SRA Life, Earth, and Physical Science Laboratories
correlation to
Maine Science and Technology Standards
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.

A. Unifying Themes: Students apply the principles o systems, models, constancy and change, and scale in science and technology.
A1 Systems
Students describe and apply principles of systems in man-made things, natural things, and processes.
a. Explain how individual parts working together in a system (including organisms, Earth systems, solar systems, or man-made systems) can do more than each part individually.
Life Science Lab, Level A: Cards 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; 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 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90 **Earth Science Lab, Level B:** Cards 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90 **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 4, *Using Sound Waves,* pages 85-87; 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:** Cards 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90 **Physical Science Lab, Level B:** Cards 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90 **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

A. Unifying Themes: Students apply the principles o systems, models, constancy and change, and scale in science and technology.

A1 Systems

Students describe and apply principles of systems in man-made things, natural things, and processes.

b. Explain how the output of one part of a system, including waste products from manufacturing or organisms, can become the input of another part of a system.

Life Science Lab, Level A: Cards 9, 12, 13, 17, 20, 21, 22, 50, 51, 76, 77, 78, 79
Life Science Lab, Level B: Cards 9, 12, 13, 17, 20, 21, 22, 50, 51, 76, 77, 78, 79

Earth Science Lab, Level A: Cards 23, 25, 26, 27, 28, 29, 59, 60, 61
Earth Science Lab, Level B: Cards 23, 25, 26, 27, 28, 29, 59, 60, 61

Physical Science Lab, Level A: Cards 27, 28, 29, 30, 34, 38, 44, 45, 46, 47, 48, 49
Physical Science Lab, Level B: Cards 27, 28, 29, 30, 34, 38, 44, 45, 46, 47, 48, 49

A. Unifying Themes: Students apply the principles o systems, models, constancy and change, and scale in science and technology.

A1 Systems

Students describe and apply principles of systems in man-made things, natural things, and processes.

c. Describe how systems are nested and that systems may be thought of as containing subsystems (as well as being a subsystem of a larger system) and apply the understanding to analyze systems.

Life Science Lab, Level A: Cards 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90
Life Science Lab, Level B: Cards 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells*, pages 77-79; Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91; 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 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90
Earth Science Lab, Level B: Cards 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90
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 4, *Using Sound Waves*, pages 85-87; 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: Cards 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90
Physical Science Lab, Level B: Cards 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90
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

A. Unifying Themes: Students apply the principles o systems, models, constancy and change, and scale in science and technology.
A2 Models
Students use models to examine a variety of real-world phenomena from the physical setting, the living environment, and the technological world and compare advantages and disadvantages of various models.
a. Compare different types of models that can be used to represent the same thing (including models of chemical reactions, motion, or cells) in order to match the purpose and complexity of a model to its use.
Life Science Lab Teacher's Handbook: 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 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 6, *Modeling a Tornado*, pages 93-95; Hands-On Activity 7, *Sizes in the Solar System*, pages 97-99 **Physical Science Lab Teacher's Handbook:** 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 20

A. Unifying Themes: Students apply the principles o systems, models, constancy and change, and scale in science and technology.
A2 Models
Students use models to examine a variety of real-world phenomena from the physical setting, the living environment, and the technological world and compare advantages and disadvantages of various models.
b. Propose changes to models and explain how those changes may better reflect the real thing.
Life Science Lab Teacher's Handbook: 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 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 6, *Modeling a Tornado*, pages 93-95; Hands-On Activity 7, *Sizes in the Solar System*, pages 97-99 **Physical Science Lab Teacher's Handbook:** 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 20

A. Unifying Themes: Students apply the principles o systems, models, constancy and change, and scale in science and technology.

A3 Constancy and Change

Students describe how patterns of change vary in physical, biological, and technological systems.

a. Describe systems that are changing including ecosystems, Earth systems, and technologies.

Life Science Lab, Level A: Cards 9, 10, 47, 49, 50, 51, 52, 53, 54, 55, 57, 58, 65, 66, 67, 70, 71, 72, 73, 74, 75, 76, 78, 79, 84, 86, 87, 88, 89, 90
Life Science Lab, Level B: Cards 9, 10, 47, 49, 50, 51, 52, 53, 54, 55, 57, 58, 65, 66, 67, 70, 71, 72, 73, 74, 75, 76, 78, 79, 84, 86, 87, 88, 89, 90
Life Science Lab Teacher's Handbook: Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91; 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, 10, 11, 12, 13, 14, 15, 17, 22, 24, 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, 62, 64, 65, 66, 68, 76, 82, 83, 84, 86, 87, 88, 90
Earth Science Lab, Level B: Cards 9, 10, 11, 12, 13, 14, 15, 17, 22, 24, 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, 62, 64, 65, 66, 68, 76, 82, 83, 84, 86, 87, 88, 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: Cards 6, 7, 8, 9, 27, 28, 29, 30, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90
Physical Science Lab, Level B: Cards 6, 7, 8, 9, 27, 28, 29, 30, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90
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

A. Unifying Themes: Students apply the principles o systems, models, constancy and change, and scale in science and technology.

A3 Constancy and Change

Students describe how patterns of change vary in physical, biological, and technological systems.

b. Give examples of systems including ecosystems, Earth systems, and technologies that appear to be unchanging (even though things may be changing within the system) and identify any feedback mechanisms that may be modifying the changes.

Life Science Lab, Level A: Cards 9, 10, 47, 65, 66, 67, 72, 80
Life Science Lab, Level B: Cards 9, 10, 47, 65, 66, 67, 72, 80
Life Science Lab Teacher's Handbook: Hands-On Activity 2, *Culturing Bacteria*, pages 81-83; Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91

Earth Science Lab, Level A: Cards 9, 10, 11, 12, 13, 14, 15, 17, 22, 24, 25, 26, 27, 28, 36, 37
Earth Science Lab, Level B: Cards 9, 10, 11, 12, 13, 14, 15, 17, 22, 24, 25, 26, 27, 28, 36, 37
Earth Science Lab Teacher's Handbook: Hands-On Activity 2, *Plate Boundaries in Action*, pages 77-79

Physical Science Lab, Level A: Cards 21, 22, 23, 24, 25, 36, 42, 43, 53, 68
Physical Science Lab, Level B: Cards 21, 22, 23, 24, 25, 36, 42, 43, 53, 68

A. Unifying Themes: Students apply the principles o systems, models, constancy and change, and scale in science and technology.
A3 Constancy and Change
Students describe how patterns of change vary in physical, biological, and technological systems.
c. Describe rates of change and cyclic patterns using appropriate grade-level mathematics.
Life Science Lab, Level A: Cards 9, 10, 78, 79, 80 **Life Science Lab, Level B:** Cards 9, 10, 78, 79, 80 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99 **Earth Science Lab, Level A:** Cards 9, 38, 47, 52, 53, 54, 59, 60, 61, 62, 64, 66, 76 **Earth Science Lab, Level B:** Cards 9, 38, 47, 52, 53, 54, 59, 60, 61, 62, 64, 66, 76 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 6, *Modeling a Tornado*, pages 93-95 **Physical Science Lab, Level A:** Cards 6, 7, 8, 9, 27, 28, 29, 30, 33, 34, 48 **Physical Science Lab, Level B:** Cards 6, 7, 8, 9, 27, 28, 29, 30, 33, 34, 48 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 3, *Energy Conversion*, pages 85-87

A. Unifying Themes: Students apply the principles o systems, models, constancy and change, and scale in science and technology.
A4 Scale
Students use scale to describe objects, phenomena, or processes related to Earth, space, matter, and mechanical and living systems.
a. Describe how some things change or work differently at different scales.
Life Science Lab, Level A: Cards 5, 8, 9, 10, 44, 47, 62, 63, 71 **Life Science Lab, Level B:** Cards 5, 8, 9, 10, 44, 47, 62, 63, 71 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells*, pages 77-79; Hands-On Activity 2, *Culturing Bacteria*, pages 81-83 **Earth Science Lab, Level A:** Cards 6, 18, 19, 20, 40, 41, 52, 53, 54, 58, 60, 61, 62, 68, 74, 77, 81, 87, 89 **Earth Science Lab, Level B:** Cards 6, 18, 19, 20, 40, 41, 52, 53, 54, 58, 60, 61, 62, 68, 74, 77, 81, 87, 89 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 6, *Modeling a Tornado*, pages 93-95; Hands-On Activity 7, *Sizes in the Solar System*, pages 97-99 **Physical Science Lab, Level A:** Cards 21, 22, 23, 24, 25, 26, 31, 33, 42, 43, 66, 67, 76, 80, 90 **Physical Science Lab, Level B:** Cards 21, 22, 23, 24, 25, 26, 31, 33, 42, 43, 66, 67, 76, 80, 90 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 6, *Making Sound*, pages 97-99

A. Unifying Themes: Students apply the principles o systems, models, constancy and change, and scale in science and technology.

A4 Scale

Students use scale to describe objects, phenomena, or processes related to Earth, space, matter, and mechanical and living systems.

b. Use proportions, averages, and ranges to describe small and large extremes of scale.

Life Science Lab, Level A: Cards 5, 59
Life Science Lab, Level B: Cards 5, 59
Life Science Lab Teacher's Handbook: Hands-On Activity 2, *Culturing Bacteria*, pages 81-83; Hands-On Activity 4, *Your Cardiovascular System*, pages 89-91; Hands-On Activity 6, *How Much Does Energy Cost?*, pages 97-99

Earth Science Lab, Level A: Cards 18, 19, 20, 30, 31, 32, 52, 53, 54, 58, 62, 68, 74, 77, 78, 79, 80, 81, 87, 89
Earth Science Lab, Level B: Cards 18, 19, 20, 30, 31, 32, 52, 53, 54, 58, 62, 74, 77, 78, 79, 80, 81, 87, 89
Earth Science Lab Teacher's Handbook: 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 6, *Modeling a Tornado*, pages 93-95; Hands-On Activity 7, *Sizes in the Solar System*, pages 97-99

Physical Science Lab, Level A: Cards 42, 43
Physical Science Lab, Level B: Cards 42, 43
Physical Science Lab Teacher's Handbook: Hands-On Activity 3, *Energy Conversion*, pages 85-87

B. The Skills and Traits of Scientific Inquiry and Technological Design: Students plan, conduct, analyze data from and communicate the results of in-depth scientific investigations; and they use a systematic process, tools, equipment, and a variety of materials to create a technological design and produce a solution or product to meet a specified need.

B1 Skills and Traits of Scientific Inquiry

Students plan, conduct, analyze data from, and communicate results of investigations, including simple experiments.

a. Identify questions that can be answered through scientific investigations.

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

B. The Skills and Traits of Scientific Inquiry and Technological Design: Students plan, conduct, analyze data from and communicate the results of in-depth scientific investigations; and they use a systematic process, tools, equipment, and a variety of materials to create a technological design and produce a solution or product to meet a specified need.
B1 Skills and Traits of Scientific Inquiry
Students plan, conduct, analyze data from, and communicate results of investigations, including simple experiments.
b. Design and safely conduct scientific investigations including experiments with controlled variables.
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

B. The Skills and Traits of Scientific Inquiry and Technological Design: Students plan, conduct, analyze data from and communicate the results of in-depth scientific investigations; and they use a systematic process, tools, equipment, and a variety of materials to create a technological design and produce a solution or product to meet a specified need.
B1 Skills and Traits of Scientific Inquiry
Students plan, conduct, analyze data from, and communicate results of investigations, including simple experiments.
c. Use appropriate tools, metric units, and techniques to gather, analyze, and interpret data.
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

B. The Skills and Traits of Scientific Inquiry and Technological Design: Students plan, conduct, analyze data from and communicate the results of in-depth scientific investigations; and they use a systematic process, tools, equipment, and a variety of materials to create a technological design and produce a solution or product to meet a specified need.
B1 Skills and Traits of Scientific Inquiry
Students plan, conduct, analyze data from, and communicate results of investigations, including simple experiments.
d. Use mathematics to gather, organize, and present data and structure convincing explanations.
Life Science Lab Teacher's Handbook: 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 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 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 6, *Making Sound,* pages 97-99

B. The Skills and Traits of Scientific Inquiry and Technological Design: Students plan, conduct, analyze data from and communicate the results of in-depth scientific investigations; and they use a systematic process, tools, equipment, and a variety of materials to create a technological design and produce a solution or product to meet a specified need.
B1 Skills and Traits of Scientific Inquiry
Students plan, conduct, analyze data from, and communicate results of investigations, including simple experiments.
e. Use logic, critical reasoning and evidence to develop descriptions, explanations, predictions, and models.
Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

B. The Skills and Traits of Scientific Inquiry and Technological Design: Students plan, conduct, analyze data from and communicate the results of in-depth scientific investigations; and they use a systematic process, tools, equipment, and a variety of materials to create a technological design and produce a solution or product to meet a specified need.
B1 Skills and Traits of Scientific Inquiry
Students plan, conduct, analyze data from, and communicate results of investigations, including simple experiments.
f. Communicate, critique, and analyze their own scientific work and the work of other students.
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

B. The Skills and Traits of Scientific Inquiry and Technological Design: Students plan, conduct, analyze data from and communicate the results of in-depth scientific investigations; and they use a systematic process, tools, equipment, and a variety of materials to create a technological design and produce a solution or product to meet a specified need.
B2 kills and traits of Technological Design
Students use a systematic process, tools, equipment, and a variety of materials to design and produce a solution or product to meet a specified need, using established criteria.
a. Identify appropriate problems for technological design.
b. Design a solution or product.
c. Communicate a proposed design using drawings and simple models.
d. Implement a proposed design.
e. Evaluate a completed design or product.
f. Suggest improvements for their own and others' designs and try out proposed modifications.
g. Explain the design process including the stages of problem, identification, solution design, implementation, and evaluation.
These concepts are not covered at this level.

C. The Scientific and Technological Enterprise: Students understand the history and nature of scientific knowledge and technology, the processes of inquiry and technological design, and the impacts science and technology have on society and the environment.

C1 Understanding of Inquiry

Students describe how scientists use varied and systematic approaches to investigations that may lead to further investigations.

a. Explain how the type of question informs the type of investigation.

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

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C. The Scientific and Technological Enterprise: Students understand the history and nature of scientific knowledge and technology, the processes of inquiry and technological design, and the impacts science and technology have on society and the environment.

C1 Understanding of Inquiry

Students describe how scientists use varied and systematic approaches to investigations that may lead to further investigations.

b. Explain why it is important to identify and control variables and replicate trials in experiments.

Life Science Lab Teacher's Handbook: Hands-On Activity 1, *Examining Cells,* pages 77-79; Hands-On Activity 2, *Culturing Bacteria,* pages 81-83; Hands-On Activity 3, *Investigating Arthropods,* pages 85-87; Hands-On Activity 4, *Your Cardiovascular System,* pages 89-91; Hands-On Activity 5, *Making Fossils,* pages 93-95; Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99; Hands-On Activity 7, *The Effects of Acid Rain,* pages 101-103

Earth Science Lab Teacher's Handbook: Hands-On Activity 1, *Identifying Minerals with the Mohs Scale,* pages 73-75; Hands-On Activity 2, *Plate Boundaries in Action,* pages 77-79; Hands-On Activity 3, *Interpreting a Topographic Map,* pages 81-83; Hands-On Activity 4, *Using Sound Waves,* pages 85-87; Hands-On Activity 5, *What is in the Air?,* pages 89-91; Hands-On Activity 6, *Modeling a Tornado,* pages 93-95; Hands-On Activity 7, *Sizes in the Solar System,* pages 97-99; Hands-On Activity 8, *Temperature, Salinity, and Water Density,* pages 101-103

Physical Science Lab Teacher's Handbook: Hands-On Activity 1, *Measuring pH of Acids and Bases,* pages 77-79; Hands-On Activity 2, *Chemical Reaction Rates,* pages 81-83; Hands-On Activity 3, *Energy Conversion,* pages 85-87; Hands-On Activity 4, *Reducing Friction,* pages 89-91; Hands-On Activity 5, *Making a Potato Battery,* pages 93-95; Hands-On Activity 6, *Making Sound,* pages 97-99

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C. The Scientific and Technological Enterprise: Students understand the history and nature of scientific knowledge and technology, the processes of inquiry and technological design, and the impacts science and technology have on society and the environment.
C1 Understanding of Inquiry
Students describe how scientists use varied and systematic approaches to investigations that may lead to further investigations.
c. Describe how scientists' analyses of findings can lead to new investigations.
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

C. The Scientific and Technological Enterprise: Students understand the history and nature of scientific knowledge and technology, the processes of inquiry and technological design, and the impacts science and technology have on society and the environment.
C2 Understandings About Science and Technology
Students understand and compare the similarities and differences between scientific inquiry and technological design.
a. Compare the process of scientific inquiry to the process of technological design.
b. Explain how constraints and consequences impact scientific inquiry and technological design.
These concepts are not covered at this level.

C. The Scientific and Technological Enterprise: Students understand the history and nature of scientific knowledge and technology, the processes of inquiry and technological design, and the impacts science and technology have on society and the environment.
C3 Science, technology, and Society
Students identify and describe the role of science and technology in addressing personal and societal challenges.
a. Describe how science and technology can help address societal challenges related to population, natural hazards, sustainability, personal health and safety, and environmental quality.
Life Science Lab, Level A: Cards 45, 46, 49, 59, 64, 69, 83, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 45, 46, 49, 59, 64, 69, 83, 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 16, 20, 31, 37, 42, 51, 54, 59, 60, 61, 72, 79, 80, 81, 86, 88 **Earth Science Lab, Level B:** Cards 16, 20, 31, 37, 42, 51, 54, 59, 60, 61, 72, 79, 80, 81, 86, 88 **Earth Science Lab Teacher's Handbook:** Hands-On Activity 5, *What is in the Air?,* pages 89-91 **Physical Science Lab, Level A:** Cards 33, 35, 76, 81, 84, 90 **Physical Science Lab, Level B:** Cards 33, 35, 76, 81, 84, 90

C. The Scientific and Technological Enterprise: Students understand the history and nature of scientific knowledge and technology, the processes of inquiry and technological design, and the impacts science and technology have on society and the environment.
C3 Science, technology, and Society
Students identify and describe the role of science and technology in addressing personal and societal challenges.
b. Identify personal choices that can either positively or negatively impact society including population, ecosystem sustainability, personal health, and environmental quality.
Life Science Lab, Level A: Cards 45, 46, 84, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 45, 46, 84, 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, 37, 41, 59, 60, 61, 85, 86 **Earth Science Lab, Level B:** Cards 29, 37, 42, 59, 60, 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 34, 46, 47, 48, 49 **Physical Science Lab, Level B:** Cards 34, 46, 47, 48, 49

C. The Scientific and Technological Enterprise: Students understand the history and nature of scientific knowledge and technology, the processes of inquiry and technological design, and the impacts science and technology have on society and the environment.
C3 Science, technology, and Society
Students identify and describe the role of science and technology in addressing personal and societal challenges.
c. Identify factors that influence the development and use of science and 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

C. The Scientific and Technological Enterprise: Students understand the history and nature of scientific knowledge and technology, the processes of inquiry and technological design, and the impacts science and technology have on society and the environment.
C4 History and Nature of Science
Students describe historical examples that illustrate how science advances knowledge through the scientists involved and through the ways scientists think about their work and the work of others.
a. Describe how women and men of various backgrounds, working in teams or alone and communicating about their ideas extensively with others, engage in science, engineering, and related fields.
Life Science Lab, Level A: Cards 2, 5, 46, 59 **Life Science Lab, Level B:** Cards 2, 5, 46, 59 **Earth Science Lab, Level A:** Cards 10, 68, 72, 78 **Earth Science Lab, Level B:** Cards 10, 68, 72, 78 **Physical Science Lab, Level A:** Cards 3, 7, 17, 55 **Physical Science Lab, Level B:** Cards 3, 7, 17, 55

C. The Scientific and Technological Enterprise: Students understand the history and nature of scientific knowledge and technology, the processes of inquiry and technological design, and the impacts science and technology have on society and the environment.
C4 History and Nature of Science
Students describe historical examples that illustrate how science advances knowledge through the scientists involved and through the ways scientists think about their work and the work of others.
b. Describe a breakthrough from the history of science that contributes to our current understanding of science.
Life Science Lab, Level A: Cards 5, 59, 64, 69 **Life Science Lab, Level B:** Cards 5, 59, 64, 69 **Earth Science Lab, Level A:** Cards 10, 31,68, 72, 78 **Earth Science Lab, Level B:** Cards 10, 31, 68, 72, 78 **Physical Science Lab, Level A:** Cards 3, 17, 53, 59 **Physical Science Lab, Level B:** Cards 3, 17, 53, 59

C. The Scientific and Technological Enterprise: Students understand the history and nature of scientific knowledge and technology, the processes of inquiry and technological design, and the impacts science and technology have on society and the environment.
C4 History and Nature of Science
Students describe historical examples that illustrate how science advances knowledge through the scientists involved and through the ways scientists think about their work and the work of others.
c. Describe and provide examples that illustrate that science is a human endeavor that generates explanations based on verifiable evidence that are subject to change when new evidence does not match existing explanations.
Life Science Lab, Level A: Cards 2, 5, 59, 64, 69 **Life Science Lab, Level B:** Cards 2, 5, 59, 64, 69 **Earth Science Lab, Level A:** Cards 10, 51, 68, 72, 78 **Earth Science Lab, Level B:** Cards 10, 51, 68, 72, 78 **Physical Science Lab, Level A:** Cards 3, 53, 55, 59 **Physical Science Lab, Level B:** Cards 3, 53, 55, 59

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D1 Universe and Solar System
Students explain the movements and describe the location, composition, and characteristics of our solar system and universe, including planets, the sun, and galaxies.
a. Describe the different kinds of objects in the solar system including planets, sun, moons, asteroids, and comets.
Earth Science Lab, Level A: Cards 63, 67, 68, 69, 70, 71, 72, 73 **Earth Science Lab, Level B:** Cards 63, 67, 68, 69, 70, 71, 72, 73

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D1 Universe and Solar System
Students explain the movements and describe the location, composition, and characteristics of our solar system and universe, including planets, the sun, and galaxies.
b. Explain the motions that cause days, years, phases of the moon, and eclipses.
Earth Science Lab, Level A: Cards 62, 64, 65 **Earth Science Lab, Level B:** Cards 62, 64, 65

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D1 Universe and Solar System
Students explain the movements and describe the location, composition, and characteristics of our solar system and universe, including planets, the sun, and galaxies.
c. Describe the location of our solar system in its galaxy and explain that other galaxies exist and that they include stars and planets.
Earth Science Lab, Level A: Cards 68, 75, 77 **Earth Science Lab, Level B:** Cards 68, 75, 77

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D2 Earth
Student describe the various cycles, physical and biological forces and processes, position in space, energy transformations, and human actions that affect the short-term and long-term changes to the Earth.
a. Explain how the tilt of Earth's rotational axis relative to the plane of its yearly orbit around the sun affects the day length and sunlight intensity to cause seasons.
Earth Science Lab, Level A: Cards 55, 62 **Earth Science Lab, Level B:** Cards 55, 62

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D2 Earth
Student describe the various cycles, physical and biological forces and processes, position in space, energy transformations, and human actions that affect the short-term and long-term changes to the Earth.
b. Describe Earth Systems—biosphere, atmosphere, hydrosphere and lithosphere—and cycles and interactions within them (including water moving among and between them, rocks forming and transforming, and weather formation).
Life Science Lab, Level A: Cards 70, 71, 72, 73, 74, 75, 76, 78, 79 **Life Science Lab, Level B:** Cards 70, 71, 72, 73, 74, 75, 76, 78, 79 **Earth Science Lab, Level A:** Cards 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 22, 24, 25, 26, 27, 28, 36, 38, 39, 40, 41, 43, 49, 52, 53, 54, 56, 57, 58, 60, 61, 62, 66, 82, 83, 84, 87, 88, 89, 90 **Earth Science Lab, Level B:** Cards 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 22, 24, 25, 26, 27, 28, 36, 38, 39, 40, 41, 43, 49, 52, 53, 54, 56, 57, 58, 60, 61, 62, 66, 82, 83, 84, 87, 88, 89, 90

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D2 Earth
Student describe the various cycles, physical and biological forces and processes, position in space, energy transformations, and human actions that affect the short-term and long-term changes to the Earth.
c. Give several reasons why the climate is different in different regions of the Earth.
Earth Science Lab, Level A: Cards 55, 58, 60, 62 **Earth Science Lab, Level B:** Cards 55, 58, 60, 62

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D2 Earth
Student describe the various cycles, physical and biological forces and processes, position in space, energy transformations, and human actions that affect the short-term and long-term changes to the Earth.
d. Describe significant Earth resources and how their limited supply affects how they are used.
Life Science Lab, Level A: Cards 84, 8, 87, 88, 90 **Life Science Lab, Level B:** Cards 84, 85, 87, 88, 90 **Earth Science Lab, Level A:** Cards 5, 29, 35, 85 **Earth Science Lab, Level B:** Cards 5, 29, 35, 85

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D2 Earth
Student describe the various cycles, physical and biological forces and processes, position in space, energy transformations, and human actions that affect the short-term and long-term changes to the Earth.
e. Describe the effect of gravity on objects on Earth.
Earth Science Lab, Level A: Cards 66, 90 **Earth Science Lab, Level B:** Cards 66, 90 **Physical Science Lab, Level A:** Cards 57, 59 **Physical Science Lab, Level B:** Cards 57, 59

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D2 Earth
Student describe the various cycles, physical and biological forces and processes, position in space, energy transformations, and human actions that affect the short-term and long-term changes to the Earth.
f. Give examples of abrupt changes and slow changes in Earth Systems.
Life Science Lab, Level A: Cards 65, 66, 67, 86, 87, 88, 89, 90 **Life Science Lab, Level B:** Cards 65, 66, 67, 86, 87, 88, 89, 90 **Earth Science Lab, Level A:** Cards 9, 10, 11, 12, 13, 14, 15, 17, 22, 24, 25, 26, 27, 28, 32, 37, 42, 47, 52, 53, 54, 59, 60, 61, 62, 86 **Earth Science Lab, Level B:** Cards 9, 10, 11, 12, 13, 14, 15, 17, 22, 24, 25, 26, 27, 28, 32, 37, 42, 47, 52, 53, 54, 59, 60, 61, 62, 86

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D3 Matter and Energy
Students describe physical and chemical properties of matter, interactions and changes in matter, and transfer of energy through matter.
a. Describe that all matter is made up of atoms and distinguish between/among elements, atoms, and molecules.
Physical Science Lab, Level A: Cards 3, 4, 10, 11 **Physical Science Lab, Level B:** Cards 3, 4, 10, 11

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D3 Matter and Energy
Students describe physical and chemical properties of matter, interactions and changes in matter, and transfer of energy through matter.
b. Describe how physical characteristics of elements and types of reactions they undergo have been used to create the Periodic Table.
Physical Science Lab, Level A: Cards 1, 2, 10, 14, 15, 16, 17, 18, 19, 20 **Physical Science Lab, Level B:** Cards 1, 2, 10, 14, 15, 16, 17, 18, 19, 20

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D3 Matter and Energy
Students describe physical and chemical properties of matter, interactions and changes in matter, and transfer of energy through matter.
c. Describe the difference between physical and chemical change.
Physical Science Lab, Level A: Cards 6, 8, 9, 27, 28, 29, 30 **Physical Science Lab, Level B:** Cards 6, 8, 9, 27, 28, 29, 30

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D3 Matter and Energy
Students describe physical and chemical properties of matter, interactions and changes in matter, and transfer of energy through matter.
d. Explain the relationship of the motion of atoms and molecules to the states of matter for gases, liquids, and solids.
Physical Science Lab, Level A: Cards 5, 6, 7, 8, 42 **Physical Science Lab, Level B:** Cards 5, 6, 7, 8, 442

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D3 Matter and Energy
Students describe physical and chemical properties of matter, interactions and changes in matter, and transfer of energy through matter.
e. Explain how atoms are packed together in arrangements that compose all substances including elements, compounds, mixtures, and solutions.
Physical Science Lab, Level A: Cards 3, 4, 10, 11, 12, 13 **Physical Science Lab, Level B:** Cards 3, 4, 10, 11, 12, 13

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D3 Matter and Energy
Students describe physical and chemical properties of matter, interactions and changes in matter, and transfer of energy through matter.
f. Explain and apply the understanding that substances have characteristic properties, including density, boiling point, and solubility and these properties are not dependent on the amount of matter present.
Physical Science Lab, Level A: Cards 1, 2, 6, 8, 13, 14, 15, 16, 42 **Physical Science Lab, Level B:** Cards 1, 2, 6, 8, 13, 14, 15, 16, 42

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D3 Matter and Energy
Students describe physical and chemical properties of matter, interactions and changes in matter, and transfer of energy through matter.
g. Use the idea of atoms to explain the conservation of matter.
Physical Science Lab, Level A: Cards 9, 27, 28, 29, 30 **Physical Science Lab, Level B:** Cards 9, 27, 28, 29, 30 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 2, *Chemical Reaction Rates*, pages 81-83

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D3 Matter and Energy
Students describe physical and chemical properties of matter, interactions and changes in matter, and transfer of energy through matter.
h. Describe several different types of energy forms including heat energy, chemical energy, and mechanical energy.
Physical Science Lab, Level A: Cards 34, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 66, 67, 70, 76, 77, 78, 79, 82, 83 **Physical Science Lab, Level B:** Cards 34, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 66, 67, 70, 76, 77, 78, 79, 82, 83 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 3, *Energy Conversion*, pages 85-87; Hands-On Activity 5, *Making a Potato Battery*, pages 93-95; Hands-On Activity 6, *Making Sound*, pages 97-99

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D3 Matter and Energy
Students describe physical and chemical properties of matter, interactions and changes in matter, and transfer of energy through matter.
i. Use examples of energy transformations from one form to another to explain that energy cannot be created or destroyed.
Physical Science Lab, Level A: Cards 36, 37, 39, 40, 41, 42, 45, 46, 47, 48, 49 **Physical Science Lab, Level B:** Cards 36, 37, 39, 40, 41, 42, 45, 46, 47, 48, 49

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D3 Matter and Energy
Students describe physical and chemical properties of matter, interactions and changes in matter, and transfer of energy through matter.
j. Describe how heat is transferred from one object to another by conduction, convection, and/or radiation.
Physical Science Lab, Level A: Cards 42, 43, 44 **Physical Science Lab, Level B:** Cards 42, 43, 44

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D3 Matter and Energy
Students describe physical and chemical properties of matter, interactions and changes in matter, and transfer of energy through matter.
k. Describe the properties of solar radiation and its interaction with objects on Earth.
Physical Science Lab, Level A: Cards 46, 82, 83, 85 **Physical Science Lab, Level B:** Cards 46, 82, 83, 85

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D4 Force and Motion
Students describe the force of gravity, the motion of objects, the properties of waves, and the wavelike property of energy in light waves.
a. Describe the similarities and differences in the motion of sound vibrations, earthquakes, and light waves.
Earth Science Lab, Level A: Card 16 **Earth Science Lab, Level B:** Card 16 **Physical Science Lab, Level A:** Cards 77, 78, 79, 82, 83, 85, 86, 87, 88 **Physical Science Lab, Level B:** Cards 77, 78, 79, 82, 83, 85, 86, 87, 88 **Physical Science Lab Teacher's Handbook:** Hands-On Activity 6, *Making Sound,* pages 97-99

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D4 Force and Motion
Students describe the force of gravity, the motion of objects, the properties of waves, and the wavelike property of energy in light waves.
b. Explain the relationship among visible light, the electromagnetic spectrum, and sight.
Physical Science Lab, Level A: Cards 82, 85, 89 **Physical Science Lab, Level B:** Cards 82, 85, 89

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D4 Force and Motion
Students describe the force of gravity, the motion of objects, the properties of waves, and the wavelike property of energy in light waves.
c. Describe and apply an understanding of how the gravitational force between any two objects would change if their mass or the distance between them changed.
Physical Science Lab, Level A: Cards 57, 59 **Physical Science Lab, Level B:** Cards 57, 59

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D4 Force and Motion
Students describe the force of gravity, the motion of objects, the properties of waves, and the wavelike property of energy in light waves.
d. Describe and apply an understanding of how electric currents and magnets can exert force on each other.
Physical Science Lab, Level A: Cards 66, 74, 75, 76 **Physical Science Lab, Level B:** Cards 66, 74, 75, 76

D. The Physical Setting: Students understand the universal nature of matter, energy, force, and motion and identify how these relationships are exhibited in Earth Systems, in the solar system, and throughout the universe.
D4 Force and Motion
Students describe the force of gravity, the motion of objects, the properties of waves, and the wavelike property of energy in light waves.
e. Describe and apply an understanding of the effects of multiple forces on an object, and how unbalanced forces will cause changes in the speed or direction.
Physical Science Lab, Level A: Cards 54, 55, 56, 57, 58, 59 **Physical Science Lab, Level B:** Cards 54, 55, 56, 57, 58, 59

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E1 Biodiversity
Students differentiate among organisms based on biological characteristics and identify patterns of similarity.
a. Compare physical characteristics that differentiate organisms into groups (including plants that use sunlight to make their own food, animals that consume energy-rich food, and organisms that cannot easily be classified as either).
Life Science Lab, Level A: Cards 2, 3, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab, Level B:** Cards , 3, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab Teacher's Handbook:** Hands-On Activity 2, *Culturing Bacteria*, pages 81-83; Hands-On Activity 3, *Investigating Arthropods*, pages 85-87

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E1 Biodiversity
Students differentiate among organisms based on biological characteristics and identify patterns of similarity.
b. Explain how biologists use internal and external anatomical features to determine relatedness among organisms and to form the basis for classification systems.
Life Science Lab, Level A: Cards 2, 3, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab, Level B:** Cards 2, 3, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab Teacher's Handbook:** Hands-On Activity 2, *Culturing Bacteria*, pages 81-83; Hands-On Activity 3, *Investigating Arthropods*, pages 85-87

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E1 Biodiversity
Students differentiate among organisms based on biological characteristics and identify patterns of similarity.
c. Explain ways to determine whether organisms are the same species.
Life Science Lab, Level A: Card 1 **Life Science Lab, Level B:** Card 1

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E1 Biodiversity
Students differentiate among organisms based on biological characteristics and identify patterns of similarity.
d. Describe how external and internal structures of animals and plants contribute to the variety of ways organisms are able to find food and reproduce.
Life Science Lab, Level A: Cards 1, 6, 7, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab, Level B:** Cards 1, 6, 7, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 **Life Science Lab Teacher's Handbook:** Hands-On Activity 2, *Culturing Bacteria*, pages 81-83; Hands-On Activity 3, *Investigating Arthropods*, pages 85-87

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E2 Ecosystems
Students examine how the characteristics of the physical, non-living (abiotic) environment, the types and behaviors of living (biotic) organisms, and the flow of matter and energy affect organisms and the ecosystem of which they are part.
a. List various kinds of resources within different biomes for which organisms compete.
Life Science Lab, Level A: Cards 72, 75, 76, 77, 81, 82, 86 **Life Science Lab, Level B:** Cards 72, 75, 76, 77, 81, 82, 86 **Earth Science Lab, Level A:** Card 89 **Earth Science Lab, Level B:** Card 89

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E2 Ecosystems
Students examine how the characteristics of the physical, non-living (abiotic) environment, the types and behaviors of living (biotic) organisms, and the flow of matter and energy affect organisms and the ecosystem of which they are part.
b. Describe ways in which two types of organisms may interact (including competition, predator/prey, producer/consumer/decomposer, parasitism, and mutualism) and describe the positive and negative consequences of such interactions.
Life Science Lab, Level A: Cards 73, 74, 75, 76, 77 **Life Science Lab, Level B:** Cards 73, 74, 75, 76, 77 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?*, pages 97-99

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E2 Ecosystems
Students examine how the characteristics of the physical, non-living (abiotic) environment, the types and behaviors of living (biotic) organisms, and the flow of matter and energy affect organisms and the ecosystem of which they are part.
c. Describe the source and flow of energy in the two major food webs, terrestrial and marine.
Life Science Lab, Level A: Cards 13, 76, 77, 80, 81 **Life Science Lab, Level B:** Cards 13, 76, 77, 80, 81 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99 **Earth Science Lab, Level A:** Card 89 **Earth Science Lab, Level B:** Card 89

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E2 Ecosystems
Students examine how the characteristics of the physical, non-living (abiotic) environment, the types and behaviors of living (biotic) organisms, and the flow of matter and energy affect organisms and the ecosystem of which they are part.
d. Describe how matter and energy change from one form to another in living things and in the physical environment.
Life Science Lab, Level A: Cards 9, 13, 16, 17, 45, 46, 50, 73, 74, 76, 77, 78 **Life Science Lab, Level B:** Cards 9, 13, 16, 17, 45, 46, 50, 73, 74, 76, 77, 78 **Life Science Lab Teacher's Handbook:** Hands-On Activity 6, *How Much Does Energy Cost?,* pages 97-99

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E2 Ecosystems
Students examine how the characteristics of the physical, non-living (abiotic) environment, the types and behaviors of living (biotic) organisms, and the flow of matter and energy affect organisms and the ecosystem of which they are part.
e. Explain that the total amount of matter in the environment stays the same even as its form and location change.
Life Science Lab, Level A: Cards 76, 77 **Life Science Lab, Level B:** Cards 76, 77

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E3 Cells
Students describe the hierarchy of organization and function in organisms, and the similarities and differences in structure, function, and needs among and within organisms.
a. Describe the basic functions of organisms carried out within cells including the extracting of energy from food and the elimination of wastes.
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

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E3 Cells
Students describe the hierarchy of organization and function in organisms, and the similarities and differences in structure, function, and needs among and within organisms.
b. Explain the relationship among cells, tissues, organs, and organ systems, including how tissues and organs serve the needs of cells and organisms.
Life Science Lab, Level A: Cards 5, 8, 9, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab, Level B:** Cards 5, 8, 9, 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

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E3 Cells
Students describe the hierarchy of organization and function in organisms, and the similarities and differences in structure, function, and needs among and within organisms.
c. Compare the structures, systems, and interactions that allow single-celled organisms and multi-celled plants and animals, including humans, to defend themselves, acquire and use energy, self-regulate, reproduce, and coordinate movement.
Life Science Lab, Level A: Cards 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab, Level B:** Cards 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 **Life Science Lab Teacher's Handbook:** Hands-On Activity 1, *Examining Cells*, pages 77-79; Hands-On Activity 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

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E3 Cells
Students describe the hierarchy of organization and function in organisms, and the similarities and differences in structure, function, and needs among and within organisms.
d. Explain that all living things are composed of cells numbering from just one to millions.
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

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E4 Heredity and Reproduction
Students describe the general characteristics and mechanisms of reproduction and heredity in organisms, including humans, and ways in which organisms are affected by their genetic traits.
a. Explain that sexual reproduction includes fertilization that results in the inclusion of genetic information from each parent and determines the inherited traits that are a part of every cell.
Life Science Lab, Level A: Cards 58, 61, 62, 63 **Life Science Lab, Level B:** Cards 58, 61, 62, 63

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E4 Heredity and Reproduction
Students describe the general characteristics and mechanisms of reproduction and heredity in organisms, including humans, and ways in which organisms are affected by their genetic traits.
b. Identify some of the risks to the healthy development of an embryo including mother's diet, lifestyle, and hygiene.
Life Science Lab, Level A: Card 45 **Life Science Lab, Level B:** Card 45

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E4 Heredity and Reproduction
Students describe the general characteristics and mechanisms of reproduction and heredity in organisms, including humans, and ways in which organisms are affected by their genetic traits.
c. Describe asexual reproduction as a process by which all genetic information comes from one parent and determines the inherited traits are a part of every cell.
Life Science Lab, Level A: Cards 10, 60 **Life Science Lab, Level B:** Cards 10, 60

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E5 Evolution
Students describe the evidence that evolution occurs over many generations, allowing species to acquire many of their unique characteristics or adaptations.
a. Explain how the layers of sedimentary rock and their contained fossils provide evidence for the long history of Earth and for the long history of changing life.
Life Science Lab, Level A: Cards 66, 67 **Life Science Lab, Level B:** Cards 66, 67 **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

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E5 Evolution
Students describe the evidence that evolution occurs over many generations, allowing species to acquire many of their unique characteristics or adaptations.
b. Describe how small differences between parents and offspring can lead to descendants who are very different from their ancestors.
Life Science Lab, Level A: Cards 64, 65, 66, 67 **Life Science Lab, Level B:** Cards 64, 65, 66, 67

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E5 Evolution
Students describe the evidence that evolution occurs over many generations, allowing species to acquire many of their unique characteristics or adaptations.
c. Describe how variations in the behavior and traits of an offspring may permit some of them to survive a changing environment.
Life Science Lab, Level A: Cards 23, 24, 41, 43, 64, 65, 66 **Life Science Lab, Level B:** Cards 23, 24, 41, 43, 64, 65, 66

E. The Living Environment: Students understand that cells are the basic unit of life, that all life as we know it has evolved through genetic transfer and natural selection to create a great diversity of organisms, and that these organisms create interdependent webs through which matter and energy flow. Students understand similarities and differences between humans and other organisms and the interconnections of these interdependent webs.
E5 Evolution
Students describe the evidence that evolution occurs over many generations, allowing species to acquire many of their unique characteristics or adaptations.
d. Explain that new variations of cultivated and domestic animals can be developed through genetic modification and describe the impacts of the new varieties of plants and animals.
Life Science Lab, Level A: Card 69 **Life Science Lab, Level B:** Card 69