SRA Life, Earth, and Physical Science Laboratories
correlation to
Massachusetts Science Curriculum Framework
Grades 6-8

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

Earth and Space Science
Mapping the Earth
1. Recognize, interpret, and be able to create models of the earth's common physical features in various mapping representations, including contour maps.
Earth Science Lab, Level A: Cards 18, 19, 20 **Earth Science Lab, Level B:** Cards 18, 19, 20 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 3, *Interpreting a Topographic Map*, pages 81-83

Earth and Space Science
Earth's Structure
2. Describe the layers of the earth, including the lithosphere, the hot convecting mantle, and the dense metallic core.
Earth Science Lab, Level A: Cards 1, 2, 10, 11, 12, 13, 14 **Earth Science Lab, Level B:** Cards 1, 2, 10, 11, 12, 13, 14

Earth and Space Science
Heat Transfer in the Earth System
3. Differentiate between radiation, conduction, and convection, the three mechanisms by which heat is transferred through the earth's system.
Earth Science Lab, Level A: Cards 10, 38 **Earth Science Lab, Level B:** Cards 10, 38 **Physical Science Lab, Level A:** Cards 43, 44 **Physical Science Lab, Level B:** Cards 43, 44

Earth and Space Science
Heat Transfer in the Earth System
4. Explain the relationship among the energy provided by the sun, the global patterns of atmospheric movement, and the temperature differences among water, land, and the atmosphere.
Earth Science Lab, Level A: Cards 38, 39, 40, 41, 45, 46, 51, 52, 53, 54, 58, 60, 61, 87 **Earth Science Lab, Level B:** Cards 38, 39, 40, 41, 45, 46, 51, 52, 53, 54, 58, 60, 61, 87 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 6, *Modeling a Tornado*, pages 93-95

Earth and Space Science
Earth's History
5. Describe how the movement of the earth's crustal plates causes both slow changes in the earth's surface (e.g., formation of mountains and ocean basins) and rapid ones (e.g., volcanic eruptions and earthquakes).
Earth Science Lab, Level A: Cards 10, 11, 12, 13, 14, 15, 16, 17, 88 **Earth Science Lab, Level B:** Cards 10, 11, 12, 13, 14, 15, 16, 17, 88 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79

Earth and Space Science
Earth's History
6. Describe and give examples of ways in which the earth's surface is built up and torn down by natural processes, including deposition of sediments, rock formation, erosion, and weathering.
Earth Science Lab, Level A: Cards 15, 17, 22, 24, 25, 26, 27, 28, 88 **Earth Science Lab, Level B:** Cards 15, 17, 22, 24, 25, 26, 27, 28, 88

Earth and Space Science
Earth's History
7. Explain and give examples of how physical evidence, such as fossils and surface features of glaciation, supports the theories that the earth has evolved over geologic time.
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 30, 32, 33, 34 **Earth Science Lab, Level B:** Cards 30, 32, 33, 34

Earth and Space Science
The Earth in the Solar System
8. Recognize that gravity is a force that pulls all things on and near the earth toward the center of the earth. Gravity plays a major role in the formation of the planets, stars, and solar system and in determining their motions.
Earth Science Lab, Level A: Cards 66, 68 **Earth Science Lab, Level B:** Cards 66, 68 **Physical Science Lab, Level A:** Cards 57, 59 **Physical Science Lab, Level B:** Cards 57, 5 9

Earth and Space Science
The Earth in the Solar System
9. Describe lunar and solar eclipses, the observed phases of the moon, and tides. Relate them to the relative positions of the earth, moon, and sun.
Earth Science Lab, Level A: Cards 64, 65, 66 **Earth Science Lab, Level B:** Cards 64, 65, 66

Earth and Space Science
The Earth in the Solar System
10. Compare and contrast properties and conditions of objects in the solar system (i.e., sun, planets, and moons) to those on Earth (i.e., gravitational force, distance from the sun, speed, movement, temperature, and atmospheric conditions).
Earth Science Lab, Level A: Cards 69, 70, 71, 72, 73 **Earth Science Lab, Level B:** Cards 69, 70, 71, 72, 73

Earth and Space Science
The Earth in the Solar System
11. Explain how the tilt of the earth and its revolution around the sun result in an uneven heating of the earth, which in turn causes the seasons.
Earth Science Lab, Level A: Card 62 **Earth Science Lab, Level B:** Card 62

Earth and Space Science
The Earth in the Solar System
12. Recognize that the universe contains many billions of galaxies, and that each galaxy contains many billions of stars.
Earth Science Lab, Level A: Cards 75, 77 **Earth Science Lab, Level B:** Cards 75, 77

Life Science (Biology)
Classification of Organisms
1. Classify organisms into the currently recognized kingdoms according to characteristics that they share. Be familiar with organisms from each kingdom.
Life Science Lab, Level A: Cards 1, 2, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab, Level B:** Cards 1, 2, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 26, 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

Life Science (Biology)
Structure and Function of Cells
2. Recognize that all organisms are composed of cells, and that many organisms are single-celled (unicellular), e.g., bacteria, yeast. In these single-celled organisms, one cell must carry out all the basic functions of life.
Life Science Lab, Level A: Cards 1, 5, 6, 7, 11, 12, 13, 14 **Life Science Lab, Level B:** Cards 1, 5, 6, 7, 11, 12, 13, 14 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells*, pages 77-79

Life Science (Biology)
Structure and Function of Cells
3. Compare and contrast plant and animal cells, including major organelles (cell membrane, cell wall, nucleus, cytoplasm, chloroplast, mitochondria, vacuoles).
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

Life Science (Biology)
Structure and Function of Cells
4. Recognize that within cells, many of the basic functions of organisms (e.g., extracting energy from food and getting rid of waste) are carried out. The way in which cells function is similar in all living organisms.
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

Life Science (Biology)
Systems in Living Things
5. Describe the hierarchical organization of multicellular organisms from cells to tissues to organs to systems to organisms.
Life Science Lab, Level A: Card 44 **Life Science Lab, Level B:** Card 44

Life Science (Biology)
Systems in Living Things
6. Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.
Life Science Lab, Level A: Cards 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab, Level B:** Cards 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab Teacher's Handbook:** Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91

Life Science (Biology)
Reproduction and Heredity
7. Recognize that every organism requires a set of instructions that specifies its traits. These instructions are storied in the organism's chromosomes. Heredity is the passage of these instructions from one generation to another.
Life Science Lab, Level A: Cards 10, 61, 62, 63 **Life Science Lab, Level B:** Cards 10, 61, 62, 63

Life Science (Biology)
Reproduction and Heredity
8. Recognize hereditary information is contained in genes located in the chromosomes of each cell. A human cell contains about 30,000 different genes on 23 different chromosomes.
Life Science Lab, Level A: Cards 10, 62, 63 **Life Science Lab, Level B:** Cards 10, 62, 63

Life Science (Biology)
Reproduction and Heredity
9. Compare sexual reproduction (offspring inherit half of their genes from each parent) with asexual reproduction (offspring is an identical copy of the parent's cell).
Life Science Lab, Level A: Cards 61, 62 **Life Science Lab, Level B:** Cards 61, 62

Life Science (Biology)
Evolution and Biodiversity
10. Give examples of ways in which genetic variation and environmental factors are causes of evolution and the diversity of organisms.
Life Science Lab, Level A: Cards 64, 65, 66, 68 **Life Science Lab, Level B:** Cards 64, 65, 66, 68

Life Science (Biology)
Evolution and Biodiversity
11. Recognize that evidence drawn from geology, fossils, and comparative anatomy provides the basis of the theory of evolution.
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 30, 32, 33, 34 **Earth Science Lab, Level B:** Cards 30, 32, 33, 34

Life Science (Biology)
Evolution and Biodiversity
12. Relate the extinction of species to a mismatch of adaptation and the environment.
Life Science Lab, Level A: Cards 65, 66, 67, 86 **Life Science Lab, Level B:** Cards 65, 66, 67, 86

Life Science (Biology)
Living Things and Their Environment
13. Give examples of ways in which organisms interact and have different functions within an ecosystem that enable the ecosystem to survive.
Life Science Lab, Level A: Cards 71, 72, 73, 74, 75, 76, 77 **Life Science Lab, Level B:** Cards 71, 72, 73, 74, 75, 76, 77 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99

Life Science (Biology)
Energy and Living Things
14. Explain the roles and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.
Life Science Lab, Level A: Cards 13, 76 **Life Science Lab, Level B:** Cards 13, 76

Life Science (Biology)
Energy and Living Things
15. Explain how dead plants and animals are broken down by other living organisms and how this process contributes to the system as a whole.
Life Science Lab, Level A: Cards 13, 76, 78, 79 **Life Science Lab, Level B:** Cards `3, 76, 78, 79

Life Science (Biology)
Energy and Living Things
16. Recognize that producers (plants that contain chlorophyll) use the energy from sunlight to make sugars from carbon dioxide and water through a process called photosynthesis. This food can be used immediately, stored for later use, or used by other organisms.
Life Science Lab, Level A: Cards 7, 16, 17, 76 **Life Science Lab, Level B:** Cards 7, 16, 17, 76

Life Science (Biology)
Changes in Ecosystems Over Time
17. Identify ways in which ecosystems have changed throughout geologic time in response to physical conditions, interactions among organisms, and the actions of humans. Describe how changes may be catastrophes such as volcanic eruptions or ice storms.
Life Science Lab, Level A: Cards 66, 67, 84, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 66, 67, 84, 86, 87, 88, 89, 90 **Earth Science Lab, Level A:** Cards 15, 17, 37, 42, 53, 54, 59, 60, 61, 86 **Earth Science Lab, Level B:** Cards 15, 17, 37, 42, 53, 54, 59, 60, 61, 86

Life Science (Biology)
Changes in Ecosystems Over Time
18. Recognize that biological evolution accounts for the diversity of species developed through gradual processes over many generations.
Life Science Lab, Level A: Cards 65, 66 **Life Science Lab, Level B:** Cards 65, 66

Physical Sciences (Chemistry and Physics)
Properties of Matter
1. Differentiate between weight and mass, recognizing that weight is the amount of gravitational pull on an object.
Physical Science Lab, Level A: Card 57 **Physical Science Lab, Level B:** Card 57

Physical Sciences (Chemistry and Physics)
Properties of Matter
2. Differentiate between volume and mass. Define density.
Physical Science Lab, Level A: Card 2 **Physical Science Lab, Level B:** Card 2

Physical Sciences (Chemistry and Physics)
Properties of Matter
3. Recognize that the measurement of volume and mass requires understanding of the sensitivity of measurement tools (e.g., rulers, graduated cylinders, balances) and knowledge and appropriate use of significant digits.
Physical Science Lab, Level A: Card 2 **Physical Science Lab, Level B:** Card 2

Physical Sciences (Chemistry and Physics)
Properties of Matter
4. Explain and give examples of how mass is conserved in a closed system.
Physical Science Lab, Level A: Cards 2, 9 **Physical Science Lab, Level B:** Cards 2, 9

Physical Sciences (Chemistry and Physics)
Elements, Compounds, and Mixtures
5. Recognize that there are more than 100 elements that combine in a multitude of ways to produce compounds that make up all the living and nonliving things that we encounter.
Life Science Lab, Level A: Card 4 **Life Science Lab, Level B:** Card 4 **Physical Science Lab, Level A:** Cards 10, 11, 17 **Physical Science Lab, Level B:** Cards 10, 11, 17

Physical Sciences (Chemistry and Physics)
Elements, Compounds, and Mixtures
6. Differentiate between an atom (the smallest unit of an element that maintains the characteristics of that element) and a molecule (the smallest unit of a compound that maintains the characteristics of that compound).
Physical Science Lab, Level A: Cards 3, 4, 10, 11 **Physical Science Lab, Level B:** Cards 3, 4, 10, 11

Physical Sciences (Chemistry and Physics)
Elements, Compounds, and Mixtures
7. Give basic examples of elements and compounds.
Physical Science Lab, Level A: Cards 10, 11 **Physical Science Lab, Level B:** Cards 10, 11

Physical Sciences (Chemistry and Physics)
Elements, Compounds, and Mixtures
8. Differentiate between mixtures and pure substances.
Physical Science Lab, Level A: Cards 10, 11, 12, 13 **Physical Science Lab, Level B:** Cards 10, 11, 12, 13

Physical Sciences (Chemistry and Physics)
Elements, Compounds, and Mixtures
9. Recognize that a substance (element or compound) has a melting point and a boiling point, both of which are independent of the amount of the sample.
Physical Science Lab, Level A: Cards 5, 6, 10, 11 **Physical Science Lab, Level B:** Cards 5, 6, 10, 11

Physical Sciences (Chemistry and Physics)
Elements, Compounds, and Mixtures
10. Differentiate between physical changes and chemical changes.
Physical Science Lab, Level A: Cards 8, 9, 27, 28, 29, 30 **Physical Science Lab, Level B:** Cards 8, 9, 27, 28, 29, 30 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83

Physical Sciences (Chemistry and Physics)
Motion of Objects
11. Explain and give examples of how the motion of an object can be described by its position, direction of motion, and speed.
Physical Science Lab, Level A: Cards 50, 51 **Physical Science Lab, Level B:** Cards 50, 51

Physical Sciences (Chemistry and Physics)
Motion of Objects
12. Graph and interpret distance vs. time graphs for constant speed.
Physical Science Lab, Level A: Card 51 **Physical Science Lab, Level B:** Card 51

Physical Sciences (Chemistry and Physics)
Forms of Energy
13. Differentiate between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa.
Physical Science Lab, Level A: Cards 36, 37, 39, 40, 41, 42 **Physical Science Lab, Level B:** Cards 36, 37, 39, 40, 41, 42

Physical Sciences (Chemistry and Physics)
Heat Energy
14. Recognize that heat is a form of energy and that temperature change results from adding or taking away heat from a system.
Physical Science Lab, Level A: Cards 42, 43, 44 **Physical Science Lab, Level B:** Cards 42, 43, 44

Physical Sciences (Chemistry and Physics)
Heat Energy
15. Explain the effect of heat on particle motion through a description of what happens to particles during a change in phase.
Physical Science Lab, Level A: Card 42 **Physical Science Lab, Level B:** Card 42

Physical Sciences (Chemistry and Physics)
Heat Energy
16. Give examples of how heat moves in predictable ways, moving from warmer objects to cooler ones until they reach equilibrium.
Physical Science Lab, Level A: Cards 42, 43 **Physical Science Lab, Level B:** Cards 42, 43