SRA Life, Earth, and Physical Science Laboratories
correlation to
Kentucky Core Content for Science Assessment
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.

Physical Science
Structure and Transformation of Matter
SC-M6 1.1.1 Students will explain how or why mixtures can be separated using physical properties. **A mixture of substances often can be separated into the original substances by using one or more of its characteristic physical properties. DOK 2**
Physical Science Lab, Level A: Cards 12, 13 **Physical Science Lab, Level B:** Cards 12, 13

Physical Science
Structure and Transformation of Matter
SC-M6 1.1.2 Students will identify and describe evidence of chemical and physical changes in matter. **In chemical reactions, the total mass is conserved. Substances are often classified into groups if they react in similar ways. The patterns that allow classification can be used to infer or understand real life applications for those substances. DOK2**
Physical Science Lab, Level A: Cards 8, 9, 14, 15, 16, 17, 18, 19, 20, 27, 28, 29, 30 **Physical Science Lab, Level B:** Cards 8, 9, 14, 15, 16, 17, 18, 19, 20, 27, 28, 29, 30 **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

Physical Science
Motion and Forces
SC-06-1.2.1 Students will describe friction and make inferences about its effects on the motion of an object. **When an unbalanced force (friction) acts on an object, the change in speed or direction depends on the size and direction of the force. DOK3**
Physical Science Lab, Level A: Cards 54, 56, 58 **Physical Science Lab, Level B:** Cards 54, 56, 58 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 4, *Reducing Friction*, pages 89-91

Earth/Space Science
The Earth and the Universe
SC-06-2.3.1 Students will explain and predict phenomena (e.g., day, year, moon phases, eclipses) based on models/representations or data related to the motion of objects in the solar system (e.g., earth, sun, moon). **Observations and investigations of patterns indicate that most objects in the solar system are in regular and predictable motion. Evaluation of this data explains such phenomena as the day, the year, phases of the moon and eclipses. DOK 3**
Earth Science Lab, Level A: Cards 62, 64, 65 **Earth Science Lab, Level B:** Cards 62, 64, 65

Earth/Space Science
The Earth and the Universe
SC-06-2.3.2 Students will explain cause and effect relationships in the rock cycle. **Materials found in the lithosphere and mantle are changed in a continuous process called the rock cycle which can be investigated using a variety of models. Cause and effect relationships should be explored in order to draw conclusions and make evidence-based predictions of the continually changing materials. DOK 2**
Earth Science Lab, Level A: Cards 6, 7, 8, 9 **Earth Science Lab, Level B:** Cards 6, 7, 8, 9

Earth/Space Science
The Earth and the Universe
SC-06-2.3.3 Students will compare constructive and destructive forces on Earth in order to make predictions about the nature of landforms. **Landforms are a result of a combination of constructive and destructive forces. Collection and analysis of data indicates that constructive forces include crustal deformation, faulting, volcanic eruption and deposition of sediment, while destructive forces include weathering and erosion. DOK 2**
Earth Science Lab, Level A: Cards 10, 11, 12, 13, 14, 15, 16, 17, 22, 24, 25, 26, 27, 28 **Earth Science Lab, Level B:** Cards 10, 11, 12, 13, 14, 15, 16, 17, 22, 24, 25, 26, 27, 28 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79

Biological Science
Unity and Diversity
SC-06-3.4.1 Students will describe the relationship between cells, tissues and organs in order to explain their function in multicellular organisms. **Specialized cells perform specialized functions in multicellular organisms. Groups of specialized cells cooperate to form tissues. Different tissues are, in turn, grouped together to form larger functional units called organs. Examination of cells, tissues and organs reveals that each type has a distinct structure and set of functions that serve the organism. DOK 3**
Life Science Lab, Level A: Cards 5, 6, 7, 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, 7, 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

Biological Science
Unity and Diversity
SC-06-3.4.2 Students will make inferences about the factors influencing behavior based on data/evidence of various organisms' behaviors. **Behavior is one kind of response an organism may make to an internal or environmental stimulus. Observations of organisms, data collection/analysis, support generalizations/conclusions that a behavioral response is a set of actions determined in part by heredity and in part from experience. A behavioral response requires coordination and communication at many levels including cells, organ systems, and organisms. DOK 2**
Life Science Lab, Level A: Cards 23, 24, 36, 41, 43, 83 **Life Science Lab, Level B:** Cards 23, 24, 36, 41, 43, 83 **Life Science Lab Teacher's Handbook:** Hands-On Activity 3, *Investigating Arthropods*, pages 85-87

Biological Science
Biological Change
SC-06-3.5.1 Students will explain that biological change over time accounts for the diversity of species developed through gradual processes over many generations. **Biological adaptations include changes in structures, behaviors, or physiology that enhance survival and reproductive success in a particular environment. DOK 2**
Life Science Lab, Level A: Cards 23, 41, 65, 66, 67 **Life Science Lab, Level B:** Cards 23, 41, 65, 66, 67

Biological Science
Biological Change
SC-06-3.5.2 Students should understand that regulation of an organism's internal environment involves sensing the internal environment and changing physiological activities to keep conditions within the range required to survive. Maintaining a stable internal environment is essential for an organism's survival. DOK 2
Life Science Lab, Level A: Cards 1, 34, 44, 45 **Life Science Lab, Level B:** Cards 1, 34, 44, 45

Unifying Ideas
Energy Transformations
SC-06-4.6.1 Students will describe or explain the cause and effect relationships between oceans and climate. **Oceans have a major effect on climate, because water in the ocean holds a large amount of heat. DOK 2**
Earth Science Lab, Level A: Cards 40, 41, 47, 54, 58, 60, 87 **Earth Science Lab, Level B:** Cards 40, 41, 47, 54, 58, 60, 87

Unifying Ideas
Energy Transformations
SC-06-4.6.2 Students will describe: • **The effect of the Suns' energy on the Earth system.** • **The connection/relationship between the Sun's energy and seasons.** **The sun is the major source of energy for Earth. The water cycle, winds, ocean currents, and growth of plants are affected by the Sun's energy. Seasons result from variations in the amount of the Sun's energy hitting Earth's surface. DOK 3**
Life Science Lab, Level A: Cards 16, 17, 76 **Life Science Lab, Level B:** Cards 16, 17, 76 **Earth Science Lab, Level A:** Cards 37, 38, 40, 41, 47, 48, 55, 62, 87 **Earth Science Lab, Level B:** Cards 37, 38, 40, 41, 47, 48, 55, 62, 87

Unifying Ideas
Energy Transformations
SC-06-4.6.3 Students will understand that, on its own, heat travels only from higher temperature object/region to lower temperature object or region. Heat will continue to flow in this manner until the objects reach the same temperature. For example, a cup of hot water will continue to cool down until it comes to the same temperature as the surrounding area. Usually when heat is transferred to or from an object, the temperature changes. The temperature increases if heat is added and the temperature decreases if heat is removed.
Earth Science Lab, Level A: Cards 38, 41 **Earth Science Lab, Level B:** Cards 38, 41 **Physical Science Lab, Level A:** Cards 43, 44 **Physical Science Lab, Level B:** Cards 43, 44

Unifying Ideas
Interdependence
SC-06-4.7.1 Students will describe the consequences of change in one or more abiotic factors on a population within an ecosystem. The number of organisms an ecosystem can support depends on the resources available and abiotic factors (e.g., quantity of light and water, range of temperatures, soil composition). DOK 2
Life Science Lab, Level A: Cards 70, 71, 72, 73, 74, 75, 76, 77, 80 **Life Science Lab, Level B:** Cards 70, 71, 72, 73, 74, 75, 76, 77, 80

SRA Life, Earth, and Physical Science Laboratories
correlation to
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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.

Physical Science
Structure and Transformation of Matter
SC-07-1.1.1 Students will : • **Classify substances according to their chemical/reactive properties.** • **Infer real life applications for substances based on chemical/reactive properties.** **In chemical reactions, the total mass is conserved. Substances are often classified into groups if they react in similar ways. The patterns which allow classification can be used to infer or understand real life applications for those substances. DOK 3**
Physical Science Lab, Level A: Cards 9, 14, 15, 16, 18, 19, 20, 27, 28, 29, 30 **Physical Science Lab, Level B:** Cards 9, 14, 15, 16, 18, 19, 20, 27, 28, 29, 30 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83

Physical Science
Structure and Transformation of Matter
SC-07-1.1.2 Students will • **Classify elements and compounds according to their properties.** • **Compare properties of different combinations of elements.** **Observations of simple experiments illustrate that the atoms of chemical elements do not break down during normal laboratory reactions to electric currents, or reactions to acids. Elements combine in many ways to produce compounds. Common patterns emerge when comparing and contrasting the properties of compounds to the elements from which they were made. Understanding these patterns allows for evidence-based predictions of new or different combinations of elements/compounds. DOK 2**
Physical Science Lab, Level A: Cards 9, 10, 11, 31, 32 **Physical Science Lab, Level B:** Cards 9, 10, 11, 31, 32

Physical Science
Motion and Forces
SC-07-1.2.1 Students will explain the cause and effect relationship between simple observable motion and unbalanced forces. **An object remains at rest or maintains a constant speed and direction of motion unless an unbalanced force acts on it (e.g., gravity). When an unbalanced force acts on an object, the change in speed or direction depends on the size and direction of the force. DOK 3**
Physical Science Lab, Level A: Cards 53, 54, 55, 56 **Physical Science Lab, Level B:** Cards 53, 54, 55, 56

Earth/Space Science
The Earth and the Universe
SC-07-2.3.3 Students will describe the concept of gravity and the effect of gravitational force between the sun, moon, and Earth. **The gravitational pull of the Sun and moon on Earth's oceans as the major cause of tides can be understood from generalizations based on evidence. DOK 2**
Earth Science Lab, Level A: Card 66 **Earth Science Lab, Level B:** Card 66 **Physical Science Lab, Level A:** Cards 57, 59 **Physical Science Lab, Level B:** Cards 57, 59

Earth/Space Science
The Earth and the Universe
SC-07-2.3.1 Students will make inferences and predictions related to changes in the Earth's surface or atmosphere based on data/evidence. **The Earth's processes we see today, including erosion, movement of lithospheric plates and changes in atmospheric composition, are predictable and similar to those that occurred in the past. Analysis of evidence from Earth's history substantiates the conclusion that the planet has also been influenced by occasional catastrophes such as the impact of an asteroid or comet. DOK 3**
Earth Science Lab, Level A: Cards 10, 11, 12, 13, 14, 15, 16, 17, 22, 24, 25, 26, 27, 28, 30, 32, 36, 38, 73, 88 **Earth Science Lab, Level B:** Cards 10, 11, 12, 13, 14, 15, 16, 17, 22, 24, 25, 26, 27, 28, 30, 32, 36, 38, 73, 88 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79

Earth/Space Science
The Earth and the Universe
SC-07-2.3.2 Students will explain the layers of the Earth and their interactions. **The use of models/diagrams/graphs helps illustrate that the Earth is layered. The lithosphere is the thin crust and the upper part of the mantle. Lithospheric plates move slowly in response to movements in the mantle. There is a dense core at the center of the Earth. DOK 2**
Earth Science Lab, Level A: Cards 1, 2, 10, 11, 12, 13, 14, 15, 16, 17 **Earth Science Lab, Level B:** Cards 1, 2, 10, 11, 12, 13, 14, 15, 16, 17 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79

Biological Science
Unity and Diversity
SC-07-3.4.1 Students will: • **Describe the role of genes/chromosomes in the passing of information from one generation to another (heredity).** • **Compare inherited and learned traits.** **Every organism requires a set of instructions for specifying its traits. This information is contained in genes located in the chromosomes of each cell that can be illustrated through the use of models. Heredity is the passage of these instructions from one generation to another and should be distinguished from learned traits. DOK 2**
Life Science Lab, Level A: Cards 10, 61, 62, 63, 63 **Life Science Lab, Level B:** Cards 10, 61, 62, 63, 64

Biological Science
Unity and Diversity
SC-07-3.4.2 Students will describe and compare sexual and asexual reproduction. **Reproduction is a characteristic of all living systems and is essential to the continuation of every species as evidenced through observable patterns. A distinction should be made between organisms that reproduce asexually and those that reproduce sexually. In species that reproduce sexually, including humans and plants, male and female sex cells carrying genetic information unite to begin the development of a new individual DOK 2**
Life Science Lab, Level A: Cards 60, 61 **Life Science Lab, Level B:** Cards 60, 61

Biological Science
Biological Change
SC-07-3.5.1 Students will: • **Describe the usefulness of fossil information to make conclusions about past life forms and environmental conditions.** • **Explain the cause and effect relationship of the extinction of a species and environmental changes.** **Extinction of species is common and occurs when the adaptive characteristics of a species are insufficient to allow its survival. Most of the species that have lived on Earth no longer exist. Fossils provide evidence of how environmental conditions and live have changed. DOK 3**
Life Science Lab, Level A: Card 67 **Life Science Lab, Level B:** Card 67 **Life Science Lab Teacher's Handbook:** Hands-On Activity 5, *Making Fossils*, pages 93-95 **Earth Science Lab, Level A:** Cards 32, 33, 34 **Earth Science Lab, Level B:** Cards 32, 33, 34

Unifying Ideas
Energy Transformations
SC-07-4.6.1 Students will understand that Earth systems have sources of energy that are internal and external to the Earth. The Sun is the major external source of energy.
Life Science Lab, Level A: Cards 16, 17, 76 **Life Science Lab, Level B:** Cards 16, 17, 76 **Earth Science Lab, Level A:** Cards 38, 47, 67 **Earth Science Lab, Level B:** Cards 38, 47, 67 **Physical Science Lab, Level A:** Cards 44, 46 **Physical Science Lab, Level B:** Cards 44, 46

Unifying Ideas

Energy Transformations

SC-07-4.6.2 Students will:

- **Describe the transfer and/or transformations of energy which occur in examples that involve several different forms of energy (e.g., heat, electrical, light, motion of objects and chemical).**
- **Explain, qualitatively or quantitatively, that heat lost by hot objects equals the heat gained by cold objects.**

The transfer and transformation of energy can be examined in a variety of real life examples. Models are an appropriate way to convey this abstract/invisible transfer of energy in a system.
Heat energy is the disorderly motion of molecules. Heat can be transferred through materials by the collisions of atoms or across space by radiation. If the material is fluid, currents will be set up in it that aid the transfer of heat. To change something's speed, to bend or stretch things, to heat or cool them, to push thing together, to expand or contract them or tear them apart all requires transfers (and some transformations) of energy. Heat lost by hot objects equals the heat gained by cold objects. This is an energy conservation statement. Whenever hot and cold objects are put in contact, heat energy always transfers from the hot object to the cold object and this continues until all the mass is at the same temperature. Students should understand that heat produced by burning coming from the release of chemical energy of the substance. DOK 3

Physical Science Lab, Level A: Cards 34, 36, 37, 38, 39, 40, 42, 43, 44, 45, 46, 47, 48, 49, 66, 67, 79, 80, 82, 83
Physical Science Lab, Level B: Cards 34, 36, 37, 38, 39, 40, 42, 43, 44, 45, 46, 47, 48, 49, 66, 67, 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

Unifying Ideas

Energy Transformations

SC-07-4.6.3 Students will understand that waves are one way that energy is transferred. Types of waves include sound, light, earthquake, ocean and electromagnetic.

Earth Science Lab, Level A: Card 16
Earth Science Lab, Level B: Card 16

Physical Science Lab, Level A: Cards 77, 78, 79, 80, 81, 82, 83, 84, 85
Physical Science Lab, Level B: Cards 77, 78, 79, 80, 81, 82, 83, 84, 85
Physical Science Lab Teacher's Handbook: Hands-On Activity 6, *Making Sound*, pages 97-99

Unifying Ideas

Energy Transformations

SC-07-4.6.4 Students will describe or represent the flow of energy in ecosystems, using data to draw conclusions about the role of organisms in an ecosystem.
For most ecosystems, the major source of energy is sunlight. Energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis. That energy then passes from organism to organism in food webs. DOK 3

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

Unifying Ideas

Interdependence

SC-07-4.7.1 Students will compare abiotic and biotic factors in an ecosystem in order to explain consequences of change in one or more factors.
The number of organisms an ecosystem can support depends on the resources available and abiotic factors (e.g., quantity of light and water, range of temperatures, soil composition). Given adequate biotic and abiotic resources and no diseases or predators, populations (including humans) increase at rapid rates. Lack of resources and other factors, such as predation and climate, limit the growth of populations in specific niches in the ecosystem. DOK 3

Life Science Lab, Level A: Cards 70, 71, 72, 73, 74, 75, 76, 77
Life Science Lab, Level B: Cards 70, 71, 72, 73, 74, 75, 76, 77

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Physical Science
Structure and Transformation of Matter
SC-08-1.1.1 Students will : • **Interpret models/representations of elements.** • **Classify elements based upon patterns in their physical (e.g., density, boiling point, solubility) and chemical (e.g., flammability, reactivity) properties.** **Models enhance understanding that an element is composed of a single type of atom. Organization/interpretation of data illustrates that when elements are listed according to the number of protons, repeating patterns of physical (e.g., density, boiling point, solubility) and chemical properties (e.g., flammability, reactivity), can be used to identify families of elements with similar properties. DOK 23**
Physical Science Lab, Level A: Cards 1, 2, 10, 14, 15, 16, 17, 18, 19, 20 **Physical Science Lab, Level B:** Cards 1, 2, 10, 14, 15, 16, 17, 18, 19, 20 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases*, pages 77-79

Physical Science
Structure and Transformation of Matter
SC-08-1.1.2 Students will understand that matter is made of minute particles called atoms, and atoms are composed of even smaller components. The components of an atom have measurable properties such as mass and electrical charge. Each atom has a positively charged nucleus surrounded by negatively charged electrons. The electric force between the nucleus and the electrons holds the atom together.
Physical Science Lab, Level A: Cards 3, 4, 21, 22, 23, 24, 25 **Physical Science Lab, Level B:** Cards 3, 4, 21, 22, 23, 24, 25

Physical Science
Structure and Transformation of Matter
SC-08-1.1.3 Students will understand that the atom's nucleus is composed of protons and neutrons that are much more massive than electrons.
Physical Science Lab, Level A: Card 21 **Physical Science Lab, Level B:** Card 21

Physical Science
Structure and Transformation of Matter
SC-08-1.1.4 Students will describe interactions which cause the movement of each element among the solid Earth, oceans, atmosphere and organisms (biogeochemical cycles). **Earth is a system containing essentially a fixed amount of each stable chemical atom or element that can exist in several different reservoirs. The interactions with the earth system cause the movement of each element among reservoirs in the solid Earth, oceans, atmosphere and organisms as part of biogeochemical cycles. DOK 2**
Life Science Lab, Level A: Cards 4, 46, 76, 77, 78, 79 **Life Science Lab, Level B:** Cards 4, 46, 76, 77, 78, 79 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?*, pages 97-99 **Earth Science Lab, Level A:** Cards 1, 2, 3, 4, 5, 6, 7, 8, 9, 36, 37, 47, 82, 83, 84 **Earth Science Lab, Level B:** Cards 1, 2, 3, 4, 5, 6, 7, 8, 9, 36, 37, 47, 82, 83, 84 **Physical Science Lab, Level A:** Cards 8, 9 **Physical Science Lab, Level B:** Cards 8, 9

Physical Science
Motion and Forces
SC-08-1.2.1 Students will describe and explain the effects of balanced and unbalanced forces on motion as found in real-life phenomena. **Objects change their motion only when a net force is applied. Newton's Laws of Motion are used to describe the effects of forces on the motion of objects. DOK 3**
Physical Science Lab, Level A: Cards 53, 54, 55, 56, 57, 58, 59 **Physical Science Lab, Level B:** Cards 53, 54, 55, 56, 57, 58, 59 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 4, *Reducing Friction*, pages 89-91

Earth/Space Science
The Earth and the Universe
SC-08-2.3.1 Students will describe various techniques for estimating geological time (radioactive dating, observing rock sequences, comparing fossils). **Techniques used to estimate geological time include using radioactive dating, observing rock sequences and comparing fossils to correlate the rock sequences at various locations. Deductions can be made based on available data and observation of models as to the ago of rocks/fossils. DOK 2**
Life Science Lab, Level A: Card 67 **Life Science Lab, Level B:** Card 67 **Earth Science Lab, Level A:** Cards 30, 31, 32, 33, 34 **Earth Science Lab, Level B:** Cards 30, 31, 32, 33, 34

Earth/Space Science
The Earth and the Universe
SC-08-2.3.4 Students will understand that the Sun, Earth and the rest of the solar system formed approximately 4.6 billion years ago.
Earth Science Lab, Level A: Cards 68, 78 **Earth Science Lab, Level B:** Cards 68, 78

Earth/Space Science
The Earth and the Universe
SC-08-2.3.2 Students will understand that earthquakes and volcanic eruptions can be observed on a human time scale, but many processes, such as mountain building and plate movements, take place over hundreds of millions of years.
Earth Science Lab, Level A: Cards 10, 11, 12, 13, 14, 15, 17 **Earth Science Lab, Level B:** Cards 10, 11, 12, 13, 14, 15, 17 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79

Earth/Space Science
The Earth and the Universe
SC-08-2.3.3 Students will: • **Explain the transfer of Earth's internal heat in the mantle (crustal movement, hotspots, geysers).** • **Describe the interacting components (convection currents) within the Earth's system.** **The outward transfer of Earth's internal heat drives convection circulation in the mantle. This causes the crustal plates to move on the face of the Earth. DOK 2**
Earth Science Lab, Level A: Cards 1, 2, 10, 11, 12, 13, 14, 15, 17 **Earth Science Lab, Level B:** Cards 1, 2, 10, 11, 12, 13, 14, 15, 17 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79

Biological Science
Unity and Diversity
SC-08-3.4.1 Students will explain he relationship between structure and function of the cell components using a variety of representations. **Observations of cells and analysis of cell representations point out that cells have particular structures that underlie their function. Every cell is surrounded by a membrane that separates it from the outside world. Inside the cell is a concentrated mixture of thousands of different molecules that form a variety of specialized structures. These structures carry out specific cell functions. DOK 3**
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, *Examining Cells*, pages 77-79

Biological Science
Unity and Diversity
SC-08-3.4.2 Students will understand that in the development of multicellular organisms, cells multiply (mitosis) and differentiate to form many specialized cells, tissues and organs. This differentiation is regulated through the expression of different genes.
Life Science Lab, Level A: Cards 10, 60, 61, 62, 63, 64 **Life Science Lab, Level B:** Cards 10, 60, 61, 62, 63, 64

Biological Science
Unity and Diversity
SC-08-3.4.3 Students will form or justify conclusions as to whether a response is innate or learned using data/evidence on behavioral responses to internal and external stimuli. **Behavioral responses to internal changes and external stimuli can be innate or learned. Responses to external stimuli can result from interactions with the organism's own species or other species, as well as environmental changes. DOK 3**
Life Science Lab, Level A: Cards 23, 24, 36, 41, 43, 65, 66, 83 **Life Science Lab, Level B:** Cards 23, 24, 36, 41, 43, 65, 66, 83

Biological Science
Unity and Diversity
SC-08-3.4.5 Students will understand that multicellular animals have nervous systems that generate behavior. Nerve cells communicate with each other by secreting specific molecules.
Life Science Lab, Level A: Card 54 **Life Science Lab, Level B:** Card 54

Biological Science
Unity and Diversity
SC-08-3.4.4 Students will describe and explain patterns found within groups of organisms in order to make biological classifications of those organisms. **Observations and patterns found within groups of organisms allow for biological classifications based on how organisms are related. DOK 2**
Life Science Lab, Level A: Cards 1, 2, 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 1, 2, 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

Biological Science
Biological Change
SC-08-3.5.1 Students will draw conclusions and make inferences about the consequences of change over time that can account for the similarities among diverse species. **The consequences of change over time provide a scientific explanation for the fossil record of ancient life forms and for the striking molecular similarities observed among the diverse species of living organisms. DOK 3**
Life Science Lab, Level A: Cards 65, 66, 67, 68 **Life Science Lab, Level B:** Cards 65, 66, 67, 68 **Earth Science Lab, Level A:** Card 34 **Earth Science Lab, Level B:** Card 34

Unifying Ideas
Energy Transformations
SC-08-4.6.2 Students will: • **Describe or explain energy transfer and energy conservation.** • **Evaluate alternative solutions to energy problems.** **Energy can be transferred in many ways, but it can neither be created nor destroyed. DOK 3**
Physical Science Lab, Level A: Cards 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49 **Physical Science Lab, Level B:** Cards 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 3, *Energy Conversion*, pages 85-87

Unifying Ideas
Energy Transformations
SC-08-4.6.1 Students will: • **Explain the cause and effect relationships between global climate and energy transfer.** • **Use evidence to make inferences or predictions about global climate issues.** **Global climate is determined by energy transfer from the Sun at and near Earth's surface. DOK 3**
Earth Science Lab, Level A: Cards 36, 37, 38, 40, 47, 48, 55, 58, 59, 60, 61, 62 **Earth Science Lab, Level B:** Cards 36, 37, 38, 40, 47, 48, 55, 58, 59, 60, 61, 62

Unifying Ideas
Energy Transformations
SC-08-4.6.3 Students will understand that all energy can be considered to be kinetic energy, potential energy, or energy contained by a field (e.g., electric, magnetic, gravitational).
Physical Science Lab, Level A: Cards 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 66, 67, 70, 74, 75, 76 **Physical Science Lab, Level B:** Cards 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 66, 67, 70, 74, 75, 76 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 3, *Energy Conversion*, pages 85-87

Unifying Ideas
Energy Transformations
SC-08-4.6.4 Students will: • **Analyze information/data about waves and energy transfer.** • **Describe the transfer of energy via waves in real-life phenomena.** **Waves, including sound and seismic waves, waves on water and electromagnetic waves, can transfer energy when they interact with matter. DOK 2**
Earth Science Lab, Level A: Card 16 **Earth Science Lab, Level B:** Card 16 **Physical Science Lab, Level A:** Cards 77, 78, 79, 80, 81, 82, 83, 84, 85 **Physical Science Lab, Level B:** Cards 77, 78, 79, 80, 81, 82, 83, 84, 85 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 6, *Making Sound*, pages 97-99

Unifying Ideas
Energy Transformations
SC-08-4.6.5 Students will: • **Describe relationships between organisms and energy flow in ecosystems (food chains and energy pyramids).** • **Explain the effects of change to an component of the ecosystem.** **Energy flows through ecosystems in one direction from photosynthetic organisms to herbivores to carnivores and decomposers. DOK 2**
Life Science Lab, Level A: Cards 13, 73, 76, 77 **Life Science Lab, Level B:** Cards 13, 73, 76, 77 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?*, pages 97-99

Unifying Ideas
Interdependence
SC-08-4.7.1 Students will describe the interrelationships and interdependencies within an ecosystem and predict the effects of change on one or more components within an ecosystem. **Organisms both cooperate and compete in ecosystems. Often changes in one component of an ecosystem will have effects on the entire system that are difficult to predict. The interrelationships and interdependencies of these organisms may generate ecosystems that are stable for hundreds or thousands of years. DOK 3**
Life Science Lab, Level A: Cards 70, 71, 72, 73, 74, 75, 80, 81, 82 **Life Science Lab, Level B:** Cards 70, 71, 72, 73, 74, 75, 80, 81, 82

Unifying Ideas
Interdependence
SC-08-4.7.2 Students will: • **Explain the interactions of the components of the Earth system (e.g., solid Earth, oceans, atmosphere, living organisms).** • **Propose solutions to detrimental interactions.** **Interactions among the solid Earth, the oceans, the atmosphere and living things have resulted in the ongoing development of a changing Earth system. DOK 3**
Life Science Lab, Level A: Cards 65, 66, 67, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 65, 66, 67, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 84, 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 1, 2, 9, 10, 11, 12, 13, 14, 15, 17, 21, 22, 24, 25, 26, 27, 28, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 82, 83, 84, 86, 87, 88, 89, 90 **Earth Science Lab, Level B:** Cards 1, 2, 9, 10, 11, 12, 13, 14, 15, 17, 21, 22, 24, 25, 26, 27, 28, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 82, 83, 84, 86, 87, 88, 89, 90 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79; 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 8, *Temperature, Salinity, and Water Density*, pages 101-103 **Physical Science Lab, Level A:** Card 44 **Physical Science Lab, Level B:** Card 44