SRA Life, Earth, and Physical Science Laboratories
correlation to
Florida Grade Level Expectations for the Sunshine State 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.

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.1: The student identifies various ways in which substances differ (e.g., mass, volume, shape, density, texture, and reaction to temperature and light).
Grade Level Expectations: The student: **1. knows ways in which substances differ (for example, mass, volume, shape, density, texture, reaction to heat and light).**
Physical Science Lab, Level A: Cards 1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 31, 32 **Physical Science Lab, Level B:** Cards 1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 31, 32 **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

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.2: The student understands the difference between weight and mass.
Grade Level Expectations: The student: **1. understands that mass is the amount of material in an object.**
Physical Science Lab, Level A: Card 2 **Physical Science Lab, Level B:** Card 2

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.3: The student knows that temperature measures the average energy of motion of the particles that make up the substance.
Grade Level Expectations: The student: **1. understands that increasing the average motion of the particles in a substance increases the temperature of the substance.**
Physical Science Lab, Level A: Card 42 **Physical Science Lab, Level B:** Card 42

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.3: The student knows that temperature measures the average energy of motion of the particles that make up the substance.
Grade Level Expectations: The student: **2. understands that decreasing the average motion of the particles decreases the temperature.**
Physical Science Lab, Level A: Card 42 **Physical Science Lab, Level B:** Card 42

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.3: The student knows that temperature measures the average energy of motion of the particles that make up the substance.
Grade Level Expectations: The student: **3. determines the effect of a change in temperature on common materials (for example, butter, food coloring in water, isopropol alcohol).**
Physical Science Lab, Level A: Cards 5, 6, 7, 42 **Physical Science Lab, Level B:** Cards 5, 6, 7, 42

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.4" The student knows that atoms in solids are close together and do not move around easily; in liquids, atoms tend to move farther apart; in gas, atoms are quite far apart and move around freely.
Grade Level Expectations: The student: **1. understands that matter may exist as solids, liquids, and gases.**
Physical Science Lab, Level A: Cards 5, 6, 7 **Physical Science Lab, Level B:** Cards 5, 6, 7

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.4" The student knows that atoms in solids are close together and do not move around easily; in liquids, atoms tend to move farther apart; in gas, atoms are quite far apart and move around freely.
Grade Level Expectations: The student: **2. knows that molecular motion increases from solids to liquids to gases.**
Physical Science Lab, Level A: Cards 5, 6, 7 **Physical Science Lab, Level B:** Cards 5, 6, 7

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.5: The student knows the difference between a physical change in a substance (e.g., altering the shape, form, volume, or density) and a chemical change (i.e., producing new substances with different characteristics).
Grade Level Expectations: The student: **1. knows the physical properties of various substances.**
Physical Science Lab, Level A: Cards 1, 2, 5, 6, 7, 8 **Physical Science Lab, Level B:** Cards 1, 2, 5, 6, 7, 8

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.5: The student knows the difference between a physical change in a substance (e.g., altering the shape, form, volume, or density) and a chemical change (i.e., producing new substances with different characteristics).
Grade Level Expectations: The student: **2. knows the chemical properties of various substances.**
Physical Science Lab, Level A: Cards 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 27, 28, 29 **Physical Science Lab, Level B:** Cards 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 27, 28, 29 **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

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.5: The student knows the difference between a physical change in a substance (e.g., altering the shape, form, volume, or density) and a chemical change (i.e., producing new substances with different characteristics).
Grade Level Expectations: The student: **3. knows the difference between a physical and chemical change.**
Physical Science Lab, Level A: Cards 8, 9, 11, 12, 13, 27, 28, 29, 30 **Physical Science Lab, Level B:** Cards 8, 9, 11, 12, 13, 27, 28, 29, 30 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.6: The student knows that equal volumes of different substances may have different masses.
Grade Level Expectations: The student: **1. knows that equal volumes of different substances may have different masses.**
Physical Science Lab, Level A: Card 2 **Physical Science Lab, Level B:** Card 2

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.6: The student knows that equal volumes of different substances may have different masses.
Grade Level Expectations: The student: **2. uses the water displacement method to find the volume of common items (for example, rocks, nails, marbles).**
Physical Science Lab, Level A: Card 2 **Physical Science Lab, Level B:** Card 2

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.1: The student describes and compares the properties of particles and waves.
Grade Level Expectations: The student: **1. understands that particles and objects may be either neutral or have a positive or negative charge.**
Physical Science Lab, Level A: Cards 21, 22, 23, 24, 25 **Physical Science Lab, Level B:** Cards 21, 22, 23, 24, 25

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.1: The student describes and compares the properties of particles and waves.
Grade Level Expectations: The student: **2. knows the properties of waves (frequency, amplitude, wavelength).**
Physical Science Lab, Level A: Cards 77, 78, 79, 80, 81, 82 **Physical Science Lab, Level B:** Cards 77, 78, 79, 80, 81, 82 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 6, *Making Sound,* pages 97-99

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.1: The student describes and compares the properties of particles and waves.
Grade Level Expectations: The student: **3. knows how to compare and contrast the properties of particles and waves.**
Physical Science Lab, Level A: Cards 77, 78, 79, 80 **Physical Science Lab, Level B:** Cards 77, 78, 79, 80

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.2: The student knows the general properties of the atom (a massive nucleus of neutral neutrons and positive protons surrounded by a cloud of negative electrons) and accepts that single atoms are not visible.
Grade Level Expectations: The student: **1. understands the behavior of charged particles as evidenced by simple static electricity.**
Physical Science Lab, Level A: Cards 66, 67 **Physical Science Lab, Level B:** Cards 66, 67

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.2: The student knows the general properties of the atom (a massive nucleus of neutral neutrons and positive protons surrounded by a cloud of negative electrons) and accepts that single atoms are not visible.
Grade Level Expectations: The student: **2. determines the charge of an ion by comparing the number of protons and electrons associated with it.**
Physical Science Lab, Level A: Cards 21, 22, 23, 24, 25 **Physical Science Lab, Level B:** Cards 21, 22, 23, 24, 25

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.3: The student knows that radiation, light, and heat are forms of energy used to cook food, treat diseases, and provide energy.
Grade Level Expectations: The student: **1. knows forms of radiant energy and their applications to everyday life (for example, visible, microwave, radio).**
Physical Science Lab, Level A: Cards 46, 82, 83, 84, 85 **Physical Science Lab, Level B:** Cards 46, 82, 83, 84, 85

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.1: The student identifies forms of energy and explains that they can be measured and compared.
Grade Level Expectations: The student: **1. knows different types of energy and the units used to quantify the energy (for example, solar, nuclear, electrical, chemical).**
Physical Science Lab, Level A: Cards 36, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 69, 70, 72, 74, 76 **Physical Science Lab, Level B:** Cards 36, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 69, 70, 72, 74, 76 **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

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.1: The student identifies forms of energy and explains that they can be measured and compared.
Grade Level Expectations: The student: **2. understands that energy can be converted from one form to another (for example, solar energy to heat energy).**
Physical Science Lab, Level A: Cards 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 69, 70, 76 **Physical Science Lab, Level B:** Cards 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 69, 70, 76 **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

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.2. The student knows that energy cannot be created or destroyed, but only changed from one form to another.
Grade Level Expectations: The student: **1. understands that energy can be changed in form.**
Physical Science Lab, Level A: Cards 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 68, 70, 74, 80 **Physical Science Lab, Level B:** Cards 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 68, 70, 74, 80

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.2. The student knows that energy cannot be created or destroyed, but only changed from one form to another.
Grade Level Expectations: The student: **2. uses examples to demonstrate common energy transformations.**
Physical Science Lab, Level A: Cards 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 70, 74, 76, 80 **Physical Science Lab, Level B:** Cards 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 70, 74, 76, 80 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 3, *Energy Conversion*, pages 85-87; Hands-On Activity 6, *Making Sound*, pages 97-99

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.3: The student knows the various forms in which energy comes to Earth from the Sun (e.g., visible light, infrared, and microwave).
Grade Level Expectations: The student: **1. knows types of radiant energy that come to earth from the Sun (for example, visible, infrared, ultraviolet).**
Physical Science Lab, Level A: Cards 46, 82, 83, 84, 85 **Physical Science Lab, Level B:** Cards 46, 82, 83, 84, 85

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.3: The student knows the various forms in which energy comes to Earth from the Sun (e.g., visible light, infrared, and microwave).
Grade Level Expectations: The student: **2. knows the effect of sunlight on photosynthetic pigments.**
Life Science Lab, Level A: Cards 7, 9, 17 **Life Science Lab, Level B:** Cards 7, 9, 17 **Physical Science Lab, Level A:** Cards 38, 40 **Physical Science Lab, Level B:** Cards 38, 40

Strand B: Energy
Standard 2: The student understands the interaction of matter and energy.
Benchmark SC.B.2.3.1: The student knows that most events in the universe (e.g., weather changes, moving cars, and the transfer of a nervous impulse in the human body) involve some form of energy transfer and that these changes almost always increase the total disorder of the system and its surroundings, reducing the amount of useful energy.
Grade Level Expectations: The student: **1. understands that energy moves through systems.**
Life Science Lab, Level A: Cards 54, 74, 75, 76, 77, 78, 79 **Life Science Lab, Level B:** Cards 54, 74, 75, 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 11, 12, 13, 14, 15, 17, 35, 38, 39, 40, 41, 43, 45, 46, 47, 52, 53, 54, 62, 66, 67, 76, 78, 89, 90 **Earth Science Lab, Level B:** Cards 11, 12, 13, 14, 15, 17, 35, 38, 39, 40, 41, 43, 45, 46, 47, 52, 53, 54, 62, 66, 67, 76, 78, 89, 90 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95 **Physical Science Lab, Level A:** Cards 5, 6, 7, 8, 9, 27, 28, 29, 30, 34, 38, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 63, 64, 65, 66, 67, 68, 69, 70, 73, 74, 75, 76, 77, 79, 80, 82, 83 **Physical Science Lab, Level B:** Cards 5, 6, 7, 8, 9, 27, 28, 29, 30, 34, 38, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 63, 64, 65, 66, 67, 68, 69, 70, 73, 74, 75, 76, 77, 79, 80, 82, 83 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.1: The student knows that the motion of an object can be described by its position, direction of motion, and speed.
Grade Level Expectations: The student: **1. knows that a change in motion and position can be measured.**
Physical Science Lab, Level A: Cards 50, 51, 52, 53, 54, 57, 62, 65 **Physical Science Lab, Level B:** Cards 50, 51, 52, 53, 54, 57, 62, 65 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 4, *Reducing Friction,* pages 89-91

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.1: The student knows that the motion of an object can be described by its position, direction of motion, and speed.
Grade Level Expectations: The student: **2. knows ways to measure time intervals.**
Earth Science Lab, Level A: Card 74 **Earth Science Lab, Level B:** Card 74 **Physical Science Lab, Level A:** Card 51 **Physical Science Lab, Level B:** Card 51

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.1: The student knows that the motion of an object can be described by its position, direction of motion, and speed.
Grade Level Expectations: The student: **3. knows ways to estimate speed.**
Physical Science Lab, Level A: Cards 51, 52 **Physical Science Lab, Level B:** Cards 51, 52

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.2: The student knows that vibrations in materials set up wave disturbances that spread away from the source (e.g., sound and earthquake waves).
Grade Level Expectations: The student: **1. uses common items (a pebble dropped in water, a marble dropped in sand) to demonstrate that vibrations in materials set up visible disturbances that spread away from a force in all directions.**
Earth Science Lab, Level A: Cards 11, 12, 13, 14, 15, 16 **Earth Science Lab, Level B:** Cards 11, 12, 13, 14, 15, 16 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79 **Physical Science Lab, Level A:** Cards 77, 79 **Physical Science Lab, Level B:** Cards 77, 79

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.3: The student knows that is more than one force acts on an object, then the forces can reinforce or cancel each other, depending on their direction and magnitude.
Grade Level Expectations: The student: **1. recognizes the result of several forces acting on an object.**
Physical Science Lab, Level A: Cards 54, 55, 56, 57, 58, 59, 63, 64 **Physical Science Lab, Level B:** Cards 54, 55, 56, 57, 58, 59, 63, 64 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 4, *Reducing Friction*, pages 89-91

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.3: The student knows that is more than one force acts on an object, then the forces can reinforce or cancel each other, depending on their direction and magnitude.
Grade Level Expectations: The student: **2. knows that the net force is dependent on the direction and magnitude of forces acting on a body.**
Physical Science Lab, Level A: Cards 56, 57, 58, 63, 64 **Physical Science Lab, Level B:** Cards 56, 57, 58, 63, 64

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.4. The student knows that simple machines can be used to change the direction or size of a force.
Grade Level Expectations: The student: **1. knows uses of simple machines.**
Physical Science Lab, Level A: Cards 63, 64 **Physical Science Lab, Level B:** Cards 63, 64

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.4. The student knows that simple machines can be used to change the direction or size of a force.
Grade Level Expectations: The student: **2. knows advantages and disadvantages of simple machines.**
Physical Science Lab, Level A: Cards 63, 64 **Physical Science Lab, Level B:** Cards 63, 64

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.5: The student understands that an object in motion will continue at a constant speed and in a straight line until acted upon by a force and that an object at rest will remain at rest until acted upon by a force.
Grade Level Expectations: The student: **1. knows that an object at rest will stay at rest unless acted upon by an outside force.**
Physical Science Lab, Level A: Card 55 **Physical Science Lab, Level B:** Card 55

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.5: The student understands that an object in motion will continue at a constant speed and in a straight line until acted upon by a force and that an object at rest will remain at rest until acted upon by a force.
Grade Level Expectations: The student: **2. knows objects in motion will remain in motion unless acted upon by an outside force.**
Physical Science Lab, Level A: Card 55 **Physical Science Lab, Level B:** Card 55

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.7: The student knows that gravity is a universal force that every mass exerts on every other mass.
Grade Level Expectations: The student: **1. knows that gravity is a force that causes an object to fall to the ground.**
Earth Science Lab, Level A: Card 24 **Earth Science Lab, Level B:** Card 24 **Physical Science Lab, Level A:** Cards 57, 59 **Physical Science Lab, Level B:** Cards 57, 59

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.7: The student knows that gravity is a universal force that every mass exerts on every other mass.
Grade Level Expectations: The student: **2. knows that gravity causes an object to have weight.**
Physical Science Lab, Level A: Cards 57, 59 **Physical Science Lab, Level B:** Cards 57, 59

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.1: The student knows that mechanical and chemical activities shape and reshape the Earth's land surface by eroding rock and soil in some areas and depositing them in other areas, sometimes in seasonal layers.
Grade Level Expectations: The student: **1. understands that the surface of the Earth is constantly changing due to mechanical and chemical action.**
Earth Science Lab, Level A: Cards 9, 10, 11, 12, 13, 14, 15, 16, 17, 22, 24, 25, 26, 27, 28, 29 **Earth Science Lab, Level B:** Cards 9, 10, 11, 12, 13, 14, 15, 16, 17, 22, 24, 25, 26, 27, 28, 29 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.2: The student knows that over the whole Earth, organisms are growing, dying, and decaying as new organisms are produced by the old ones.
Grade Level Expectations: The student: **1. knows that sedimentary rock may contain fossils of plants, animals, and microbes.**
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 7, 30, 33, 34, 35 **Earth Science Lab, Level B:** Cards 7, 30, 33, 34, 35

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.2: The student knows that over the whole Earth, organisms are growing, dying, and decaying as new organisms are produced by the old ones.
Grade Level Expectations: The student: **2. knows ways the systems of Earth change over time and predicts the causes of the change.**
Earth Science Lab, Level A: Cards 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27, 28, 37, 38, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 65, 66, 86, 87, 88 **Earth Science Lab, Level B:** Cards 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27, 28, 37, 38, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 65, 66, 86, 87, 88 **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

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.3: The student knows how conditions that exist in one system influence the conditions that exist in other systems.
Grade Level Expectations: The student: **1. knows that different events on the Earth change features on Earth (for example, hurricanes, earthquakes, volcanoes).**
Earth Science Lab, Level A: Cards 9, 10, 11, 12, 13, 14, 15, 16, 17, 22, 24, 25, 26, 27, 28, 52, 53, 54, 59, 60, 61, 88 **Earth Science Lab, Level B:** Cards 9, 10, 11, 12, 13, 14, 15, 16, 17, 22, 24, 25, 26, 27, 28, 52, 53, 54, 59, 60, 61, 88 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79; Hands-On Activity 6, *Modeling a Tornado*, pages 93-95

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.4: The student knows the ways in which plants and animals reshape the landscape (e.g., bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion).
Grade Level Expectations: The student: **1. records seasonal changes of the landscape in a specific area over time.**
Earth Science Lab, Level A: Cards 55, 56, 57, 58, 62 **Earth Science Lab, Level B:** Cards 55, 56, 57, 58, 62

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.4: The student knows the ways in which plants and animals reshape the landscape (e.g., bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion).
Grade Level Expectations: The student: **2. knows ways that plants and animals reconstitute the soil and alter the landscape.**
Life Science Lab, Level A: Cards 72, 75, 76, 78 **Life Science Lab, Level B:** Cards 72, 75, 76, 78 **Earth Science Lab, Level A:** Cards 23, 29 **Earth Science Lab, Level B:** Cards 23, 29

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.4: The student knows the ways in which plants and animals reshape the landscape (e.g., bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion).
Grade Level Expectations: The student: **3. understands the processes that prevent or cause erosion.**
Earth Science Lab, Level A: Cards 24, 25, 26, 27, 28, 29 **Earth Science Lab, Level B:** Cards 24, 25, 26, 27, 28, 29

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.5: The student understands concepts of time and size relating too the interaction of Earth's processes (e.g., lightning striking in a split second as opposed to the shifting of the earth's plates altering the landscape, distance between atoms measured in Angstrom units as opposed to distance between stars measured in light-years).
Grade Level Expectations: The student: **1. understands the range of time over which natural events occur (for example, lightning in seconds, mountains form over many years).**
Life Science Lab, Level A: Card 80 **Life Science Lab, Level B:** Card 80 **Earth Science Lab, Level A:** Cards 10, 11, 12, 13, 14, 15, 17, 22, 24, 25, 26, 27, 28, 31, 32, 33, 34, 35, 52, 53, 54, 60, 61, 64, 65, 66, 67 **Earth Science Lab, Level B:** Cards 10, 11, 12, 13, 14, 15, 17, 22, 24, 25, 26, 27, 28, 31, 32, 33, 34, 35, 52, 53, 54, 60, 61, 64, 65, 66, 67 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79; Hands-On Activity 6, *Modeling a Tornado*, pages 93-95

Strand D: Processes that Shape the Earth
Standard 2: The student understands the need for protection of the natural systems on Earth.
Benchmark SC.D.2.3.1: The student understands that quality of life is relevant to personal experience.
Grade Level Expectations: The student: **1. knows that a change in the environment affects the quality of life in different ways for different organisms.**
Life Science Lab, Level A: Cards 80, 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 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 37, 42, 52, 53, 54, 59, 60, 61, 86 **Earth Science Lab, Level B:** Cards 37, 42, 52, 53, 54, 59, 60, 61, 86 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?,* pages 89-91

Strand D: Processes that Shape the Earth
Standard 2: The student understands the need for protection of the natural systems on Earth.
Benchmark SC.D.2.3.2: The student knows the positive and negative consequences of human action on the Earth' systems.
Grade Level Expectations: The student: **1. knows positive and negative consequences of human action on the Earth's systems (for example, farming, transportation, mining, manufacturing).**
Life Science Lab, Level A: Cards 84, 85, 86, 87, 88, 89, 80 **Life Science Lab, Level B:** Cards 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 35, 37, 42, 59, 61, 85, 86, 90 **Earth Science Lab, Level B:** Cards 35, 37, 42, 59, 61, 85, 86, 90 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?,* pages 89-91 **Physical Science Lab, Level A:** Card 49 **Physical Science Lab, Level B:** Card 49

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.1: The student understands the vast size of our Solar System and the relationship of the planets and their satellites.
Grade Level Expectations: The student: **1. knows the relationship between tides on Earth and the position of the Moon, the Sun, and Earth.**
Life Science Lab, Level A: Card 6 **Life Science Lab, Level B:** Card 6 **Earth Science Lab, Level A:** Card 66 **Earth Science Lab, Level B:** Card 66 **Physical Science Lab, Level A:** Card 48 **Physical Science Lab, Level B:** Card 48

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.1: The student understands the vast size of our Solar System and the relationship of the planets and their satellites.
Grade Level Expectations: The student: **2. knows the relative sizes of the Earth, Sun, Solar System, galaxy, and universe.**
Earth Science Lab, Level A: Cards 63, 68, 69, 70, 71, 72, 74, 77 **Earth Science Lab, Level B:** Cards 63, 68, 69, 70, 71, 72, 74, 77 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 7, *Sizes in the Solar System*, pages 97-99

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.1: The student understands the vast size of our Solar System and the relationship of the planets and their satellites.
Grade Level Expectations: The student: **3. understands the positions of the Earth, Moon, and Sun during a solar eclipse and a lunar eclipse.**
Earth Science Lab, Level A: Card 65 **Earth Science Lab, Level B:** Card 65

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.3.3: The student understands that our Sun is one of many stars in our galaxy
Grade Level Expectations: The student: **1. understands that our Sun is one of many stars in our galaxy.**
Earth Science Lab, Level A: Cards 67, 75, 76, 77 **Earth Science Lab, Level B:** Cards 67, 75, 76, 77

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.1: The student understands that living things are composed of major systems that function in reproduction, growth, maintenance, and regulation.
Grade Level Expectations: The student: **1. knows ways systems in an organism function and interact (for example, the muscular system provides the ability to move and is supported by the skeletal system when one is present).**
Life Science Lab, Level A: Cards 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab, Level B:** Cards 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab Teacher's Handbook:** Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.1: The student understands that living things are composed of major systems that function in reproduction, growth, maintenance, and regulation.
Grade Level Expectations: The student: **2. understands the difference between growth and maintenance.**
Life Science Lab, Level A: Cards 1, 9, 10, 45 **Life Science Lab, Level B:** Cards 1, 9, 10, 45 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells*, pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.2: The student knows that the structural basis of most organisms is the cell and most organisms are single cells, while some, including humans, are multicellular.
Grade Level Expectations: The student: **1. knows that the cell is the basic unit of structure and function in all living things.**
Life Science Lab, Level A: Cards 1, 5, 6, 7, 8, 9, 10 **Life Science Lab, Level B:** Cards 1, 5, 6, 7, 8, 9, 10 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells*, pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.2: The student knows that the structural basis of most organisms is the cell and most organisms are single cells, while some, including humans, are multicellular.
Grade Level Expectations: The student: **2. knows that there is great diversity among unicellular organisms.**
Life Science Lab, Level A: Cards 11, 12, 13, 14, 15 **Life Science Lab, Level B:** Cards 11, 12, 13, 14, 15 **Life Science Lab Teacher's Handbook:** Hands-On Activity 2, *Culturing Bacteria*, pages 81-83

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.2: The student knows that the structural basis of most organisms is the cell and most organisms are single cells, while some, including humans, are multicellular.
Grade Level Expectations: The student: **3. knows the basic processes that occur in cells.**
Life Science Lab, Level A: Cards 1, 5, 6, 7, 8, 9, 10 **Life Science Lab, Level B:** Cards 1, 5, 6, 7, 8, 9, 10 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells*, pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.3: The student knows that in multicellular organisms cells grow and divide to make more cells in order to form and repair various organs and tissues.
Grade Level Expectations: The student: **1. knows that in multicellular organisms cells grow and divide to form and repair various organs and tissues.**
Life Science Lab, Level A: Cards 1, 5, 6, 7, 8, 9, 10 **Life Science Lab, Level B:** Cards 1, 5, 6, 7, 8, 9, 10 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells*, pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.3: The student knows that in multicellular organisms cells grow and divide to make more cells in order to form and repair various organs and tissues.
Grade Level Expectations: The student: **2. understands cells reproduce to ensure the growth and repair of tissue.**
Life Science Lab, Level A: Card 10 **Life Science Lab, Level B:** Card 10

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.4: The student knows that the levels of structured organization for function in living things include cells, tissues, organs, systems, and organisms.
Grade Level Expectations: The student: **1. knows that the levels of structured organization in living things include cells, tissues, organs, systems, and organisms.**
Life Science Lab, Level A: Cards 44, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab, Level B:** Cards 44, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab Teacher's Handbook:** Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.5: The student explains how the life functions of organisms are related to what occurs within the cell.
Grade Level Expectations: The student: **1. understands that there are structures with particular functions that are unique to certain types of cells (for example, plant cells have cell walls, animal cells do not).**
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, *Examining Cells,* pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.5: The student explains how the life functions of organisms are related to what occurs within the cell.
Grade Level Expectations: The student: **2. understands the process of osmosis and diffusion.**
Life Science Lab, Level A: Card 8 **Life Science Lab, Level B:** Card 8

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.5: The student explains how the life functions of organisms are related to what occurs within the cell.
Grade Level Expectations: The student: **3. knows the essential functions in cells.**
Life Science Lab, Level A: Cards 6, 7, 8, 9, 10 **Life Science Lab, Level B:** Cards 6, 7, 8, 9, 10 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells,* pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.6: The student knows that the cells with similar functions have similar structures, whereas those with different structures have different functions.
Grade Level Expectations: The student: **1. uses or constructs models of plant and animal cells to identify the basic structures of each.**
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, *Examining Cells,* pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.6: The student knows that the cells with similar functions have similar structures, whereas those with different structures have different functions.
Grade Level Expectations: The student: **2. knows the functions of structures in plant and animal cells.**
Life Science Lab, Level A: Cards 6, 7, 8, 9, 10 **Life Science Lab, Level B:** Cards 6, 7, 8, 9, 10 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells,* pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.7: The student knows that behavior is a response to the environment and influences growth, development, maintenance, and reproduction.
Grade Level Expectations: The student: **1. knows that behavior is a response to the environment.**
Life Science Lab, Level A: Cards 24, 43 **Life Science Lab, Level B:** Cards 24, 43 **Life Science Lab Teacher's Handbook:** Hands-On Activity 3, *Investigating Arthropods,* pages 85-87

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.3: The student knows that generally organisms in a population live long enough to reproduce because they have survival characteristics.
Grade Level Expectations: The student: **1. knows adaptations that aid in species survival (for example, protective coloration, hibernation, delayed implantation).**
Life Science Lab, Level A: Cards 23, 41 **Life Science Lab, Level B:** Cards 23, 41 **Life Science Lab Teacher's Handbook:** Hands-On Activity 3, *Investigating Arthropods,* pages 85-87

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.3: The student understands that the classification of living things is based on a given set of criteria and is a tool for understanding biodiversity and interrelationships.
Grade Level Expectations: The student: **1. understands that living things are sorted for convenience and identification.**
Life Science Lab, Level A: Cards 2, 3, 11, 12, 14, 15, 16, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab, Level B:** Cards 2, 3, 11, 12, 14, 15, 16, 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

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.3: The student understands that the classification of living things is based on a given set of criteria and is a tool for understanding biodiversity and interrelationships.
Grade Level Expectations: The student: **2. understands that the structural characteristics among animals and plants are more alike as organisms are closer to the same kind of species within a classification level.**
Life Science Lab, Level A: Cards 2, 3 **Life Science Lab, Level B:** Cards 2, 3

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.4: The student knows that the interactions of organisms with each other and with the non-living parts of their environments result in the flow of energy and the cycling of matter throughout the system.
Grade Level Expectations: The student: **1. knows the nonliving (abiotic) and living (biotic) aspects of an ecosystem.**
Life Science Lab, Level A: Cards 70, 71 **Life Science Lab, Level B:** Cards 70, 71

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.4: The student knows that the interactions of organisms with each other and with the non-living parts of their environments result in the flow of energy and the cycling of matter throughout the system.
Grade Level Expectations: The student: **2. understands how the components of an ecosystem interact.**
Life Science Lab, Level A: Cards 72, 73, 74, 75, 76, 77 **Life Science Lab, Level B:** Cards 72, 73, 74, 75, 76, 77 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.4: The student knows that the interactions of organisms with each other and with the non-living parts of their environments result in the flow of energy and the cycling of matter throughout the system.
Grade Level Expectations: The student: **3. understands that food chains show specific trophic relationships and food webs are used to illustrate interrelationships of trophic levels.**
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

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.1: The student knows that some resources are renewable and others are nonrenewable.
Grade Level Expectations: The student: **1. knows renewable and nonrenewable energy sources.**
Life Science Lab, Level A: Card 84 **Life Science Lab, Level B:** Card 84 **Earth Science Lab, Level A:** Cards 35, 90 **Earth Science Lab, Level B:** Cards 35, 90 **Physical Science Lab, Level A:** Cards 34, 38, 45, 46, 47, 48, 49 **Physical Science Lab, Level B:** Cards 34, 38, 45, 46, 47, 48, 49

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.2: The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system.
Grade Level Expectations: The student: **1. distinguishes between biotic and abiotic factors in the environment.**
Life Science Lab, Level A: Card 70 **Life Science Lab, Level B:** Card 70

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.3: The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth.
Grade Level Expectations: The student: **1. understands that changes in the environment may influence the size, number, or diversity of organisms in an area.**
Life Science Lab, Level A: Cards 72, 80, 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 72, 80, 84, 85, 86, 87, 88, 89, 90 **Earth Science Lab, Level A:** Cards 42, 59, 60, 61, 86, 90 **Earth Science Lab, Level B:** Cards 42, 59, 60, 61, 86, 90

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.4: The student understands that humans are a part if an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems.
Grade Level Expectations: The student: **1. understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in the ecosystem.**
Life Science Lab, Level A: Cards 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 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 35, 37, 42, 59, 61, 86, 90 **Earth Science Lab, Level B:** Cards 35, 37, 42, 59, 61, 86, 90 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?,* pages 89-91

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.1: The student knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at observations in a new way.
Grade Level Expectations: The student: **1. knows ways scientific theories may change with new discoveries.**
Life Science Lab, Level A: Card 5 **Life Science Lab, Level B:** Card 5 **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, 53, 59 **Physical Science Lab, Level B:** Cards 3, 53, 59

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.1: The student knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at observations in a new way.
Grade Level Expectations: The student: **2. understands that new technology may lead to new discoveries.**
Physical Science Lab, Level A: Cards 35, 49, 73, 81, 84 **Physical Science Lab, Level B:** Cards 35, 49, 73, 81, 84

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.2: The student knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects.
Grade Level Expectations: The student: **1. uses systematic, scientific processes to develop and test hypotheses.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 8, 15

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.2: The student knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects.
Grade Level Expectations: The student: **2. knows that the scientific method is a process that involves a logical and empirical but flexible approach to problem solving.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 15

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.3: The student knows that science disciplines differ from one another in topic, techniques, and outcomes but that they share a common purpose, philosophy, and enterprise.
Grade Level Expectations: The student: **1. knows that the disciplines of science provide in depth study and information that become available for all to share and use.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.4: The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society.
Grade Level Expectations: The student: **1. knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 15, 16, 22, 23, 24

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.4: The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society.
Grade Level Expectations: The student: **2. uses accurate records, openness, and replication of experiments to ensure credibility.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 15, 16, 22, 23, 24

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.5: The student knows that a change in one or more variables may alter the outcome of an investigation.
Grade Level Expectations: The student: **1. understands the importance of the control in an experiment.**
Life Science Lab Teacher's Handbook: Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83 **Classroom Resource CD-ROM:** Writing Strategy 23

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.5: The student knows that a change in one or more variables may alter the outcome of an investigation.
Grade Level Expectations: The student: **2. knows how to identify the independent and dependent variables in an experiment.**
Life Science Lab Teacher's Handbook: Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83 **Classroom Resource CD-ROM:** Writing Strategy 15, 23

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.5: The student knows that a change in one or more variables may alter the outcome of an investigation.
Grade Level Expectations: The student: **3. uses appropriate experimental design, with consideration for rules, time, and materials required to solve a problem.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 15

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.6: The student recognizes the scientific contributions that are made by individuals of diverse backgrounds, interests, talents, and motivations.
Grade Level Expectations: The student: **1. knows selected scientists and their accomplishments.**
Life Science Lab, Level A: Cards 2, 5, 46, 59, 69 **Life Science Lab, Level B:** Cards 2, 5, 46, 59, 69 **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

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.6: The student recognizes the scientific contributions that are made by individuals of diverse backgrounds, interests, talents, and motivations.
Grade Level Expectations: The student: **2. knows that scientists who make contributions to knowledge come from all kinds of backgrounds and posses varied talents, interests, and goals.**
Life Science Lab, Level A: Cards 2, 5, 46, 59, 69 **Life Science Lab, Level B:** Cards 2, 5, 46, 59, 69 **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

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.7: The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study.
Grade Level Expectations: The student: **1. uses criteria necessary to determine the veracity of the data.**
Life Science Lab Teacher's Handbook: Hands-On Activity 3, *Investigating Arthropods*, pages 85-87; Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91; Hands-On Activity 5, *Making Fossils*, pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?*, pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain*, pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale*, pages 73-75; Hands-On Activity 3, *Interpreting a Topographic Map*, pages 81-83; Hands-On Activity 5, *What is in the Air?*, pages 89-91; Hands-On Activity 8, *Temperature, Salinity, and Water Density*, pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases*, pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates*, pages 81-83; Hands-On Activity 3, *Energy Conversion*, pages 85-87; Hands-On Activity 6, *Making Sound*, pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 16, 22, 24

Strand H: The Nature of Science
Standard 2: The student understands that most natural events occur in comprehensible, consistent patterns.
Benchmark SC.H.2.3.1: The student recognizes that patterns exist within and across systems.
Grade Level Expectations: The student: **1. knows that most natural events occur in patterns.**
Life Science Lab, Level A: Cards 44, 60, 61, 63, 64, 78, 79 **Life Science Lab, Level B:** Cards 44, 60, 61, 63, 64, 78, 79 **Earth Science Lab, Level A:** Cards 9, 38, 40, 41, 45, 46, 47, 48, 49, 55, 56, 57, 58, 62, 64, 65, 66 **Earth Science Lab, Level B:** Cards 9, 38, 40, 41, 45, 46, 47, 48, 49, 55, 56, 57, 58, 62, 64, 65, 66 **Physical Science Lab, Level A:** Cards 6, 7, 8, 9, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 31, 32, 44, 47, 48, 77, 78, 79, 81, 82, 83, 84 **Physical Science Lab, Level B:** Cards 6, 7, 8, 9, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 31, 32, 44, 47, 48, 77, 78, 79, 81, 82, 83, 84

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.1: The student knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.
Grade Level Expectations: The student: **1. knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.**
Life Science Lab Teacher's Handbook: Hands-On Activity 3, *Investigating Arthropods*, pages 85-87; Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.1: The student knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.
Grade Level Expectations: The student: **2. uses appropriate procedures for safety in the classroom, home, and community.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 15

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.2: The student knows that special care must be taken in using animals in scientific research.
Grade Level Expectations: The student: **1. knows that appropriate care, safe practices, and ethical treatment are necessary when animals are involved in scientific research.**
Life Science Lab Teacher's Handbook: Hands-On Activity 3, *Investigating Arthropods,* pages 85-87

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.3: The student knows that in research involving human subjects, the ethics o science require that potential subjects be fully informed about the risks and benefits associated with the research and their right to refuse to participate.
Grade Level Expectations: The student: **1. knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefits associated with the research and of their right to refuse to participate.**
Life Science Lab Teacher's Handbook: Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.4: The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.
Grade Level Expectations: The student: **1. knows some ways that scientific discoveries create new technologies that affect society (for example, geographic information systems, gene mapping, electronic communication).**
Life Science Lab, Level A: Cards 13, 64, 69, 83 **Life Science Lab, Level B:** Cards 13, 64, 69, 83 **Earth Science Lab, Level A:** Cards 16, 20, 51, 79, 80, 81 **Earth Science Lab, Level B:** Cards 16, 20, 51, 79, 80, 81 **Physical Science Lab, Level A:** Cards 3, 35, 49, 73, 81, 84 **Physical Science Lab, Level B:** Cards 3, 35, 49, 73, 81, 84

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.5: The student understands that contributions to the advancement of science, mathematics, and technology have been made by different people, in different cultures, at different times and are an intrinsic part of the development of human culture.
Grade Level Expectations: The student: **1. knows that the advancement of science, mathematics, and technology is ongoing and influenced by a diverse population of scientists.**
Life Science Lab, Level A: Cards 13, 64, 69 **Life Science Lab, Level B:** Cards 13, 64, 69 **Earth Science Lab, Level A:** Cards 10, 20, 21, 51, 79 **Earth Science Lab, Level B:** Cards 10, 20, 21, 51, 79 **Physical Science Lab, Level A:** Cards 34, 35, 49, 73, 81, 84, 90 **Physical Science Lab, Level B:** Cards 34, 35, 49, 73, 81, 84, 90

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.6: The scientist knows that no matter who does science and mathematics or invents things, or when they do it, the knowledge and technology that result can eventually become available to everyone.
Grade Level Expectations: The student: **1. knows that scientific contributions may result in diverse technological products.**
Earth Science Lab, Level A: Cards 16, 20, 31, 35, 51, 79, 80, 81 **Earth Science Lab, Level B:** Cards 16, 20, 31, 35, 51, 79, 80, 81 **Physical Science Lab, Level A:** Cards 35, 49, 81, 84, 90 **Physical Science Lab, Level B:** Cards 35, 49, 81, 84, 90

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.7: The student knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.
Grade Level Expectations: The student: **1. uses a computer to collect, analyze, and report scientific findings.**
Life Science Lab Teacher's Handbook: Hands-On Activity 2, *Culturing Bacteria*, pages 81-83

SRA Life, Earth, and Physical Science Laboratories
correlation to
Florida Grade Level Expectations for the Sunshine State 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.

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.1: The student identifies various ways in which substances differ (e.g., mass, volume, shape, density, texture, and reaction to temperature and light).
Grade Level Expectations: The student: **1. uses a variety of measurements to describe the physical properties of matter (for example, volume and mass).**
Physical Science Lab, Level A: Cards 1, 2, 57 **Physical Science Lab, Level B:** Cards 1, 2, 57

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.2: The student understands the difference between weight and mass.
Grade Level Expectations: The student: **1. understands that weight is the result of gravitational pull on an object.**
Physical Science Lab, Level A: Card 57 **Physical Science Lab, Level B:** Card 57

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.3: The student knows that temperature measures the average energy of motion of the particles that make up the substance.
Grade Level Expectations: The student: **1. knows the difference between heat and temperature.**
Physical Science Lab, Level A: Cards 42, 43 **Physical Science Lab, Level B:** Cards 42, 43

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.3: The student knows that temperature measures the average energy of motion of the particles that make up the substance.
Grade Level Expectations: The student: **2. knows that relative changes of position and motion of atoms in a solid, liquid, and gas are the result of an increase or decrease in temperature.**
Physical Science Lab, Level A: Cards 5, 6, 7, 42, 43 **Physical Science Lab, Level B:** Cards 5, 6, 7, 42, 43

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.4" The student knows that atoms in solids are close together and do not move around easily; in liquids, atoms tend to move farther apart; in gas, atoms are quite far apart and move around freely.
Grade Level Expectations: The student: **1. knows the direction of energy flow when a change in the phase of matter occurs.**
Physical Science Lab, Level A: Cards 5, 6, 42, 43, 44 **Physical Science Lab, Level B:** Cards 5, 6, 42, 43, 44

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.5: The student knows the difference between a physical change in a substance (e.g., altering the shape, form, volume, or density) and a chemical change (i.e., producing new substances with different characteristics).
Grade Level Expectations: The student: **1. knows that physical changes do not result in new substances.**
Physical Science Lab, Level A: Cards 5, 6, 7, 8, 12, 13 **Physical Science Lab, Level B:** Cards 5, 6, 7, 8, 12, 13

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.5: The student knows the difference between a physical change in a substance (e.g., altering the shape, form, volume, or density) and a chemical change (i.e., producing new substances with different characteristics).
Grade Level Expectations: The student: **2. knows that chemical changes result in new substances with different characteristics.**
Physical Science Lab, Level A: Cards 6, 7, 8, 9, 11, 27, 28, 29, 30, 31, 32, 35 **Physical Science Lab, Level B:** Cards 6, 7, 8, 9, 11, 27, 28, 29, 30, 31, 32, 35

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.5: The student knows the difference between a physical change in a substance (e.g., altering the shape, form, volume, or density) and a chemical change (i.e., producing new substances with different characteristics).
Grade Level Expectations: The student: **3. knows physical and chemical changes that occur in nature.**
Life Science Lab, Level A: Cards 9, 17, 78, 79, 80 **Life Science Lab, Level B:** Cards 9, 17, 78, 79, 80 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?*, pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain*, pages 101-103 **Earth Science Lab, Level A:** Cards 9, 33, 35, 42, 47, 59, 86 **Earth Science Lab, Level B:** Cards 9, 33, 35, 42, 47, 59, 86 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?*, pages 89-91 **Physical Science Lab, Level A:** Cards 5, 6 **Physical Science Lab, Level B:** Cards 5, 6

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.6: The student knows that equal volumes of different substances may have different masses.
Grade Level Expectations: The student: **1. determines the volumes of different substances that have equal masses.**
Physical Science Lab, Level A: Card 2 **Physical Science Lab, Level B:** Card 2

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.1: The student describes and compares the properties of particles and waves.
Grade Level Expectations: The student: **1. knows that charged particles and objects will attract or repel each other.**
Physical Science Lab, Level A: Cards 21, 22, 23, 24, 25, 26, 66, 67, 74, 75, 76 **Physical Science Lab, Level B:** Cards 21, 22, 23, 24, 25, 26, 66, 67, 74, 75, 76

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.1: The student describes and compares the properties of particles and waves.
Grade Level Expectations: The student: **2. understands the relationship between frequency and wavelength (the greater the frequency of the wave, the smaller the wavelength of the wave).**
Physical Science Lab, Level A: Cards 78, 79, 80, 82, 83 **Physical Science Lab, Level B:** Cards 78, 79, 80, 82, 83

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.2: The student knows the general properties of the atom (a massive nucleus of neutral neutrons and positive protons surrounded by a cloud of negative electrons) and accepts that single atoms are not visible.
Grade Level Expectations: The student: **1. understands that protons and neutrons are located in the nucleus of the atom while electrons exist in areas of probability outside the nucleus.**
Physical Science Lab, Level A: Cards 21, 22, 23, 24, 25 **Physical Science Lab, Level B:** Cards 21, 22, 23, 24, 25

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.2: The student knows the general properties of the atom (a massive nucleus of neutral neutrons and positive protons surrounded by a cloud of negative electrons) and accepts that single atoms are not visible.
Grade Level Expectations: The student: **2. understands that the mass of an atom is concentrated in the nucleus where the protons and neutrons are located.**
Physical Science Lab, Level A: Cards 3, 21 **Physical Science Lab, Level B:** Cards 3, 21

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.2: The student knows the general properties of the atom (a massive nucleus of neutral neutrons and positive protons surrounded by a cloud of negative electrons) and accepts that single atoms are not visible.
Grade Level Expectations: The student: **3. determines the mass number and atomic number of an atom from the number of protons and neutrons.**
Physical Science Lab, Level A: Cards 17, 21, 22, 23, 24, 25 **Physical Science Lab, Level B:** Cards 17, 21, 22, 23, 24, 25

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.2: The student knows the general properties of the atom (a massive nucleus of neutral neutrons and positive protons surrounded by a cloud of negative electrons) and accepts that single atoms are not visible.
Grade Level Expectations: The student: **4. understands that most of the atom is empty space.**
Physical Science Lab, Level A: Cards 3, 21 **Physical Science Lab, Level B:** Cards 3, 21

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.3: The student knows that radiation, light, and heat are forms of energy used to cook food, treat diseases, and provide energy.
Grade Level Expectations: The student: **1. knows uses of radiation, light, and thermal energy to improve the quality of life for human beings (for example, cooking food, treating disease).**
Physical Science Lab, Level A: Cards 42, 43, 81, 84, 87, 90 **Physical Science Lab, Level B:** Cards 42, 43, 81, 84, 87, 90

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.1: The student identifies forms of energy and explains that they can be measured and compared.
Grade Level Expectations: The student: **1. knows examples of uses of energy in the home and ways to measure its use.**
Physical Science Lab, Level A: Cards 42, 43, 68, 69, 70, 71, 72, 73, 76, 81, 84, 87, 90 **Physical Science Lab, Level B:** Cards 42, 43, 68, 69, 70, 71, 72, 73, 76, 81, 85, 87, 90

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.2. The student knows that energy cannot be created or destroyed, but only changed from one form to another.
Grade Level Expectations: The student: **1. knows the difference between potential and kinetic energy.**
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 Science Lab Teacher's Handbook:** Hands-On Activity 3, *Energy Conversion*, pages 85-87

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.2. The student knows that energy cannot be created or destroyed, but only changed from one form to another.
Grade Level Expectations: The student: **2. knows ways to change energy from potential to kinetic.**
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

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.3: The student knows the various forms in which energy comes to Earth from the Sun (e.g., visible light, infrared, and microwave).
Grade Level Expectations: The student: **1. knows the characteristics, effects, and common uses of ultraviolet, visible, and infrared light.**
Physical Science Lab, Level A: Cards 82, 83, 84, 90 **Physical Science Lab, Level B:** Cards 82, 83, 84, 90

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.4: The student knows that energy conversions are never 100% efficient (e.g., some energy is transformed to heat and is unavailable for further useful work).
Grade Level Expectations: The student: **1. knows that useful energy is lost as heat energy in every energy conversion.**
Life Science Lab, Level A: Card 77 **Life Science Lab, Level B:** Card 77 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99 **Physical Science Lab, Level A:** Cards 27, 28, 29, 30, 34, 37, 67, 69, 71, 72, 73, 83, 85 **Physical Science Lab, Level B:** Cards 27, 28, 29, 30, 34, 37, 67, 69, 71, 72, 73, 83, 85 **Physical 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

Strand B: Energy
Standard 2: The student understands the interaction of matter and energy.
Benchmark SC.B.2.3.1: The student knows that most events in the universe (e.g., weather changes, moving cars, and the transfer of a nervous impulse in the human body) involve some form of energy transfer and that these changes almost always increase the total disorder of the system and its surroundings, reducing the amount of useful energy.
Grade Level Expectations: The student: **1. knows that as the amount of useful energy of a system decreases, the total disorder in the system increases.**
Life Science Lab, Level A: Card 77 **Life Science Lab, Level B:** Card 77 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99 **Physical Science Lab, Level A:** Cards 27, 28, 29, 30, 34 **Physical Science Lab, Level B:** Cards 27, 28, 29, 30, 34

Strand B: Energy
Standard 2: The student understands the interaction of matter and energy.
Benchmark SC.B.2.3.2: The student knows that most of the energy used today is derived from burning stored energy collected by organisms millions of years ago (e.g., nonrenewable fossil fuels).
Grade Level Expectations: The student: **1. knows that fossil fuels are found in the Earth, they are nonrenewable, and the advantages and disadvantages of their use.**
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

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.1: The student knows that the motion of an object can be described by its position, direction of motion, and speed.
Grade Level Expectations: The student: **1. knows that the motion of an object can be described by its position, direction of motion, and speed.**
Physical Science Lab, Level A: Cards 50, 51, 52, 53 **Physical Science Lab, Level B:** Cards 50, 51, 52, 53

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.2: The student knows that vibrations in materials set up wave disturbances that spread away from the source (e.g., sound and earthquake waves).
Grade Level Expectations: The student: **1. knows factors that influence the amount of damage vibrations can cause.**
Earth Science Lab, Level A: Cards 15, 16 **Earth Science Lab, Level B:** Cards 15, 16 **Physical Science Lab, Level A:** Cards 79, 80 **Physical Science Lab, Level B:** Cards 79, 80

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.2: The student knows that vibrations in materials set up wave disturbances that spread away from the source (e.g., sound and earthquake waves).
Grade Level Expectations: The student: **2. knows intensity of some common 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, 80 **Physical Science Lab, Level B:** Cards 77, 78, 79, 80 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 6, *Making Sound,* pages 97-99

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.2: The student knows that vibrations in materials set up wave disturbances that spread away from the source (e.g., sound and earthquake waves).
Grade Level Expectations: The student: **3. knows some causes and effects of waves.**
Earth Science Lab, Level A: Cards 10, 11, 12, 13, 14, 15, 16 **Earth Science Lab, Level B:** Cards 10, 11, 12, 13, 14, 15, 16 **Physical Science Lab, Level A:** Cards 77, 78, 79, 80, 81, 82, 83, 84, 85, 90 **Physical Science Lab, Level B:** Cards 77, 78, 79, 80, 81, 82, 83, 84, 85, 90 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 6, *Making Sound,* pages 97-99

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.1: The student knows that many forces (e.g., gravitational, electrical, and magnetic) act at a distance (e.g., without contact).
Grade Level Expectations: The student: **1. knows the properties of forces.**
Physical Science Lab, Level A: Cards 54, 55, 56, 58, 59 **Physical Science Lab, Level B:** Cards 54, 55, 56, 58, 59 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 4, *Reducing Friction*, pages 89-91

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.1: The student knows that many forces (e.g., gravitational, electrical, and magnetic) act at a distance (e.g., without contact).
Grade Level Expectations: The student: **2. knows that like poles of the magnet (two north poles or two south poles) will repel and opposite poles (north and south) will attract.**
Physical Science Lab, Level A: Cards 74, 75 **Physical Science Lab, Level B:** Cards 74, 75

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.1: The student knows that many forces (e.g., gravitational, electrical, and magnetic) act at a distance (e.g., without contact).
Grade Level Expectations: The student: **3. knows that a simple electromagnet uses both electrical force and a magnetic force.**
Physical Science Lab, Level A: Card 76 **Physical Science Lab, Level B:** Card 76

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.1: The student knows that many forces (e.g., gravitational, electrical, and magnetic) act at a distance (e.g., without contact).
Grade Level Expectations: The student: **4. knows the difference between parallel and series circuits.**
Physical Science Lab, Level A: Card 68 **Physical Science Lab, Level B:** Card 68

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.3: The student knows that is more than one force acts on an object, then the forces can reinforce or cancel each other, depending on their direction and magnitude.
Grade Level Expectations: The student: **1. knows that objects in a vacuum accelerate at a constant rate.**
Physical Science Lab, Level A: Card 52 **Physical Science Lab, Level B:** Card 52

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.3: The student knows that is more than one force acts on an object, then the forces can reinforce or cancel each other, depending on their direction and magnitude.
Grade Level Expectations: The student: **2. understands that as objects fall to Earth, speed increases until they reach terminal velocity.**
Physical Science Lab, Level A: Cards 51, 52 **Physical Science Lab, Level B:** Cards 51, 52

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.4. The student knows that simple machines can be used to change the direction or size of a force.
Grade Level Expectations: The student: **1. understands uses and combinations of simple machines in complicated machines.**
Physical Science Lab, Level A: Cards 41, 63, 64 **Physical Science Lab, Level B:** Cards 41, 63, 64

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.7: The student knows that gravity is a universal force that every mass exerts on every other mass.
Grade Level Expectations: The student: **1. understands that gravity is a force exerted on a mass that causes an object to have weight.**
Physical Science Lab, Level A: Cards 57, 59 **Physical Science Lab, Level B:** Cards 57, 59

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.7: The student knows that gravity is a universal force that every mass exerts on every other mass.
Grade Level Expectations: The student: **2. knows that gravity is a force that holds the Solar System together.**
Earth Science Lab, Level A: Card 68 **Earth Science Lab, Level B:** Card 68

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.1: The student knows that mechanical and chemical activities shape and reshape the Earth's land surface by eroding rock and soil in some areas and depositing them in other areas, sometimes in seasonal layers.
Grade Level Expectations: The student: **1. knows the relationship between run-off and the development of a river system.**
Earth Science Lab, Level A: Cards 82, 83, 84 **Earth Science Lab, Level B:** Cards 82, 83, 84

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.1: The student knows that mechanical and chemical activities shape and reshape the Earth's land surface by eroding rock and soil in some areas and depositing them in other areas, sometimes in seasonal layers.
Grade Level Expectations: The student: **2. understands the action of ground water to form aquifers, caverns, and sinkholes.**
Earth Science Lab, Level A: Card 84 **Earth Science Lab, Level B:** Card 84

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.1: The student knows that mechanical and chemical activities shape and reshape the Earth's land surface by eroding rock and soil in some areas and depositing them in other areas, sometimes in seasonal layers.
Grade Level Expectations: The student: **3. knows the ways in which the Earth's surface is eroded and reshaped (for example, weathering, erosion, deposition).**
Earth Science Lab, Level A: Cards 22, 24, 25, 26, 27, 28 **Earth Science Lab, Level B:** Cards 22, 24, 25, 26, 27, 28

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.2: The student knows that over the whole Earth, organisms are growing, dying, and decaying as new organisms are produced by the old ones.
Grade Level Expectations: The student: **1. understands that fossils are used to predict and explain the similarities and differences of organisms that lived in the past and compare them with those living today.**
Life Science Lab, Level A: Cards 67, 68 **Life Science Lab, Level B:** Cards 67, 68 **Life Science Lab Teacher's Handbook:** Hands-On Activity 5, *Making Fossils,* pages 93-95 **Earth Science Lab, Level A:** Cards 33, 34 **Earth Science Lab, Level B:** Cards 33, 34

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.3: The student knows how conditions that exist in one system influence the conditions that exist in other systems.
Grade Level Expectations: The student: **1. understands that changes on the surface of the Earth change features on Earth (for example, hurricanes, earthquakes, volcanoes).**
Earth Science Lab, Level A: Cards 10, 11, 12, 13, 14, 15, 16, 17, 21, 24, 25, 26, 27, 28, 52, 53, 54 **Earth Science Lab, Level B:** Cards 10, 11, 12, 13, 14, 15, 16, 17, 21, 24, 25, 26, 27, 28, 52, 53, 54 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.4: The student knows the ways in which plants and animals reshape the landscape (e.g., bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion).
Grade Level Expectations: The student: **1. knows the ways in which living things reshape the landscape (for example, bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion).**
Life Science Lab, Level A: Cards 12, 13, 15, 76, 78, 79 **Life Science Lab, Level B:** Cards 12, 13, 15, 76, 78, 79 **Earth Science Lab, Level A:** Card 23 **Earth Science Lab, Level B:** Card 23

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.5: The student understands concepts of time and size relating too the interaction of Earth's processes (e.g., lightning striking in a split second as opposed to the shifting of the earth's plates altering the landscape, distance between atoms measured in Angstrom units as opposed to distance between stars measured in light-years).
Grade Level Expectations: The student: **1. uses a geologic timeline to illustrate the occurrence of processes on Earth,**
Life Science Lab, Level A: Cards 66, 67, 68 **Life Science Lab, Level B:** Cards 66, 67, 68 **Earth Science Lab, Level A:** Cards 32, 34 **Earth Science Lab, Level B:** Cards 32, 34

Strand D: Processes that Shape the Earth
Standard 2: The student understands the need for protection of the natural systems on Earth.
Benchmark SC.D.2.3.1: The student understands that quality of life is relevant to personal experience.
Grade Level Expectations: The student: **1. knows ways to conserve and recycle resources (for example, develops and uses a personal action plan to use recyclable materials whenever possible).**
Life Science Lab, Level A: Cards 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 84, 85, 86, 87, 88, 89, 90 **Earth Science Lab, Level A:** Cards 29, 37, 42, 59, 61, 85, 86 **Earth Science Lab, Level B:** Cards 29, 37, 42, 59, 61, 85, 86

Strand D: Processes that Shape the Earth
Standard 2: The student understands the need for protection of the natural systems on Earth.
Benchmark SC.D.2.3.2: The student knows the positive and negative consequences of human action on the Earth' systems.
Grade Level Expectations: The student: **1. knows roles of various public and private environmental agencies (for example, Florida Water Management Districts, Environmental Protection Agency).**
Life Science Lab, Level A: Cards 84, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 84, 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 42, 59, 60, 85, 86 **Earth Science Lab, Level B:** Cards 42, 59, 60, 85, 86

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.1: The student understands the vast size of our Solar System and the relationship of the planets and their satellites.
Grade Level Expectations: The student: **1. knows the relative sizes of planets.**
Earth Science Lab, Level A: Cards 68, 69, 70, 71, 72 **Earth Science Lab, Level B:** Cards 68, 69, 70, 71, 72 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 7, *Sizes in the Solar System*, pages 97-99

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.1: The student understands the vast size of our Solar System and the relationship of the planets and their satellites.
Grade Level Expectations: The student: **2. understands the distances of the planets and the asteroid belt from the Sun are vast.**
Earth Science Lab, Level A: Cards 68, 69, 70, 71, 72 **Earth Science Lab, Level B:** Cards 68, 69, 70, 71, 72 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 7, *Sizes in the Solar System*, pages 97-99

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.1: The student understands the vast size of our Solar System and the relationship of the planets and their satellites.
Grade Level Expectations: The student: **3. understands the relationship between the phases of the Moon and the positions of the Moon, Earth, and Sun as Moon revolves around the Earth.**
Earth Science Lab, Level A: Cards 63, 64 **Earth Science Lab, Level B:** Cards 63, 64

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.1: The student understands the vast size of our Solar System and the relationship of the planets and their satellites.
Grade Level Expectations: The student: **4. understands the revolution and rotation of the Moon relative to the Earth, and knows that the same side of the Moon always faces the Earth.**
Earth Science Lab, Level A: Cards 62, 63, 64 **Earth Science Lab, Level B:** Cards 62, 63, 64

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.1: The student understands the vast size of our Solar System and the relationship of the planets and their satellites.
Grade Level Expectations: The student: **5. understands that the tilt of the Earth on its axis as it rotates causes seasonal changes.**
Earth Science Lab, Level A: Card 62 **Earth Science Lab, Level B:** Card 62

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.2: The student knows that available data from various satellite probes show the similarities and differences among planets and their moon in the solar system.
Grade Level Expectations: The student: **1. knows characteristics of the inner planets and outer planets.**
Earth Science Lab, Level A: Cards 69, 70, 71, 72 **Earth Science Lab, Level B:** Cards 69, 70, 71, 72

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.2: The student knows that available data from various satellite probes show the similarities and differences among planets and their moon in the solar system.
Grade Level Expectations: The student: **2. knows basic features of the Moon and the moons of other planets.**
Earth Science Lab, Level A: Cards 63, 64, 65, 66 **Earth Science Lab, Level B:** Cards 63, 64, 65, 66

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.3.3: The student understands that our Sun is one of many stars in our galaxy
Grade Level Expectations: The student: **1. knows some of the constellations of stars in the sky.**
Earth Science Lab, Level A: Card 75 **Earth Science Lab, Level B:** Card 75

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.3.3: The student understands that our Sun is one of many stars in our galaxy
Grade Level Expectations: The student: **2. knows why stars appear to move across the sky.**
Earth Science Lab, Level A: Cards 62, 75 **Earth Science Lab, Level B:** Cards 62, 75

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.3.4: The student knows that stars appear to be made of similar chemical elements, although they differ in age, size, temperature, and distance.
Grade Level Expectations: The student: **1. knows the life cycle of a star.**
Earth Science Lab, Level A: Cards 75, 76 **Earth Science Lab, Level B:** Cards 75, 76

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.3.4: The student knows that stars appear to be made of similar chemical elements, although they differ in age, size, temperature, and distance.
Grade Level Expectations: The student: **2. knows the process used to determine the age of a star.**
Earth Science Lab, Level A: Card 76 **Earth Science Lab, Level B:** Card 76

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.1: The student understands that living things are composed of major systems that function in reproduction, growth, maintenance, and regulation.
Grade Level Expectations: The student: **1. understands that the systems within living things respond to changes in the environment (for example, allergens and carcinogens).**
Life Science Lab, Level A: Cards 8, 9, 10, 23, 24, 41, 43, 46, 47, 48, 49, 51, 54, 56, 83 **Life Science Lab, Level B:** Cards 8, 9, 10, 23, 24, 41, 43, 46, 47, 48, 49, 51, 54, 56, 83 **Life Science Lab Teacher's Handbook:** Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.2: The student knows that the structural basis of most organisms is the cell and most organisms are single cells, while some, including humans, are multicellular.
Grade Level Expectations: The student: **1. understands the concept of multicellular organisms.**
Life Science Lab, Level A: Cards 1, 5, 6, 7, 10, 44 **Life Science Lab, Level B:** Cards 1, 5, 6, 7, 1 0, 44 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells,* pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.6: The student knows that the cells with similar functions have similar structures, whereas those with different structures have different functions.
Grade Level Expectations: The student: **1. understands that there are many similarities among the great diversity of living things.**
Life Science Lab, Level A: Cards 1, 2, 3, 4, 5, 6, 7, 16, 40, 68 **Life Science Lab, Level B:** Cards 1, 2, 3, 4, 5, 6, 7, 16, 40, 68 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells*, pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.7: The student knows that behavior is a response to the environment and influences growth, development, maintenance, and reproduction.
Grade Level Expectations: The student: **1. determines the behavioral responses of different organisms to common stimuli (for example, temperature, light, pressure, moisture).**
Life Science Lab, Level A: Cards 24, 43, 83, 86 **Life Science Lab, Level B:** Cards 24, 43, 83, 86 **Life Science Lab Teacher's Handbook:** Hands-On Activity 3, *Investigating Arthropods*, pages 85-87

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.1: The student knows the patterns and advantages of sexual and asexual reproduction in pants and animals.
Grade Level Expectations: The student: **1. knows the differences between and advantages of sexual and asexual reproduction.**
Life Science Lab, Level A: Cards 60, 61 **Life Science Lab, Level B:** Cards 60, 61

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.1: The student knows the patterns and advantages of sexual and asexual reproduction in pants and animals.
Grade Level Expectations: The student: **2. knows common types of asexual reproduction.**
Life Science Lab, Level A: Card 60 **Life Science Lab, Level B:** Card 60

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.3: The student knows that generally organisms in a population live long enough to reproduce because they have survival characteristics.
Grade Level Expectations: The student: **1. knows the life cycles of a variety of organisms, including non-flowering and flowering plants, insects, amphibians, reptiles, birds, and mammals.**
Life Science Lab, Level A: Cards 20, 21, 22, 40, 42 **Life Science Lab, Level B:** Cards 20, 21, 22, 40, 42

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.1: The student knows that viruses depend on other living things.
Grade Level Expectations: The student: **1. knows the unique characteristics of a virus that cause them to be considered living at some times and nonliving at others.**
Life Science Lab, Level A: Card 11 **Life Science Lab, Level B:** Card 11

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.1: The student knows that viruses depend on other living things.
Grade Level Expectations: The student: **2. knows ways that viruses depend on other living things.**
Life Science Lab, Level A: Card 11 **Life Science Lab, Level B:** Card 11

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.1: The student knows that viruses depend on other living things.
Grade Level Expectations: The student: **3. knows that viruses may cause diseases in other living things.**
Life Science Lab, Level A: Card 11 **Life Science Lab, Level B:** Card 11

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.2: The student knows that biological adaptations include changes in structures, behaviors, or physiology that enhance reproductive success in a particular environment.
Grade Level Expectations: The student: **1. knows that biological adaptations include changes in structures, behaviors, or physiology that enhance reproductive success in a particular environment.**
Life Science Lab, Level A: Cards 23, 41, 65, 66 **Life Science Lab, Level B:** Cards 23, 41, 65, 66

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.3: The student understands that the classification of living things is based on a given set of criteria and is a tool for understanding biodiversity and interrelationships.
Grade Level Expectations: The student: **1. knows how to design and use a dichotomous guide to identify organisms based on structural characteristics.**
Life Science Lab, Level A: Cards 2, 3, 25, 27, 34, 40 **Life Science Lab, Level B:** Cards 2, 3, 25, 27, 34, 40

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.4: The student knows that the interactions of organisms with each other and with the non-living parts of their environments result in the flow of energy and the cycling of matter throughout the system.
Grade Level Expectations: The student: **1. understands how the carbon dioxide-oxygen cycle, water cycle, and nitrogen cycle are important for the survival of organisms.**
Life Science Lab, Level A: Cards 17, 78, 79 **Life Science Lab, Level B:** Cards 17, 78, 79 **Earth Science Lab, Level A:** Card 47 **Earth Science Lab, Level B:** Card 47

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.4: The student knows that the interactions of organisms with each other and with the non-living parts of their environments result in the flow of energy and the cycling of matter throughout the system.
Grade Level Expectations: The student: **2. knows the interrelationships in a local ecosystem.**
Life Science Lab, Level A: Cards 70, 71, 72, 73, 74, 75, 76, 77, 80, 81, 82 **Life Science Lab, Level B:** Cards 70, 71, 72, 73, 74, 75, 76, 77, 80, 81, 82 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.5: The student knows that life is maintained by a continuous input of energy from the sun and by the recycling of the atoms that make up the molecules of living organisms.
Grade Level Expectations: The student: **1. understands ways matter is recycled (for example, water cycle, carbon cycle).**
Life Science Lab, Level A: Cards 13, 17, 78, 79 **Life Science Lab, Level B:** Cards 13, 17, 78, 79 **Life Science Lab Teacher's Handbook:** Hands-On Activity 2, *Culturing Bacteria,* pages 81-83

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.5: The student knows that life is maintained by a continuous input of energy from the sun and by the recycling of the atoms that make up the molecules of living organisms.
Grade Level Expectations: The student: **2. knows that life on earth is dependent upon a continuous supply of energy from the sun.**
Life Science Lab, Level A: Cards 16, 17, 76 **Life Science Lab, Level B:** Cards 16, 17, 76 **Earth Science Lab, Level A:** Cards 43, 47 **Earth Science Lab, Level B:** Cards 43, 47 **Physical Science Lab, Level A:** Cards 44, 46, 82 **Physical Science Lab, Level B:** Cards 44, 46, 82

Strand G: How Living Things Interact with Their Environment
Standard 1: The student understands the competitive, interdependent, cyclic nature of living things in the environment.
Benchmark SC.G.1.3.5: The student knows that life is maintained by a continuous input of energy from the sun and by the recycling of the atoms that make up the molecules of living organisms.
Grade Level Expectations: The student: **3. understands that individual food chains occur within a food web and that both show the flow of energy.**
Life Science Lab, Level A: Cards 76, 77 **Life Science Lab, Level B:** Cards 76, 77 **Life Science Lab Teacher's Handbook**6, *How Much Does Energy Cost?*, pages 97-99

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.1: The student knows that some resources are renewable and others are nonrenewable.
Grade Level Expectations: The student: **1. understands the importance of informed use of natural resources.**
Life Science Lab, Level A: Cards 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 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 29, 35, 37, 42, 59, 61, 85, 86 **Earth Science Lab, Level B:** Cards 29, 35, 37, 42, 59, 61, 85, 86 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?*, pages 89-91 **Physical Science Lab, Level A:** Cards 38, 39 **Physical Science Lab, Level B:** Cards 38, 39

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.2: The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system.
Grade Level Expectations: The student: **1. knows biotic and abiotic components in s small, local area and ways they interact (for example, field, pond).**
Life Science Lab, Level A: Cards 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80 **Life Science Lab, Level B:** Cards 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.2: The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system.
Grade Level Expectations: The student: **2. understands the consequences that might result when changes occur in populations.**
Life Science Lab, Level A: Cards 71, 72, 73 **Life Science Lab, Level B:** Cards 71, 72, 73

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.2: The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system.
Grade Level Expectations: The student: **3. understands that changes in one part of the ecosystem will affect other parts of the ecosystem.**
Life Science Lab, Level A: Cards 70, 71, 72, 75 **Life Science Lab, Level B:** Cards 70, 71, 72, 75

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.3: The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth.
Grade Level Expectations: The student: **1. knows possible causes for a species to become threatened, endangered, or extinct.**
Life Science Lab, Level A: Cards 65, 66, 67, 86 **Life Science Lab, Level B:** Cards 65, 66, 67, 86

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.4: The student understands that humans are a part if an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems.
Grade Level Expectations: The student: **1. knows ways that human activities may deliberately or inadvertently alter the equilibrium in the ecosystem.**
Life Science Lab, Level A: Cards 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 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 35, 37, 42, 59, 61, 86, 90 **Earth Science Lab, Level B:** Cards 35, 37, 42, 59, 61, 86, 90 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?,* pages 89-91

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.1: The student knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at observations in a new way.
Grade Level Expectations: The student: **1. understands that new scientific knowledge is often used to reevaluate existing theories.**
Life Science Lab, Level A: Card 5 **Life Science Lab, Level B:** Card 5 **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, 53, 59 **Physical Science Lab, Level B:** Cards 3, 53, 59

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.2: The student knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects.
Grade Level Expectations: The student: **1. uses systematic, scientific processes to solve problems and reach conclusions.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 8, 15

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.3: The student knows that science disciplines differ from one another in topic, techniques, and outcomes but that they share a common purpose, philosophy, and enterprise.
Grade Level Expectations: The student: **1. knows that science disciplines differ from one another in topic, techniques, and outcomes but that they share a common purpose, philosophy, and enterprise.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.4: The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society.
Grade Level Expectations: The student: **1. extends and refines use of accurate records, openness, and replication of experiments to ensure credibility.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 15, 16, 22, 23, 24

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.5: The student knows that a change in one or more variables may alter the outcome of an investigation.
Grade Level Expectations: The student: **1. extends and refines knowledge of how to identify the independent and dependent variables in an experiment.**
Life Science Lab Teacher's Handbook: Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83 **Classroom Resource CD-ROM:** Writing Strategy 15, 23

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.5: The student knows that a change in one or more variables may alter the outcome of an investigation.
Grade Level Expectations: The student: **2. extends and refines use of appropriate experimental design, with consideration for rules, time, and materials required to solve a problem.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 15

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.5: The student knows that a change in one or more variables may alter the outcome of an investigation.
Grade Level Expectations: The student: **3. uses rules, time, and materials in ways that ensure the identification and separation of variables in an experiment to solve a problem.**
Life Science Lab Teacher's Handbook: Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83 **Classroom Resource CD-ROM:** Writing Strategy 15, 23

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.6: The student recognizes the scientific contributions that are made by individuals of diverse backgrounds, interests, talents, and motivations.
Grade Level Expectations: The student: **1. extends and refines knowledge of selected scientists and their accomplishments and recognizes their varied backgrounds, talents, interests, and goals.**
Life Science Lab, Level A: Cards 2, 5, 46, 59, 69 **Life Science Lab, Level B:** Cards 2, 5, 46, 59, 69 **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

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.7: The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study.
Grade Level Expectations: The student: **1. uses criteria necessary to determine the validity of a scientific experiment.**
Life Science Lab Teacher's Handbook: Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 16, 22, 24

Strand H: The Nature of Science
Standard 2: The student understands that most natural events occur in comprehensible, consistent patterns.
Benchmark SC.H.2.3.1: The student recognizes that patterns exist within and across systems.
Grade Level Expectations: The student: **1. knows that natural events (for example, seasons, hurricanes) occur in patterns.**
Life Science Lab, Level A: Cards 44, 60, 61, 63, 64, 78, 79 **Life Science Lab, Level B:** Cards 44, 60, 61, 63, 64, 78, 79 **Earth Science Lab, Level A:** Cards 9, 38, 40, 41, 45, 46, 47, 48, 49, 55, 56, 57, 58, 62, 64, 65, 66 **Earth Science Lab, Level B:** Cards 9, 38, 40, 41, 45, 46, 47, 48, 49, 55, 56, 57, 58, 62, 64, 65, 66 **Physical Science Lab, Level A:** Cards 6, 7, 8, 9, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 31, 32, 44, 47, 48, 77, 78, 79, 81, 82, 83, 84 **Physical Science Lab, Level B:** Cards 6, 7, 8, 9, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 31, 32, 44, 47, 48, 77, 78, 79, 81, 82, 83, 84

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.1: The student knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.
Grade Level Expectations: The student: **1. knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.**
Life Science Lab Teacher's Handbook: Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.1: The student knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.
Grade Level Expectations: The student: **2. uses appropriate procedures for safety in the classroom, home, and community.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 15

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.2: The student knows that special care must be taken in using animals in scientific research.
Grade Level Expectations: The student: **1. knows the care, safe practices, and ethical treatment that are appropriate when using animals in field and laboratory research.**
Life Science Lab Teacher's Handbook: Hands-On Activity 3, *Investigating Arthropods,* pages 85-87

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.3: The student knows that in research involving human subjects, the ethics o science require that potential subjects be fully informed about the risks and benefits associated with the research and their right to refuse to participate.
Grade Level Expectations: The student: **1. knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefits associated with the research and of their right to refuse to participate.**
Life Science Lab Teacher's Handbook: Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.4: The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.
Grade Level Expectations: The student: **1. knows that the designs used for technological improvements should consider the values of society (economic, social, ethical, aesthetic).**
Life Science Lab, Level A: Cards 13, 64, 69, 83 **Life Science Lab, Level B:** Cards 13, 64, 69, 83 **Earth Science Lab, Level A:** Cards 16, 20, 51, 79, 80, 81 **Earth Science Lab, Level B:** Cards 16, 20, 51, 79, 80, 81 **Physical Science Lab, Level A:** Cards 3, 35, 49, 73, 81, 84 **Physical Science Lab, Level B:** Cards 3, 35, 49, 73, 81, 84

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.4: The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.
Grade Level Expectations: The student: **2. uses knowledge of political, social, and economic ramifications of certain scientific research to evaluate its role in society.**
Life Science Lab, Level A: Cards 13, 64, 69, 83 **Life Science Lab, Level B:** Cards 13, 64, 69, 83 **Earth Science Lab, Level A:** Cards 16, 20, 51, 79, 80, 81 **Earth Science Lab, Level B:** Cards 16, 20, 51, 79, 80, 81 **Physical Science Lab, Level A:** Cards 3, 35, 49, 73, 81, 84 **Physical Science Lab, Level B:** Cards 3, 35, 49, 73, 81, 84

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.5: The student understands that contributions to the advancement of science, mathematics, and technology have been made by different people, in different cultures, at different times and are an intrinsic part of the development of human culture.
Grade Level Expectations: The student: **1. knows that scientific and technological contributions are made by individuals of different ethnic, economic, and cultural backgrounds.**
Life Science Lab, Level A: Cards 13, 64, 69 **Life Science Lab, Level B:** Cards 13, 64, 69 **Earth Science Lab, Level A:** Cards 10, 20, 21, 51, 79 **Earth Science Lab, Level B:** Cards 10, 20, 21, 51, 79 **Physical Science Lab, Level A:** Cards 34, 35, 49, 73, 81, 84, 90 **Physical Science Lab, Level B:** Cards 34, 35, 49, 73, 81, 84, 90

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.6: The scientist knows that no matter who does science and mathematics or invents things, or when they do it, the knowledge and technology that result can eventually become available to everyone.
Grade Level Expectations: The student: **1. knows that scientific contributions may result in diverse technological products.**
Earth Science Lab, Level A: Cards 16, 20, 31, 35, 51, 79, 80, 81 **Earth Science Lab, Level B:** Cards 16, 20, 31, 35, 51, 79, 80, 81 **Physical Science Lab, Level A:** Cards 35, 49, 81, 84, 90 **Physical Science Lab, Level B:** Cards 35, 49, 81, 84, 90

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.7: The student knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.
Grade Level Expectations: The student: **1. extends and refines use of a computer to collect, analyze, and report scientific findings.**
Life Science Lab Teacher's Handbook: Hands-On Activity 2, *Culturing Bacteria*, pages 81-83

SRA Life, Earth, and Physical Science Laboratories
correlation to
Florida Grade Level Expectations for the Sunshine State 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.

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.1: The student identifies various ways in which substances differ (e.g., mass, volume, shape, density, texture, and reaction to temperature and light).
Grade Level Expectations: The student: **1. determines the physical properties of matter =that can be observed without altering the substance (for example, mass, volume, boiling point, density).**
Physical Science Lab, Level A: Cards 1, 2, 11, 12 **Physical Science Lab, Level B:** Cards 1, 2, 11, 12

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.1: The student identifies various ways in which substances differ (e.g., mass, volume, shape, density, texture, and reaction to temperature and light).
Grade Level Expectations: The student: **2. knows the differences between transparent, translucent, and opaque objects.**
Physical Science Lab, Level A: Card 88 **Physical Science Lab, Level B:** Card 88

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.2: The student understands the difference between weight and mass.
Grade Level Expectations: The student: **1. understands that weight will vary with the location of the mass in the universe, but the mass will remain constant.**
Physical Science Lab, Level A: Cards 2, 57 **Physical Science Lab, Level B:** Cards 2, 57

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.3: The student knows that temperature measures the average energy of motion of the particles that make up the substance.
Grade Level Expectations: The student: **1. knows that the average kinetic energy of the atoms or molecules of different objects varies with their temperature.**
Physical Science Lab, Level A: Card 42 **Physical Science Lab, Level B:** Card 42

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.4" The student knows that atoms in solids are close together and do not move around easily; in liquids, atoms tend to move farther apart; in gas, atoms are quite far apart and move around freely.
Grade Level Expectations: The student: **1. understands that changes in energy cause phase changes.**
Physical Science Lab, Level A: Cards 5, 6, 7, 42 **Physical Science Lab, Level B:** Cards 5, 6, 7, 42

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.5: The student knows the difference between a physical change in a substance (e.g., altering the shape, form, volume, or density) and a chemical change (i.e., producing new substances with different characteristics).
Grade Level Expectations: The student: **1. knows how to use clues (for example, changes in color or form) to determine whether a change is chemical or physical.**
Physical Science Lab, Level A: Cards 8, 9, 27, 28, 29 **Physical Science Lab, Level B:** Cards 8, 9, 27, 28, 29 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83

Strand A: The Nature of Matter
Standard 1: The student understands that all matter has observable, measurable properties.
Benchmark SC.A.1.3.6: The student knows that equal volumes of different substances may have different masses.
Grade Level Expectations: The student: **1. determines the relationship between mass and volume of an assortment of common substances.**
Physical Science Lab, Level A: Cards 2, 57 **Physical Science Lab, Level B:** Cards 2, 57

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.1: The student describes and compares the properties of particles and waves.
Grade Level Expectations: The student: **1. knows that matter is mostly neutral, but that particles can attain a charge by the gain or loss of electrons.**
Physical Science Lab, Level A: Cards 21, 22, 23, 24, 25, 66, 67 **Physical Science Lab, Level B:** Cards 21, 22, 23, 24, 25, 66, 67

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.1: The student describes and compares the properties of particles and waves.
Grade Level Expectations: The student: **2. understands the relationship between the energy of a wave and its frequency (the greater the frequency of the wave, the greater the energy of the wave).**
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, *Making Sound,* pages 97-99

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.1: The student describes and compares the properties of particles and waves.
Grade Level Expectations: The student: **3. understands the relationship of energy and wavelength to the electromagnetic spectrum.**
Physical Science Lab, Level A: Cards 82, 83 **Physical Science Lab, Level B:** Cards 82, 83

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.2: The student knows the general properties of the atom (a massive nucleus of neutral neutrons and positive protons surrounded by a cloud of negative electrons) and accepts that single atoms are not visible.
Grade Level Expectations: The student: **1. knows that there is an energy difference between an electron near the nucleus and one further away.**
Physical Science Lab, Level A: Cards 21, 22, 23, 24, 25, 26 **Physical Science Lab, Level B:** Cards 21, 22, 23, 24, 25, 26

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.2: The student knows the general properties of the atom (a massive nucleus of neutral neutrons and positive protons surrounded by a cloud of negative electrons) and accepts that single atoms are not visible.
Grade Level Expectations: The student: **2. knows that when electrons are transferred from one substance to another, the general properties of both substances change.**
Physical Science Lab, Level A: Cards 21, 22, 23, 24, 25, 26 **Physical Science Lab, Level B:** Cards 21, 22, 23, 24, 25, 26

Strand A: The Nature of Matter
Standard 2: The student understands the basic principles of atomic theory.
Benchmark SC.A.2.3.3: The student knows that radiation, light, and heat are forms of energy used to cook food, treat diseases, and provide energy.
Grade Level Expectations: The student: **1. extends and refines knowledge of uses of forms of energy to improve the quality of life.**
Physical Science Lab, Level A: Cards 34, 38, 41, 42, 43, 45, 46, 47, 48, 49, 68, 69, 70, 71, 72, 73, 76, 81, 84, 90 **Physical Science Lab, Level B:** Cards 34, 38, 41, 42, 43, 45, 46, 47, 48, 49, 68, 69, 70, 71, 72, 73, 76, 81, 84, 90 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 5, *Making a Potato Battery*, pages 93-95

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.1: The student identifies forms of energy and explains that they can be measured and compared.
Grade Level Expectations: The student: **1. understands that energy can be transformed by radiation, conduction, and convection.**
Earth Science Lab, Level A: Card 38 **Earth Science Lab, Level B:** Card 38 **Physical Science Lab, Level A:** Cards 43, 44, 46 **Physical Science Lab, Level B:** Cards 43, 44, 46

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.1: The student identifies forms of energy and explains that they can be measured and compared.
Grade Level Expectations: The student: **2. knows examples of natural and man-made systems in which energy is transferred from one form to another.**
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 **Earth Science Lab, Level A:** Cards 15, 35, 38, 39, 40, 41, 46, 52, 53, 54 **Earth Science Lab, Level B:** Cards 15, 35, 38, 39, 40, 41, 46, 52, 53, 54 **Physical Science Lab, Level A:** Cards 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 68, 69, 70, 76, 80 **Physical Science Lab, Level B:** Cards 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 68, 69, 70, 76, 80 **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

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.2. The student knows that energy cannot be created or destroyed, but only changed from one form to another.
Grade Level Expectations: The student: **1. understands how the principle of conservation of energy is applied during an energy transfer.**
Physical Science Lab, Level A: Card 37 **Physical Science Lab, Level B:** Card 37

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.3: The student knows the various forms in which energy comes to Earth from the Sun (e.g., visible light, infrared, and microwave).
Grade Level Expectations: The student: **1. knows ways to measure the various forms of energy that come from the Sun.**
Physical Science Lab, Level A: Cards 42, 44, 46, 47, 49, 82, 83 **Physical Science Lab, Level B:** Cards 42, 44, 46, 47, 49, 82, 83

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.4: The student knows that energy conversions are never 100% efficient (e.g., some energy is transformed to heat and is unavailable for further useful work).
Grade Level Expectations: The student: **1. knows that energy conversions are never 100% efficient and that some energy is transformed to heat and is unavailable for further useful work (for example, a food pyramid reflects the energy that is used and lost in each part of a food chain).**
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 **Earth Science Lab, Level A:** Card 38 **Earth Science Lab, Level B:** Card 38 **Physical Science Lab, Level A:** Cards 27, 28, 29, 30, 34, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 68, 69, 70, 71, 72, 73 **Physical Science Lab, Level B:** Cards 27, 28, 29, 30, 34, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 68, 69, 70, 71, 72, 73 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates*, pages 81-83; Hands-On Activity 3, *Energy Conversion*, pages 85-87

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.4: The student knows that energy conversions are never 100% efficient (e.g., some energy is transformed to heat and is unavailable for further useful work).
Grade Level Expectations: The student: **2. knows that a transfer of thermal energy occurs in chemical reactions.**
Physical Science Lab, Level A: Cards 9, 27, 28, 29, 30, 34, 42, 45 **Physical Science Lab, Level B:** Cards 9, 27, 28, 29, 30, 34, 42, 45 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates*, pages 81-83

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.5: The student knows the processes by which thermal energy tends to flow from a system of higher temperature to a system of lower temperature.
Grade Level Expectations: The student: **1. knows the process by which thermal energy tends to flow from a system of higher temperature to a system of lower temperature.**
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

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.5: The student knows the processes by which thermal energy tends to flow from a system of higher temperature to a system of lower temperature.
Grade Level Expectations: The student: **2. knows that the average kinetic energy of the atoms or molecules that make up an object changes when the temperature of the object changes.**
Physical Science Lab, Level A: Cards 6, 42 **Physical Science Lab, Level B:** Cards 6, 42

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.5: The student knows the processes by which thermal energy tends to flow from a system of higher temperature to a system of lower temperature.
Grade Level Expectations: The student: **3. understands that energy changes cause weather to change (for example, formation of high and low pressure systems in the atmosphere results from changes in temperature).**
Earth Science Lab, Level A: Cards 38, 39, 40, 41, 43, 44, 45, 46, 47, 48, 49, 51, 52, 53, 54, 55, 57, 58, 60, 61 **Earth Science Lab, Level B:** Cards 38, 39, 40, 41, 43, 44, 45, 46, 47, 48, 49, 51, 52, 53, 54, 55, 57, 58, 60, 61 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 6, *Modeling a Tornado*, pages 93-95 **Physical Science Lab, Level A:** Card 44 **Physical Science Lab, Level B:** Card 44

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.6: The student knows the properties of waves (e.g., frequency, wavelength, and amplitude); that each wave consists of a number of crests and troughs; and the effects of different media on waves.
Grade Level Expectations: The student: **1. knows that sound travels in a medium (cannot travel in a vacuum), and travels at different speeds through various media.**
Physical Science Lab, Level A: Cards 79, 80, 81 **Physical Science Lab, Level B:** Cards 79, 80, 81 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 6, *Making Sound*, pages 97-99

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.6: The student knows the properties of waves (e.g., frequency, wavelength, and amplitude); that each wave consists of a number of crests and troughs; and the effects of different media on waves.
Grade Level Expectations: The student: **2. knows the parts of a wave (crest, trough, wavelength, amplitude).**
Physical Science Lab, Level A: Cards 77, 78 **Physical Science Lab, Level B:** Cards 77, 78

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.6: The student knows the properties of waves (e.g., frequency, wavelength, and amplitude); that each wave consists of a number of crests and troughs; and the effects of different media on waves.
Grade Level Expectations: The student: **3. understands that wavelength determines the colors of visible light.**
Physical Science Lab, Level A: Cards 85, 89 **Physical Science Lab, Level B:** Cards 85, 89

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.6: The student knows the properties of waves (e.g., frequency, wavelength, and amplitude); that each wave consists of a number of crests and troughs; and the effects of different media on waves.
Grade Level Expectations: The student: **4. understands that wavelength determines the pitch of sound.**
Physical Science Lab, Level A: Card 80 **Physical Science Lab, Level B:** Card 80 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 6, *Making Sound*, pages 97-99

Strand B: Energy
Standard 1: The student recognizes that energy may be changed in form with varying efficiency.
Benchmark SC.B.1.3.6: The student knows the properties of waves (e.g., frequency, wavelength, and amplitude); that each wave consists of a number of crests and troughs; and the effects of different media on waves.
Grade Level Expectations: The student: **5. knows that waves vary greatly in character (for example, sound, ultraviolet, infrared, ocean 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, 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

Strand B: Energy
Standard 2: The student understands the interaction of matter and energy.
Benchmark SC.B.2.3.1: The student knows that most events in the universe (e.g., weather changes, moving cars, and the transfer of a nervous impulse in the human body) involve some form of energy transfer and that these changes almost always increase the total disorder of the system and its surroundings, reducing the amount of useful energy.
Grade Level Expectations: The student: **1. understands that as energy is transferred from one system to another there is a reduction in the amount of useful energy.**
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 **Earth Science Lab, Level A:** Card 38 **Earth Science Lab, Level B:** Card 38 **Physical Science Lab, Level A:** Cards 27, 28, 29, 30, 34, 37, 38, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 68, 69, 70, 71, 72, 73 **Physical Science Lab, Level B:** Cards 27, 28, 29, 30, 34, 37, 38, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 68, 69, 70, 71, 72, 73 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95

Strand B: Energy
Standard 2: The student understands the interaction of matter and energy.
Benchmark SC.B.2.3.1: The student knows that most events in the universe (e.g., weather changes, moving cars, and the transfer of a nervous impulse in the human body) involve some form of energy transfer and that these changes almost always increase the total disorder of the system and its surroundings, reducing the amount of useful energy.
Grade Level Expectations: The student: **2. knows that energy transfer is not efficient.**
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 **Earth Science Lab, Level A:** Card 38 **Earth Science Lab, Level B:** Card 38 **Physical Science Lab, Level A:** Cards 27, 28, 29, 30, 34, 37, 38, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 68, 69, 70, 71, 72, 73 **Physical Science Lab, Level B:** Cards 27, 28, 29, 30, 34, 37, 38, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 68, 69, 70, 71, 72, 73 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95

Strand B: Energy
Standard 2: The student understands the interaction of matter and energy.
Benchmark SC.B.2.3.2: The student knows that most of the energy used today is derived from burning stored energy collected by organisms millions of years ago (e.g., nonrenewable fossil fuels).
Grade Level Expectations: The student: **1. understands how fossil fuels are formed in the Earth, why they are nonrenewable, and the advantages and disadvantages of their use.**
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

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.1: The student knows that the motion of an object can be described by its position, direction of motion, and speed.
Grade Level Expectations: The student: **1. knows that speed, velocity, and acceleration can be calculated, estimated, and defined.**
Physical Science Lab, Level A: Cards 50, 51, 52, 53 **Physical Science Lab, Level B:** Cards 50, 51, 52, 53

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.1: The student knows that the motion of an object can be described by its position, direction of motion, and speed.
Grade Level Expectations: The student: **2. knows that the magnitude of linear acceleration can be calculated.**
Physical Science Lab, Level A: Card 52 **Physical Science Lab, Level B:** Card 52

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.2: The student knows that vibrations in materials set up wave disturbances that spread away from the source (e.g., sound and earthquake waves).
Grade Level Expectations: The student: **1. knows ways to measure the frequency of waves.**
Physical Science Lab, Level A: Cards 77, 78, 82 **Physical Science Lab, Level B:** Cards 77, 78, 82

Strand C: Force and Motion
Standard 1: The student understands that types of motion may be described, measured, and predicted.
Benchmark SC.C.1.3.2: The student knows that vibrations in materials set up wave disturbances that spread away from the source (e.g., sound and earthquake waves).
Grade Level Expectations: The student: **2. knows some technological devices that use wave energy (for example, sonar, ultrasound, laser).**
Earth Science Lab, Level A: Card 16 **Earth Science Lab, Level B:** Card 16 **Physical Science Lab, Level A:** Cards 79, 81, 84, 90 **Physical Science Lab, Level B:** Cards 79, 81, 84, 90

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.1: The student knows that many forces (e.g., gravitational, electrical, and magnetic) act at a distance (e.g., without contact).
Grade Level Expectations: The student: **1. knows that many forces act at a distance.**
Earth Science Lab, Level A: Card 16 **Earth Science Lab, Level B:** Card 16 **Physical Science Lab, Level A:** Cards 57, 59, 66, 67, 74, 75, 76 **Physical Science Lab, Level B:** Cards 57, 59, 66, 67, 74, 75, 76

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.2: The student knows common contact forces.
Grade Level Expectations: The student: **1. knows some common contact forces (for example, friction, buoyancy, tension).**
Earth Science Lab, Level A: Cards 54, 56, 58, 60, 61 **Earth Science Lab, Level B:** Cards 54, 56, 58, 60, 61 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 4, *Reducing Friction*, pages 89-91

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.3: The student knows that is more than one force acts on an object, then the forces can reinforce or cancel each other, depending on their direction and magnitude.
Grade Level Expectations: The student: **1. recognizes the forces that act on a given object.**
Physical Science Lab, Level A: Cards 50, 51, 52, 53, 54, 56, 57, 58, 59, 60 **Physical Science Lab, Level B:** Cards 50, 51, 52, 53, 54, 56, 57, 58, 59, 60 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 4, *Reducing Friction*, pages 89-91

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.3: The student knows that is more than one force acts on an object, then the forces can reinforce or cancel each other, depending on their direction and magnitude.
Grade Level Expectations: The student: **2. knows that the overall effect of a force can be predicted.**
Physical Science Lab, Level A: Cards 50, 51, 52, 53, 54, 55, 56 **Physical Science Lab, Level B:** Cards 50, 51, 52, 53, 54, 55, 56 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 4, *Reducing Friction*, pages 89-91

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.3: The student knows that is more than one force acts on an object, then the forces can reinforce or cancel each other, depending on their direction and magnitude.
Grade Level Expectations: The student: **3. knows that forces may be balanced or unbalanced.**
Physical Science Lab, Level A: Card 56 **Physical Science Lab, Level B:** Card 56

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.3: The student knows that is more than one force acts on an object, then the forces can reinforce or cancel each other, depending on their direction and magnitude.
Grade Level Expectations: The student: **4. understands that unbalanced forces cause objects to accelerate.**
Physical Science Lab, Level A: Cards 51, 52, 56 **Physical Science Lab, Level B:** Cards 51, 52, 56

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.4. The student knows that simple machines can be used to change the direction or size of a force.
Grade Level Expectations: The student: **1. knows that simple machines can be used to change the direction or size of a force.**
Physical Science Lab, Level A: Cards 63, 64 **Physical Science Lab, Level B:** Cards 63, 64

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.5. The student understands that an object in motion will continue at a constant speed and in a straight line until acted upon by a force and that an object at rest will remain at rest until acted upon by a force. or size of a force.
Grade Level Expectations: The student: **1. understands that an object in motion will continue at a constant speed and in a straight line until acted upon by a force and that an object at rest will remain at rest until acted upon by a force.**
Physical Science Lab, Level A: Card 55 **Physical Science Lab, Level B:** Card 55

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.6. The student explains and shows the ways in which a net force (that is, the sum of all acting forces) can act on an object (e.g., speeding up an object traveling in the same direction as the net force, slowing down an object traveling in the direction apposite of the net force.
Grade Level Expectations: The student: **1. knows ways in which a net force (for example, the sum of all acting forces) can act on an object (for example, speeding up an object traveling in the same direction as the net force, slowing down an object traveling in the direction opposite if the net force).**
Physical Science Lab, Level A: Cards 51, 52, 53, 54, 55, 56 **Physical Science Lab, Level B:** Cards 51, 52, 53, 54, 55, 56 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 4, *Reducing Friction,* pages 89-91

Strand C: Force and Motion
Standard 2: The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.
Benchmark SC.C.2.3.7: The student knows that gravity is a universal force that every mass exerts on every other mass.
Grade Level Expectations: The student: **1. knows that gravity is a universal force that every mass exerts on every other mass.**
Physical Science Lab, Level A: Cards 57, 59 **Physical Science Lab, Level B:** Cards 57, 59

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.1: The student knows that mechanical and chemical activities shape and reshape the Earth's land surface by eroding rock and soil in some areas and depositing them in other areas, sometimes in seasonal layers.
Grade Level Expectations: The student: **1. uses observations and tests to identify mineral samples.**
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, *Identifying Minerals with the Mohs Scale*, pages 73-75

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.1: The student knows that mechanical and chemical activities shape and reshape the Earth's land surface by eroding rock and soil in some areas and depositing them in other areas, sometimes in seasonal layers.
Grade Level Expectations: The student: **2. understands how sedimentary, igneous, and metamorphic rocks are forms and categorized.**
Earth Science Lab, Level A: Cards 6, 7, 8, 9 **Earth Science Lab, Level B:** Cards 6, 7, 8, 9

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.2: The student knows that over the whole Earth, organisms are growing, dying, and decaying as new organisms are produced by the old ones.
Grade Level Expectations: The student: **1. knows that over the whole Earth, organisms are growing, dying, and decaying and new organisms are being produced.**
Life Science Lab, Level A: Cards 1, 13, 42, 60, 61, 76, 77 **Life Science Lab, Level B:** Cards 1, 13, 42, 60, 61, 76, 77

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.3: The student knows how conditions that exist in one system influence the conditions that exist in other systems.
Grade Level Expectations: The student: **1. knows ways conditions that exist in one system influence the conditions that exist in other systems (for example, the relationship between mountain building, island formation, and trench formation; interactions between the atmosphere and hydrosphere affect weather patterns).**
Life Science Lab, Level A: Cards 70, 71, 72, 76, 77, 78, 79, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 70, 71, 72, 76, 77, 78, 79, 87, 88, 89, 90 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?*, pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain*, pages 101-103 **Earth Science Lab, Level A:** Cards 10, 11, 12, 13, 14, 15, 16, 17, 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, 85, 86, 87, 88, 89, 90 **Earth Science Lab, Level B:** Cards 10, 11, 12, 13, 14, 15, 16, 17, 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, 85, 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

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.4: The student knows the ways in which plants and animals reshape the landscape (e.g., bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion).
Grade Level Expectations: The student: **1. extends and refines knowledge of ways in which living things reshape the landscape.**
Life Science Lab, Level A: Cards 13, 76, 80, 86, 87 **Life Science Lab, Level B:** Cards 13, 76, 80, 86, 87

Strand D: Processes that Shape the Earth
Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.
Benchmark SC.D.1.3.5: The student understands concepts of time and size relating too the interaction of Earth's processes (e.g., lightning striking in a split second as opposed to the shifting of the earth's plates altering the landscape, distance between atoms measured in Angstrom units as opposed to distance between stars measured in light-years).
Grade Level Expectations: The student: **1. understands concepts of time and size relating to the interaction of Earth's processes (for example, the distance between atoms measured in Angstrom units as opposed to distance between stars measured in light-years).**
Life Science Lab, Level A: Cards 5, 8, 9, 10, 66, 67, 68 **Life Science Lab, Level B:** Cards 5, 8, 9, 10, 66, 67, 68 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells*, pages 77-79 **Earth Science Lab, Level A:** Cards 30, 31, 32, 62, 64, 66, 74, 78 **Earth Science Lab, Level B:** Cards 30, 31, 32, 62, 64, 66, 74, 78 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 7, *Sizes in the Solar System*, pages 97-99

Strand D: Processes that Shape the Earth
Standard 2: The student understands the need for protection of the natural systems on Earth.
Benchmark SC.D.2.3.1: The student understands that quality of life is relevant to personal experience.
Grade Level Expectations: The student: **1. understands the quality of life is relevant to personal experience.**
Life Science Lab, Level A: Cards 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 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 29, 35, 37, 42, 59, 61, 85, 86 **Earth Science Lab, Level B:** Cards 29, 35, 37, 42, 59, 61, 85, 86 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?*, pages 89-91

Strand D: Processes that Shape the Earth
Standard 2: The student understands the need for protection of the natural systems on Earth.
Benchmark SC.D.2.3.2: The student knows the positive and negative consequences of human action on the Earth' systems.
Grade Level Expectations: The student: **1. knows that legislation can be adopted to protect the Earth from detrimental human activities.**
Life Science Lab, Level A: Cards 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 84, 85, 86, 87, 88, 89, 90 **Earth Science Lab, Level A:** Cards 29, 35, 37, 42, 59, 61, 85, 86 **Earth Science Lab, Level B:** Cards 29, 35, 37, 42, 59, 61, 85, 86 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?*, pages 89-91

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.2: The student knows that available data from various satellite probes show the similarities and differences among planets and their moon in the solar system.
Grade Level Expectations: The student: **1. knows that available data from various satellite probes show similarities and differences among planets and their moons in our Solar System.**
Earth Science Lab, Level A: Cards 69, 70, 71, 72, 73, 79, 80, 81 **Earth Science Lab, Level B:** Cards 69, 70, 71, 72, 73, 79, 80, 81

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.3.3: The student understands that our Sun is one of many stars in our galaxy
Grade Level Expectations: The student: **1. knows the size, temperature, age, and brightness of the Sun compared to some other stars in the Milky Way Galaxy (for example, white dwarfs, red giants).**
Earth Science Lab, Level A: Cards 67, 75, 76 **Earth Science Lab, Level B:** Cards 67, 75, 76

Strand E: Earth and Space
Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
Benchmark SC.E.1.3.4: The student knows that stars appear to be made of similar chemical elements, although they differ in age, size, temperature, and distance.
Grade Level Expectations: The student: **1. knows that stars appear to be made of similar chemical elements, although they differ in age, size, temperature, and distance.**
Earth Science Lab, Level A: Cards 75, 76 **Earth Science Lab, Level B:** Cards 75, 76

Strand E: Earth and Space
Standard 2: The student recognizes the vastness of the universe and the Earth's place in it.
Benchmark SC.E.2.3.1: The student knows that thousands of other galaxies appear to have the same elements, forces, and forms of energy found in our Solar System.
Grade Level Expectations: The student: **1. knows that thousands of other galaxies appear to have the same elements, forces, and forms of energy found in our Solar System.**
Earth Science Lab, Level A: Card 77 **Earth Science Lab, Level B:** Card 77

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.1: The student understands that living things are composed of major systems that function in reproduction, growth, maintenance, and regulation.
Grade Level Expectations: The student: **1. understands that living things are composed of major systems that function in reproduction, growth, maintenance, and regulation.**
Life Science Lab, Level A: Cards 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab, Level B:** Cards 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab Teacher's Handbook:** Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.2: The student knows that the structural basis of most organisms is the cell and most organisms are single cells, while some, including humans, are multicellular.
Grade Level Expectations: The student: **1. knows the structure of cells, and their function and ways these mirror the structure and function of multicellular organisms.**
Life Science Lab, Level A: Cards 1, 5, 6, 7, 8, 9, 10, 44 **Life Science Lab, Level B:** Cards 1, 5, 6, 7, 8, 9, 10, 44 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells,* pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.2: The student knows that the structural basis of most organisms is the cell and most organisms are single cells, while some, including humans, are multicellular.
Grade Level Expectations: The student: **2. understand that cells of unicellular organisms are similar to those of multicellular organisms.**
Life Science Lab, Level A: Cards 1, 5, 6, 7, 8, 9, 10 **Life Science Lab, Level B:** Cards 1, 5, 6, 7, 8, 9, 10 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells,* pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.3: The student knows that in multicellular organisms cells grow and divide to make more cells in order to form and repair various organs and tissues.
Grade Level Expectations: The student: **1. knows the processes of division, growth, and maturation that occur during the cell cycle.**
Life Science Lab, Level A: Cards 5, 10 **Life Science Lab, Level B:** Cards 5, 10

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.4: The student knows that the levels of structural organization for function in living things include cells, tissues, organs, systems, and organisms.
Grade Level Expectations: The student: **1. knows some of the functions of some types of cells, tissues, organs, and system in advanced organisms.**
Life Science Lab, Level A: Cards 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab, Level B:** Cards 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab Teacher's Handbook:** Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.5: The student explains how the life functions of organisms are related to what occurs within the cell.
Grade Level Expectations: The student: **1. understands that the diversity of cell structure permits a diversity of functions for the organism.**
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

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.5: The student explains how the life functions of organisms are related to what occurs within the cell.
Grade Level Expectations: The student: **2. knows that the cell is a system of organelles that mirror the systems within multicellular organisms.**
Life Science Lab, Level A: Cards 8, 9, 10 **Life Science Lab, Level B:** Cards 8, 9, 10

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.6: The student knows that the cells with similar functions have similar structures, whereas those with different structures have different functions.
Grade Level Expectations: The student: **1. knows that the cells with similar functions have similar structures, whereas those with different structures have different functions.**
Life Science Lab, Level A: Cards 5, 6, 7, 8, 9 **Life Science Lab, Level B:** Cards 5, 6, 7, 8, 9 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells,* pages 77-79

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.6: The student knows that the cells with similar functions have similar structures, whereas those with different structures have different functions.
Grade Level Expectations: The student: **2. uses tools to identify and compare cell structures (for example, microscope, land lenses, bioscopes).**
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

Strand F: Processes of Life
Standard 1: The student describes patterns of structure and function in living things.
Benchmark SC.F.1.3.7: The student knows that behavior is a response to the environment and influences growth, development, maintenance, and reproduction.
Grade Level Expectations: The student: **1. knows way behaviors that are responses to the environment may alter the normal growth, development, maintenance, and reproduction of an organism.**
Life Science Lab, Level A: Cards 24, 43, 65, 66 **Life Science Lab, Level B:** Cards 24, 43, 65, 66

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.1: The student knows the patterns and advantages of sexual and asexual reproduction in pants and animals.
Grade Level Expectations: The student: **1. knows the differences between spores and seeds in plant reproduction.**
Life Science Lab, Level A: Cards 15, 18, 19, 20, 21, 22, 60, 61 **Life Science Lab, Level B:** Cards 15, 18, 19, 20, 21, 22, 60, 61

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.1: The student knows the patterns and advantages of sexual and asexual reproduction in pants and animals.
Grade Level Expectations: The student: **2. knows that the flower is the reproductive body of a vascular plant and that it is adapted for pollination.**
Life Science Lab, Level A: Cards 20, 22 **Life Science Lab, Level B:** Cards 20, 22

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.1: The student knows the patterns and advantages of sexual and asexual reproduction in pants and animals.
Grade Level Expectations: The student: **3. knows the difference between meiosis and mitosis and when each occurs.**
Life Science Lab, Level A: Cards 10, 60, 61 **Life Science Lab, Level B:** Cards 10, 60, 61

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.2: The student knows that the variation in each species is due to the exchange and interaction of genetic information as it is passed from parent to offspring.
Grade Level Expectations: The student: **1. knows how dominant and recessive traits are inherited.**
Life Science Lab, Level A: Cards 62, 63, 64 **Life Science Lab, Level B:** Cards 62, 63, 64

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.2: The student knows that the variation in each species is due to the exchange and interaction of genetic information as it is passed from parent to offspring.
Grade Level Expectations: The student: **2. uses a Punnett square to predict the results of crosses between pure and hybrid organisms.**
Life Science Lab, Level A: Card 63 **Life Science Lab, Level B:** Card 63

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.2: The student knows that the variation in each species is due to the exchange and interaction of genetic information as it is passed from parent to offspring.
Grade Level Expectations: The student: **3. knows that variations within a species are the result of genetic information being passed from a parent to offspring and that interactions between genes may occur in the process (for example, blending, crossing-over).**
Life Science Lab, Level A: Cards 62, 63, 64, 65, 66 **Life Science Lab, Level B:** Cards 62, 63, 64, 65, 66

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.3: The student knows that generally organisms in a population live long enough to reproduce because they have survival characteristics.
Grade Level Expectations: The student: **1. knows ways organisms are adapted to their environment.**
Life Science Lab, Level A: Cards 23, 24, 41, 43 **Life Science Lab, Level B:** Cards 23, 24, 41, 43 **Life Science Lab Teacher's Handbook:** Hands-On Activity 3, *Investigating Arthropods*, pages 85-87

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.3: The student knows that generally organisms in a population live long enough to reproduce because they have survival characteristics.
Grade Level Expectations: The student: **2. understands that species have characteristics that enable their populations to cycle within varying periods of time (minutes to hundreds of years).**
Life Science Lab, Level A: Cards 20, 21, 22, 40, 42 **Life Science Lab, Level B:** Cards 20, 21, 22, 40, 42

Strand F: Processes of Life
Standard 2: The student understands the process and importance of genetic diversity.
Benchmark SC.F.2.3.4: The student knows that the fossil record provides evidence that changes in the kinds of plants and animals in the environment have been occurring over time.
Grade Level Expectations: The student: **1. knows that the fossil record provides evidence that changes in the kinds of plants and animals in the environment have been occurring over time.**
Life Science Lab, Level A: Cards 67, 68 **Life Science Lab, Level B:** Cards 67, 68 **Life Science Lab Teacher's Handbook:** Hands-On Activity 5, *Making Fossils*, pages 93-95 **Earth Science Lab, Level A:** Cards 33, 34 **Earth Science Lab, Level B:** Cards 33, 34

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.1: The student knows that some resources are renewable and others are nonrenewable.
Grade Level Expectations: The student: **1. knows that some resources are renewable and others are nonrenewable.**
Life Science Lab, Level A: Card 84 **Life Science Lab, Level B:** Card 84 **Earth Science Lab, Level A:** Cards 29, 35, 85 **Earth Science Lab, Level B:** Cards 29, 35, 85 **Physical Science Lab, Level A:** Cards 38, 46, 47, 48, 49 **Physical Science Lab, Level B:** Cards 38, 46, 47, 48, 49

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.3: The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth.
Grade Level Expectations: The student: **1. understands that changes in the environment cause changes in populations.**
Life Science Lab, Level A: Cards 72, 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 72, 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 37, 42, 52, 53, 54, 59, 60, 61, 85, 86 **Earth Science Lab, Level B:** Cards 37, 42, 52, 53, 54, 59, 60, 61, 85, 86 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 6, *Modeling a Tornado*, pages 93-95

Strand G: How Living Things Interact with Their Environment
Standard 2: The student understands the consequences of using limited natural resources.
Benchmark SC.G.2.3.4: The student understands that humans are a part if an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems.
Grade Level Expectations: The student: **1. extends and refines knowledge of ways that human activities may deliberately or inadvertently alter the equilibrium in the ecosystem.**
Life Science Lab, Level A: Cards 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 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 35, 37, 42, 59, 61, 86, 90 **Earth Science Lab, Level B:** Cards 35, 37, 42, 59, 61, 86, 90 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?*, pages 89-91

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.1: The student knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at observations in a new way.
Grade Level Expectations: The student: **1. knows that scientific knowledge is subject to modification as new information challenges prevailing theories as a new theory leads to looking at old observations in a new way.**
Life Science Lab, Level A: Card 5 **Life Science Lab, Level B:** Card 5 **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, 53, 59 **Physical Science Lab, Level B:** Cards 3, 53, 59

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.2: The student knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects.
Grade Level Expectations: The student: **1. extends and refines use of systematic, scientific processes to develop and test hypotheses.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 8, 15

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.2: The student knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects.
Grade Level Expectations: The student: **2. knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects.**
Life Science Lab, Level A: Cards 1, 5, 46, 59 **Life Science Lab, Level B:** Cards 1, 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, 55 **Physical Science Lab, Level B:** Cards 3, 7, 55

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.3: The student knows that science disciplines differ from one another in topic, techniques, and outcomes but that they share a common purpose, philosophy, and enterprise.
Grade Level Expectations: The student: **1. extends and refines knowledge that science disciplines differ from one another in topic, techniques, and outcomes but that they share a common purpose, philosophy, and enterprise.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.4: The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society.
Grade Level Expectations: The student: **1. extends and refines use of accurate records, openness, and replication of experiments to ensure credibility.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 15, 16, 22, 23, 24

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.5: The student knows that a change in one or more variables may alter the outcome of an investigation.
Grade Level Expectations: The student: **1. extends and refines knowledge of how to identify the independent and dependent variables in an experiment.**
Life Science Lab Teacher's Handbook: Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83 **Classroom Resource CD-ROM:** Writing Strategy 15, 23

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.5: The student knows that a change in one or more variables may alter the outcome of an investigation.
Grade Level Expectations: The student: **2. extends and refines use of appropriate experimental design, with consideration for rules, time, and materials required to solve a problem.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 15

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.5: The student knows that a change in one or more variables may alter the outcome of an investigation.
Grade Level Expectations: The student: **3. extends and refines use rules, time, and materials in ways that ensure the identification and separation of variables in an experiment to solve a problem.**
Life Science Lab Teacher's Handbook: Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83 **Classroom Resource CD-ROM:** Writing Strategy 15, 23

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.6: The student recognizes the scientific contributions that are made by individuals of diverse backgrounds, interests, talents, and motivations.
Grade Level Expectations: The student: **1. extends and refines knowledge of selected scientists and their accomplishments and recognizes their varied backgrounds, talents, interests, and goals.**
Life Science Lab, Level A: Cards 2, 5, 46, 59, 69 **Life Science Lab, Level B:** Cards 2, 5, 46, 59, 69 **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

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.7: The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study.
Grade Level Expectations: The student: **1. extends and refines use of criteria necessary to determine the validity of a scientific experiment.**
Life Science Lab Teacher's Handbook: Hands-On Activity 3, *Investigating Arthropods*, pages 85-87; Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91; Hands-On Activity 5, *Making Fossils*, pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?*, pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain*, pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale*, pages 73-75; Hands-On Activity 3, *Interpreting a Topographic Map*, pages 81-83; Hands-On Activity 5, *What is in the Air?*, pages 89-91; Hands-On Activity 8, *Temperature, Salinity, and Water Density*, pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases*, pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates*, pages 81-83; Hands-On Activity 3, *Energy Conversion*, pages 85-87; Hands-On Activity 6, *Making Sound*, pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 16, 22, 24

Strand H: The Nature of Science
Standard 1: The student uses the scientific processes and habits of mind to solve problems.
Benchmark SC.H.1.3.7: The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study.
Grade Level Expectations: The student: **2. knows that statistical tests are used to confirm the significance of data.**
Life Science Lab Teacher's Handbook: Hands-On Activity 3, *Investigating Arthropods*, pages 85-87; Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91; Hands-On Activity 5, *Making Fossils*, pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?*, pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain*, pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale*, pages 73-75; Hands-On Activity 3, *Interpreting a Topographic Map*, pages 81-83; Hands-On Activity 5, *What is in the Air?*, pages 89-91; Hands-On Activity 8, *Temperature, Salinity, and Water Density*, pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases*, pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates*, pages 81-83; Hands-On Activity 3, *Energy Conversion*, pages 85-87; Hands-On Activity 6, *Making Sound*, pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 16, 22, 24

Strand H: The Nature of Science
Standard 2: The student understands that most natural events occur in comprehensible, consistent patterns.
Benchmark SC.H.2.3.1: The student recognizes that patterns exist within and across systems.
Grade Level Expectations: The student: **1. understands the importance for looking for patterns in natural events.**
Life Science Lab, Level A: Cards 44, 60, 61, 63, 64, 78, 79 **Life Science Lab, Level B:** Cards 44, 60, 61, 63, 64, 78, 79 **Earth Science Lab, Level A:** Cards 9, 38, 40, 41, 45, 46, 47, 48, 49, 55, 56, 57, 58, 62, 64, 65, 66 **Earth Science Lab, Level B:** Cards 9, 38, 40, 41, 45, 46, 47, 48, 49, 55, 56, 57, 58, 62, 64, 65, 66 **Physical Science Lab, Level A:** Cards 6, 7, 8, 9, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 31, 32, 44, 47, 48, 77, 78, 79, 81, 82, 83, 84 **Physical Science Lab, Level B:** Cards 6, 7, 8, 9, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 31, 32, 44, 47, 48, 77, 78, 79, 81, 82, 83, 84

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.1: The student knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.
Grade Level Expectations: The student: **1. knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.**
Life Science Lab Teacher's Handbook: Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.1: The student knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.
Grade Level Expectations: The student: **2. uses appropriate procedures for safety in the classroom, home, and community.**
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99 **Classroom Resource CD-ROM:** Writing Strategy 15

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.2: The student knows that special care must be taken in using animals in scientific research.
Grade Level Expectations: The student: **1. extends and refines knowledge of the care, safe practices, and ethical treatment that are appropriate when using animals in field and laboratory research.**
Life Science Lab Teacher's Handbook: Hands-On Activity 3, *Investigating Arthropods*, pages 85-87

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.3: The student knows that in research involving human subjects, the ethics o science require that potential subjects be fully informed about the risks and benefits associated with the research and their right to refuse to participate.
Grade Level Expectations: The student: **1. knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefits associated with the research and of their right to refuse to participate.**
Life Science Lab Teacher's Handbook: Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.4: The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.
Grade Level Expectations: The student: **1. knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.**
Life Science Lab, Level A: Cards 13, 64, 69, 83 **Life Science Lab, Level B:** Cards 13, 64, 69, 83 **Earth Science Lab, Level A:** Cards 16, 20, 51, 79, 80, 81 **Earth Science Lab, Level B:** Cards 16, 20, 51, 79, 80, 81 **Physical Science Lab, Level A:** Cards 3, 35, 49, 73, 81, 84 **Physical Science Lab, Level B:** Cards 3, 35, 49, 73, 81, 84

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.5: The student understands that contributions to the advancement of science, mathematics, and technology have been made by different people, in different cultures, at different times and are an intrinsic part of the development of human culture.
Grade Level Expectations: The student: **1. understands the contributions to the advancement of science, mathematics, and technology have been made by different kinds of people, in different cultures, at different times and are an intrinsic part of the development of human culture.**
Life Science Lab, Level A: Cards 13, 64, 69 **Life Science Lab, Level B:** Cards 13, 64, 69 **Earth Science Lab, Level A:** Cards 10, 20, 21, 51, 79 **Earth Science Lab, Level B:** Cards 10, 20, 21, 51, 79 **Physical Science Lab, Level A:** Cards 34, 35, 49, 73, 81, 84, 90 **Physical Science Lab, Level B:** Cards 34, 35, 49, 73, 81, 84, 90

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.6: The scientist knows that no matter who does science and mathematics or invents things, or when they do it, the knowledge and technology that result can eventually become available to everyone.
Grade Level Expectations: The student: **1. knows that no matter who does science and mathematics or invent things, or when and where they do it, the knowledge and technology that result can eventually become available to everyone.**
Earth Science Lab, Level A: Cards 16, 20, 31, 35, 51, 79, 80, 81 **Earth Science Lab, Level B:** Cards 16, 20, 31, 35, 51, 79, 80, 81 **Physical Science Lab, Level A:** Cards 35, 49, 81, 84, 90 **Physical Science Lab, Level B:** Cards 35, 49, 81, 84, 90

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.6: The scientist knows that no matter who does science and mathematics or invents things, or when they do it, the knowledge and technology that result can eventually become available to everyone.
Grade Level Expectations: The student: **2. knows ways the scientific enterprise is global and available to all.**
Earth Science Lab, Level A: Cards 16, 20, 31, 35, 51, 79, 80, 81 **Earth Science Lab, Level B:** Cards 16, 20, 31, 35, 51, 79, 80, 81 **Physical Science Lab, Level A:** Cards 35, 49, 81, 84, 90 **Physical Science Lab, Level B:** Cards 35, 49, 81, 84, 90

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.7: The student knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.
Grade Level Expectations: The student: **1. uses a variety of technologies to collect, analyze, and report scientific findings.**
Life Science Lab Teacher's Handbook: Hands-On Activity 2, *Culturing Bacteria*, pages 81-83

Strand H: The Nature of Science
Standard 3: The student understands that science, technology, and society are interwoven and interdependent.
Benchmark SC.H.3.3.7: The student knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.
Grade Level Expectations: The student: **2. knows that the quantity of scientific information available is increasing at an exponential rate due to the advances in technology.**
Life Science Lab, Level A: Cards 5, 49, 59, 64, 69, 83, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 5, 49, 59, 64, 69, 83, 87, 88, 89, 90 **Earth Science Lab, Level A:** Cards 16, 20, 31, 37, 51, 54, 70, 79, 80, 81, 88 **Earth Science Lab, Level B:** Cards 16, 20, 31, 37, 51, 54, 70, 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