produce waves that spread away from the source in all directions (e.g., earthquake waves and sound waves).
Earth Science Lab, Level A: Cards 15, 16 Earth Science Lab, Level B: Cards 15, 16
Physical Science Lab, Level A: Cards 77, 78, 79 Physical Science Lab, Level B: Cards 77, 78, 79 Physical Science Lab Teacher's Handbook: Hands-On Activity 6, <i>Making Sound</i> , pages 97-99

Science and Technology
Understanding Technology
1. Examine how science and technology have advanced through the contributions of many different people, cultures, and times in history.
Life Science Lab, Level A: Cards 2, 5, 46, 59, 64, 69 Life Science Lab, Level B: Cards 2, 5, 46, 59, 64, 69 Earth Science Lab, Level A: Cards 10, 68, 72, 78, 79, 80, 81 Earth Science Lab, Level B: Cards 10, 68, 72, 78, 79, 80, 81 Physical Science Lab, Level A: Cards 3, 7, 17, 55 Physical Science Lab, Level B: Cards 3, 7, 17, 55

Science and Technology
Understanding Technology
2. Examine how choices regarding the use of technology are influenced by constraints caused by various unavoidable factors (e.g., geographic location, limited resources, social, political and economic considerations).
Life Science Lab, Level A: Cards 84, 86, 87, 88, 89, 90 Life Science Lab, Level B: Cards 84, 86, 87, 88, 89, 90 Life Science Lab Teacher’s Handbook: Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103 Earth Science Lab, Level A: Cards 35, 37, 42, 59, 60, 61 Earth Science Lab, Level B: Cards 35, 37, 42, 59, 60, 61 Earth Science Lab Teacher’s Handbook: Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91 Physical Science Lab, Level A: Card 34 Physical Science Lab, Level B: Card 34

Science and Technology
Abilities to Do Technological Design
3. Design and build a product or create a solution to a problem given more than two constraints (e.g., limits of cost and time for design and production, supply of materials and environmental effects).
This concept is not covered at this level.

Science and Technology
Abilities to Do Technological Design
4. Evaluate the overall effectiveness of a product design or solution.
This concept is not covered at this level.

Scientific Inquiry
Doing Scientific Inquiry
1. Choose the appropriate tools or instruments and use relevant safety procedures to complete scientific investigations.
Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 5, <i>Making Fossils</i> , pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Identifying Minerals with the Mohs Scale</i> , pages 73-75; Hands-On Activity 2, <i>Plate Boundaries in Action</i> , pages 77-79; Hands-On Activity 3, <i>Interpreting a Topographic Map</i> , pages 81-83; Hands-On Activity 4, <i>Using Sound Waves</i> , pages 85-87; Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91; Hands-On Activity 6, <i>Modeling a Tornado</i> , pages 93-95; Hands-On Activity 7, <i>Sizes in the Solar System</i> , pages 97-99; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i> , pages 101-103
Physical Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Measuring pH of Acids and Bases</i> , pages 77-79; Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83; Hands-On Activity 3, <i>Energy Conversion</i> , pages 85-87; Hands-On Activity 4, <i>Reducing Friction</i> , pages 89-91; Hands-On Activity 5, <i>Making a Potato Battery</i> , pages 93-95; Hands-On Activity 6, <i>Making Sound</i> , pages 97-99
Classroom Resource CD-ROM: Writing Strategy 15

Scientific Inquiry
Doing Scientific Inquiry
2. Describe the concepts of sample size and control and explain how these affect scientific investigations.
Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
Earth Science Lab Teacher’s Handbook: Hands-On Activity 5, <i>What is in the Air?</i> , pages 89-91; Hands-On Activity 8, <i>Temperature, Salinity, and Water Density</i> , pages 101-103
Physical Science Lab Teacher’s Handbook: Hands-On Activity 2, <i>Chemical Reaction Rates</i> , pages 81-83

Scientific Inquiry
Doing Scientific Inquiry
3. Read, construct and interpret data in various forms produced by self and other in both written and oral form (e.g., tables, charts, maps, graphs, diagrams and symbols).
Life Science Lab Teacher’s Handbook: Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
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Classroom Resource CD-ROM: Writing Strategy 15, 16, 22, 24

Scientific Inquiry
Doing Scientific Inquiry
4. Apply appropriate math skills to interpret quantitative data (e.g., mean, median and mode).
Life Science Lab Teacher’s Handbook: Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99
Physical Science Lab Teacher’s Handbook: Hands-On Activity 3, <i>Energy Conversion</i> , pages 85-87

Scientific Ways of Knowing
Nature of Science
1. Identify the difference between description (e.g., observation and summary) and explanation (e.g., inference, prediction, significance and importance)
Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 5, <i>Making Fossils</i> , pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
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Classroom Resource CD-ROM: Writing Strategy 1, 2, 4, 11, 14, 17, 18

Scientific Ways of Knowing
Ethical Practices
2. Explain why it is important to examine data objectively and not let bias affect observations.
Life Science Lab Teacher’s Handbook: Hands-On Activity 1, <i>Examining Cells</i> , pages 77-79; Hands-On Activity 2, <i>Culturing Bacteria</i> , pages 81-83; Hands-On Activity 3, <i>Investigating Arthropods</i> , pages 85-87; Hands-On Activity 4, <i>Your Cardiovascular System</i> , pages 89-91; Hands-On Activity 5, <i>Making Fossils</i> , pages 93-95; Hands-On Activity 6, <i>How Much Does Energy Cost?</i> , pages 97-99; Hands-On Activity 7, <i>The Effects of Acid Rain</i> , pages 101-103
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