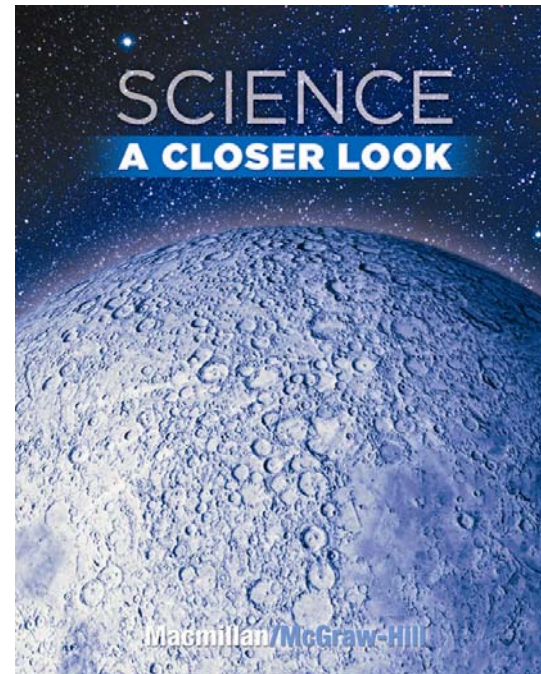
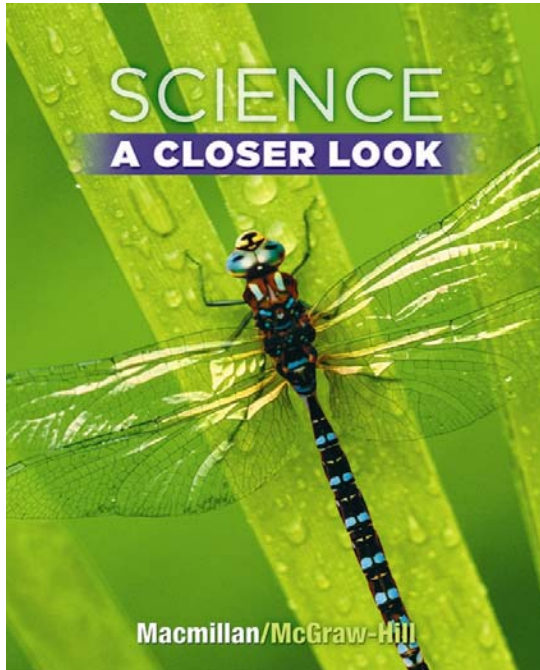




Macmillan/McGraw-Hill

Intermediate
Level Science
Core Curriculum
Grades 5-8



SCIENCE

A CLOSER LOOK

Grades 5-6

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STANDARDS	PAGE REFERENCES	
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STANDARD 4: The Living Environment		
Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.		
Key Idea 1: Living things are both similar to and different from each other and from nonliving things.		
PERFORMANCE INDICATOR 1.1 Compare and contrast the parts of plants, animals, and one-celled organisms.		
1.1a Living things are composed of cells. Cells provide structure and carry on major functions to sustain life. Cells are usually microscopic in size.	SE: 22-28 <i>Explore 21</i> <i>Lesson Review 29</i> <i>Focus on Skills 30-31</i> <i>Reading in Science 44-45</i> TWE: DMI 22; EMI 25	SE: 22-23, 86-91 <i>Explore 85</i> <i>Focus on Skills 92-93</i> <i>Quick Check 89</i> <i>Quick Lab 89</i> <i>Read a Photo 88</i> TWE: AM 86; DI 88; DMI 86, 88; FA 91; HA 90; LW 20, 84; SB 86
1.1b The way in which cells function is similar in all living things. Cells grow and divide, producing more cells. Cells take in nutrients, which they use to provide energy for the work that cells do and to make the materials that a cell or an organism needs.	SE: 22-28 <i>Lesson Review 29</i> <i>Focus on Skills 30-31</i> TWE: DI 41; DMI 24; LI 30	SE: 96-103, 108-116 <i>Be a Scientist 104-105</i> <i>Explore 95, 107</i> <i>Look and Wonder 106</i> <i>Math in Science 119</i> <i>Quick Lab 99, 113</i> <i>Read a Diagram 111</i> TWE: DI 97, 98, 110; DMI 96, 98, 100, 102, 110; FA 103; LW 94, 106

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1.1c Most cells have cell membranes, genetic material, and cytoplasm. Some cells have a cell wall and/or chloroplasts. Many cells have a nucleus.	SE: 24-27 <i>Quick Lab 27</i> <i>Lesson Review 29</i> <i>Focus on Skills 30-31</i> TWE: DI 26; DMI 24, 38; ELL 25; FA 29; UV 24, 26	SE: 96-97 <i>Explore 95</i> TWE: DI 97; DMI 96; LW 94
1.1d Some organisms are single cells; others, including humans, are multicellular.	SE: 22-28, 34-43 <i>Lesson Review 29, 43</i> TWE: AE 33; DI 23; DMI 22, 40; DV 23; VA 18D	SE: 88-89, 122 <i>Quick Lab 89</i> TWE: LW 120
1.1e Cells are organized for more effective functioning in multicellular organisms. Levels of organization for structure and function of a multicellular organism include cells, tissues, organs, and organ systems.	SE: 28 <i>Human Body Systems R10</i> TWE: DMI 28; DV 28; HA 28; UV 28	SE: 88-89 <i>Health Link 91</i> <i>Quick Check 89</i> <i>Quick Lab 89</i> <i>Read a Photo 88</i> TWE: DI 88; DMI 88; FA 91

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1.1f Many plants have roots, stems, leaves, and reproductive structures. These organized groups of tissues are responsible for a plant's life activities.	SE: 38, 50-57 <i>Explore 47</i> <i>Quick Lab 50</i> <i>Writing in Science 58</i> TWE: DI 51, 55; DMI 52, 54; EMI 54; HA 56; SB 52	SE: 34-43 <i>Explore 33</i> <i>Quick Check 39</i> <i>Quick Lab 37</i> <i>Read a Diagram 35, 40</i> TWE: APK 32; DI 35, 36, 39, 41; DMI 34, 36, 38, 40, 42; FA 43; UV 36, 39
1.1g Multicellular animals often have similar organs and specialized systems for carrying out major life activities.	SE: 28, 36-37, 56, 62-69, 74-81 TWE: DMI 64, 66, 77, 78, 102	SE: 48-53, 58-65 <i>Be a Scientist 66-67</i> <i>Explore 47, 57</i> <i>Look and Wonder 46, 56</i> <i>Quick Check 59, 61</i> <i>Quick Lab 51, 63</i> <i>Read a Photo 52, 58</i> TWE: APK 46; DI 49, 59, 63; DMI 48, 50, 52, 58, 60, 62, 64; FA 65; HA 52, 64; LW 46

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1.1h Living things are classified by shared characteristics on the cellular and organism level. In classifying organisms, biologists consider details of internal and external structures. Biological classification systems are arranged from general (kingdom) to specific (species).	SE: 34-43, 48-49, 62-69 <i>Explore 33</i> TWE: AE 21; AM 35; DI 35; DV 35; EMI 35, 41, 61, 63; FA 57; OI 21	SE: 22-29 <i>Explore 21</i> <i>Focus on Skills 30-31</i> <i>Look and Wonder 20</i> <i>Quick Check 27</i> <i>Quick Lab 27</i> <i>Read a Diagram 25</i> TWE: APK 20; DI 23, 25, 26; DMI 24, 26, 28; EMI 28; FA 29; HA 24; LW 20; SB 28
PERFORMANCE INDICATOR 1.2 Describe the relationship among air, water, and land on Earth.		
1.2a Each system is composed of organs and tissues which perform specific functions and interact with each other, e.g., digestion, gas exchange, excretion, circulation, locomotion, control, coordination, reproduction, and protection from disease.	SE: 28, 73-81 <i>Lesson Review 81</i> TWE: DI 75; FA 81; SB 77	SE: 58-65, 88-89 <i>Be a Scientist 66-67</i> <i>Explore 57</i> <i>Look and Wonder 56</i> <i>Quick Check 59, 61</i> <i>Quick Lab 63, 89</i> <i>Read a Photo 58</i> TWE: APK 56; DI 59, 63, 88; DMI 58, 60, 62, 64, 88; FA 65; HA 64

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1.2b Tissues, organs, and organ systems help to provide all cells with nutrients, oxygen, and waste removal.	SE: 28, 48-56, 76-81 <i>Lesson Review 81</i> TWE: DI 51, 55, 76; FA 81; UV 28, 78	SE: 34-39, 58-65, 88-89, 91 <i>Explore 57</i> <i>Look and Wonder 32</i> <i>Quick Check 89</i> <i>Quick Lab 63, 89</i> TWE: APK 56; DMI 60; FA 91; HA 64; LW 32, 56; WU 56
1.2c The digestive system consists of organs that are responsible for the mechanical and chemical breakdown of food. The breakdown process results in molecules that can be absorbed and transported to cells.	SE: 28, 76-77 <i>Human Body Systems R13</i> TWE: DV 76; UV 28	SE: 58-59 <i>Explore 57</i> TWE: APK 56; DI 59; LW 56
1.2d During respiration, cells use oxygen to release the energy stored in food. The respiratory system supplies oxygen and removes carbon dioxide (gas exchange).	SE: 56, 78-79 <i>Human Body Systems R12</i> TWE: DV 56, 78; SB 50; SYP TR41; UV 78	SE: 60-61, 101 <i>Quick Check 61</i> <i>Read a Diagram 61</i> TWE: DMI 60
1.2e The excretory system functions in the disposal of dissolved waste molecules, the elimination of liquid and gaseous wastes, and the removal of excess heat energy.	SE: 76-77 <i>Quick Lab 77</i> <i>Human Body Systems R13</i> TWE: APK R13; DV 76; UV R13	SE: 58-63 <i>Quick Check 59</i> <i>Quick Lab 63</i> TWE: DI 59; DMI 58, 60

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1.2f The circulatory system moves substances to and from cells, where they are needed or produced, responding to changing demands.	SE: 28, 78-79 <i>Be a Scientist</i> 82-83 <i>Human Body Systems</i> R12 TWE: AM 79; APK R12; DV 78; UV 28, R12	SE: 62-63 <i>Be a Scientist</i> 66-67 <i>Quick Check</i> 63 <i>Quick Lab</i> 63 TWE: DI 63; DMI 62; HA 64; IM 66; R12
1.2g Locomotion, necessary to escape danger, obtain food and shelter, and reproduce, is accomplished by the interaction of the skeletal and muscular systems, and coordinated by the nervous system.	SE: 74-75 <i>Explore</i> 73 <i>Human Body Systems</i> R11 TWE: AE 73; APK R11; DI 75; DV 75	SE: 64 <i>Quick Check</i> 64 TWE: DI 17; DMI 64; R11, R16-17
1.2h The nervous and endocrine systems interact to control and coordinate the body's responses to changes in the environment, and to regulate growth, development, and reproduction. Hormones are chemicals produced by the endocrine system; hormones regulate many body functions.	SE: 80 <i>Human Body Systems</i> R16-17, R20 TWE: DV 80; UV 80	SE: R16-R20 TWE: APK R16, R17, R18, R20; DI 16, 17; DMI IR R20; R16, R19, R20; EMI R17, R20
1.2i The male and female reproductive systems are responsible for producing sex cells necessary for the production of offspring.	SE: 90, 102-105, 116-119 TWE: DV 91; EMI 102	SE: 38-40, 112-115 <i>Quick Check</i> 115 <i>Quick Lab</i> 113 TWE: DI 113, 115; DMI 38, 40, 114; EMI 115

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1.2j Disease breaks down the structures or functions of an organism. Some diseases are the result of failures of the system. Other diseases are the result of damage by infection from other organisms (germ theory). Specialized cells protect the body from infectious disease. The chemicals they produce identify and destroy microbes that enter the body.	SE: 42 <i>Be a Scientist</i> 2-11 <i>Explore</i> 3 <i>Social Studies Link</i> 29 <i>Human Body Systems</i> R14-15 TWE: AE 3; DI 5; DMI 5; ELL R14; HA 42; SB 11	SE: R14-R15 TWE: APK R14, R15; DMI R14, R15
Key Idea 2: Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.		
PERFORMANCE INDICATOR 2.1 Describe sexual and asexual mechanisms for passing genetic materials from generation to generation.		
2.1a Hereditary information is contained in genes. Genes are composed of DNA that makes up the chromosomes of cells.	SE: 126-127 TWE: DV 126; SB 7, 9	SE: 144, 152-153, 162-163 <i>Explore</i> 151 <i>Quick Check</i> 153, 163 <i>Read a Diagram</i> 153, 163 TWE: APK 150, 152; DI 153, 163 DMI 152, 162; LW 150

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2.1b Each gene carries a single unit of information. A single inherited trait of an individual can be determined by one pair or by many pairs of genes. A human cell contains thousands of different genes.	SE: 126-127 TWE: HA 128; SB 9	SE: 142-147, 152-157, 163 <i>Explore</i> 139, 151, 161 <i>Focus on Skills</i> 148-149 <i>Quick Check</i> 153, 163 <i>Quick Lab</i> 145, 155 <i>Read a Diagram</i> 153, 154, 163 TWE: APK 150; DI 143, 145, 153, 155; DMI 142, 144, 152; EMI 145; FA 157; UV 144
2.1c Each human cell contains a copy of all the genes needed to produce a human being.	SE: 126 TWE: SB 7	SE: 96, 110, 152-153 TWE: DMI 110
2.1d In asexual reproduction, all the genes come from a single parent. Asexually produced offspring are genetically identical to the parent.	SE: 91-95 <i>Quick Lab</i> 92 <i>Lesson Review</i> 95 <i>Writing in Science</i> 96 TWE: DI 91, 93; DMI 92, 94; ELL 92; FA 95; HA 94	SE: 112-117, 124-125 <i>Quick Check</i> 125 <i>Quick Lab</i> 113 TWE: DI 113, 124; DMI 112, 114, 124

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2.1e In sexual reproduction typically half of the genes come from each parent. Sexually produced offspring are not identical to either parent.	SE: 90, 94, 126-128 <i>Lesson Review 95</i> TWE: DMI 94; ELL 92; FA 95; HA 94; UV 91	SE: 112, 115, 142-147, 152-155 <i>Focus on Skills 148-149</i> <i>Quick Lab 113, 145, 155</i> <i>Read a Diagram 143</i> TWE: DI 113, 143, 145, 153, 155; DMI 112, 114, 142, 154; FA 147; UV 143, 144
PERFORMANCE INDICATOR 2.2 Describe simple mechanisms related to the inheritance of some physical traits in offspring.		
2.2a In all organisms, genetic traits are passed on from generation to generation.	SE: 124-128 <i>Lesson Review 129</i> TWE: APK 122; DMI 124	SE: 140-147, 152-157 <i>Explore 139, 151</i> <i>Focus on Skills 148-149</i> <i>Look and Wonder 138</i> <i>Math in Science 159</i> <i>Quick Lab 145, 155</i> <i>Read a Diagram 143</i> TWE: APK 138, 150; DI 141, 143, 145, 153, 155; DMI 140, 141, 142, 146, 156; FA 147, 157; LW 138, 150; UV 143

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2.2b Some genes are dominant and some are recessive. Some traits are inherited by mechanisms other than dominance and recessiveness.	SE: 124-128 <i>Explore</i> 123 <i>Quick Lab</i> 127 TWE: AE 123; APK 122; DI 125, 127; DV 125, 126; ELL 124; FA 129; UV 125	SE: 142-145, 147, 154-155 <i>Explore</i> 139 <i>Focus on Skills</i> 148-149 <i>Quick Lab</i> 145, 155 TWE: DI 143, 145, 155; DMI 142, 154; FA 147, 157; UV 143, 144
2.2c The probability of traits being expressed can be determined using models of genetic inheritance. Some models of prediction are pedigree charts and Punnett squares.	SE: 126-128 <i>Quick Lab</i> 127 TWE: DI 127; DMI 128; DV 128; FA 129	SE: 144-145, 154-155 <i>Focus on Skills</i> 148-149 <i>Math in Science</i> 159 <i>Quick Lab</i> 145, 155 TWE: EMI 145; DI 145, 155; DMI 144; FA 147, 157
Key Idea 3: Individual organisms and species change over time.		
PERFORMANCE INDICATOR 3.1 Describe sources of variation in organisms and their structures and relate the variations to survival.		
3.1a The processes of sexual reproduction and mutation have given rise to a variety of traits within a species.	SE: 94, 124-128	SE: 112-113, 172 <i>Explore</i> 171 <i>Look and Wonder</i> 170 <i>Quick Check</i> 113 TWE: APK 170; DI 113; DMI 114; LW 170

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3.1b Changes in environmental conditions can affect the survival of individual organisms with a particular trait. Small differences between parents and offspring can accumulate in successive generations so that descendants are very different from their ancestors. Individual organisms with certain traits are more likely to survive and have offspring than individuals without those traits.	SE: 94, 168-174 TWE: DMI 94	SE: 172-177 <i>Explore</i> 171 <i>Look and Wonder</i> 170 <i>Quick Check</i> 173, 175 <i>Quick Lab</i> 175 <i>Read a Diagram</i> 173 <i>Read a Photo</i> 174 <i>Reading in Science</i> 178-179 TWE: LW 170; DI 173, 175; DMI 172, 174; FA 177; HA 176; SB 172
3.1c Human activities such as selective breeding and advances in genetic engineering may affect the variations of species.	SE: <i>Writing in Science</i> 95 <i>Reading in Science</i> 130-131 TWE: ELL 130; SB 126; SYP TR43	SE: 146-147, 164-167 <i>Be a Scientist</i> 168-169 <i>Quick Lab</i> 165 TWE: DI 165; DMI 146, 164, 166; FA 167; HA 146; IR 168; UV 146, 166
PERFORMANCE INDICATOR 3.2 Describe factors responsible for competition within species and the significance of that competition.		
3.2a In all environments, organisms with similar needs may compete with one another for resources.	SE: 156-157 <i>Quick Lab</i> 157 TWE: DMI 156	SE: 174, 192 <i>Quick Check</i> 192 TWE: DMI 192

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3.2b Extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to permit its survival. Extinction of species is common. Fossils are evidence that a great variety of species existed in the past.	SE: 198-199, 253, 326 <i>Quick Lab</i> 198 TWE: AM 199; DI 327; DMI 198; DV 198; SB 170	SE: 174-175, 222-224, 228-229 <i>Quick Lab</i> 175 TWE: DI 175, 229; DMI 174, 224, 228
3.2c Many thousands of layers of sedimentary rock provide evidence for the long history of Earth and for the long history of changing lifeforms whose remains are found in the rocks. Recently deposited rock layers are more likely to contain fossils resembling existing species.	SE: 326-329 <i>Writing in Science</i> 338 TWE: DMI 326; FA 311; WU 324	SE: 300-305, 320 <i>Quick Lab</i> 301 TWE: DI 299; DMI 300; EMI 303; FA 305; HA 304; SB 298
3.2d Although the time needed for change in a species is usually great, some species of insects and bacteria have undergone significant change in just a few years.	TWE: SYP TR 45	SE: 176 <i>Writing in Science</i> 158 TWE: DMI 176; FA 177

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Key Idea 4: The continuity of life is sustained through reproduction and development.		
PERFORMANCE INDICATOR 4.1 Observe and describe the variations in reproductive patterns of organisms, including asexual and sexual reproduction.		
4.1a Some organisms reproduce asexually. Other organisms reproduce sexually. Some organisms can reproduce both sexually and asexually.	SE: 90-95, 100-101 <i>Explore</i> 89, 99 TWE: AE 89; APK 88; DI 91; HA 94; IW 96; SB 90; UV 91, 101	SE: 38-40, 114-115, 124-127, 130-131 <i>Quick Lab</i> 126 TWE: DMI 114, 124; FA 127; HA 126
4.1b There are many methods of asexual reproduction, including division of a cell into two cells, or separation of part of an animal or plant from the parent, resulting in the growth of another individual.	SE: 92-93 <i>Quick Lab</i> 92 <i>Lesson Review</i> 95 <i>Writing in Science</i> 96 TWE: DI 93; DMI 92; DV 93; FA 95; SB 90; UV 93	SE: 38, 114, 124-125 TWE: DMI 124
4.1c Methods of sexual reproduction depend upon the species. All methods involve the merging of sex cells to begin the development of a new individual. In many species, including plants and humans, eggs and sperm are produced.	SE: 90, 100-109, 114-118 <i>Explore</i> 99 TWE: APK 99; DMI 126; DV 91	SE: 38-40, 112, 115 <i>Quick Check</i> 115 TWE: DMI 38, 40

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4.1d Fertilization and/or development in organisms may be internal or external	SE: 116-117 <i>Quick Lab</i> 117 <i>Lesson Review</i> 119 TWE: DI 117; DMI 116; DV 116, 118; FA 119	SE: 115 TWE: DI 115; EMI 115
PERFORMANCE INDICATOR 4.2 Explain the role of sperm and egg cells in sexual reproduction.		
4.2a The male sex cell is the sperm. The female sex cell is the egg. The fertilization of an egg by a sperm results in a fertilized egg.	SE: 90, 100-109, 116-117 TWE: DMI 126; UV 101, 104	SE: 38-39, 112, 115 TWE: DI 113
4.2b In sexual reproduction, sperm and egg each carry one-half of the genetic information for the new individual. Therefore, the fertilized egg contains genetic information from each parent.	SE: 90, 126-128 <i>Lesson Review</i> 95 TWE: DMI 94, 126; ELL 92; UV 91	SE: 112-113, 144-145 <i>Quick Lab</i> 145

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PERFORMANCE INDICATOR 4.3 Observe and describe developmental patterns in selected plants and animals (e.g., insects, frogs, humans, seed-bearing plants).		
4.3a Multicellular organisms exhibit complex changes in development, which begin after fertilization. The fertilized egg undergoes numerous cellular divisions that will result in a multicellular organism, with each cell having identical genetic information.	SE: 100-108 <i>Explore</i> 113 TWE: AE 113; GI 113; OI 113	SE: 115 Mitosis is discussed on 110, 111 <i>Quick Check</i> 111 <i>Read a Diagram</i> 111 TWE: DI 110; DMI 110
4.3b In humans, the fertilized egg grows into tissue which develops into organs and organ systems before birth.	SE: <i>Explore</i> 113* TWE: GI 113 *References describe development of fertilized egg in frogs.	SE: 88-89 <i>Quick Lab</i> 89 <i>Quick Check</i> 89 TWE: DI 88
4.3c Various body structures and functions change as an organism goes through its life cycle.	SE: 100-109, 114-119 <i>Explore</i> 113 TWE: DMI 114; DV 115; FA 119; HA 118; OI 113; WU 112	SE: Life cycles are discussed on 40-41, 116, 126 <i>Quick Lab</i> 126 TWE: FA 127; HA 126

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4.3d Patterns of development vary among animals. In some species the young resemble the adult, while in others they do not. Some insects and amphibians undergo metamorphosis as they mature.	SE: 114-118 <i>Explore</i> 113 <i>Lesson Review</i> 119 <i>Be a Scientist</i> 120-121 TWE: AE 113; DI 115; DV 114, 115; ELL 114; FA 119; HA 118; WU 112	SE: Animals are classified on 48-53 <i>Explore</i> 47 <i>Quick Lab</i> 51 TWE: DI 49; FA 53; HA 52
4.3e Patterns of development vary among plants. In seed-bearing plants, seeds contain stored food for early development. Their later development into adulthood is characterized by varying patterns of growth from species to species.	SE: 100-109 TWE: DI 101; DMI 104, 106; DV 106, 108; FA 109; UV 108	SE: 38-39 TWE: DI 39
4.3f As an individual organism ages, various body structures and functions change.	SE: 100-108, 114-118 <i>Explore</i> 113 TWE: AE 113; APK 112; GI 99; OI 113	SE: Life expectancy and life span are discussed on 116 TWE: DMI 116
PERFORMANCE INDICATOR 4.4 Observe and describe cell division at the microscopic level and its macroscopic effects.		
4.4a In multicellular organisms, cell division is responsible for growth, maintenance, and repair. In some one-celled organisms, cell division is a method of asexual reproduction.	SE: 25, 92 <i>Quick Lab</i> 92 TWE: DI 93	SE: 110-111, 124-126 <i>Look and Wonder</i> 106 <i>Quick Lab</i> 126 TWE: DI 124; DMI 110, 124; HA 126; LW 106

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4.4b In one type of cell division, chromosomes are duplicated and then separated into two identical and complete sets to be passed to each of the two resulting cells. In this type of cell division, the hereditary information is identical in all the cells that result.	SE: 92 <i>Quick Lab 92</i> TWE: DI 93	SE: 110-111 <i>Explore 107</i> <i>Quick Lab 113</i> <i>Read a Diagram 111</i> TWE: DI 110; DMI 110; EMI 111
4.4c Another type of cell division accounts for the production of egg and sperm cells in sexually reproducing organisms. The eggs and sperm resulting from this type of cell division contain one-half of the hereditary information.	SE: <i>Explore 113</i> TWE: GI 113	SE: 112-113 TWE: DI 113; DMI 112
4.4d Cancers are a result of abnormal cell division.	*The Science Leveled Reader for Chapter 1, titled <i>Can Cells Grow Too Much?</i> , describes the causes and treatments for cancer; see p. 19.	SE: 109 TWE: DI 109

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Key Idea 5: Organisms maintain a dynamic equilibrium that sustains life.		
PERFORMANCE INDICATOR 5.1 Compare the way a variety of living specimens carry out basic life functions and maintain dynamic equilibrium.		
5.1a Animals and plants have a great variety of body plans and internal structures that contribute to their ability to maintain a balanced condition.	SE: 36-38, 48-56, 62-68 <i>Quick Lab</i> 65 <i>Math in Science</i> 71 TWE: DI 36, 63, 64; DMI 38, 48, 52; DV 38, 63; EMI 53, 63; IM 71; WU 60	SE: 71-77, 96-102 <i>Be a Scientist</i> 104-105 <i>Explore</i> 69 <i>Quick Lab</i> 75, 99 <i>Read a Photo</i> 73 TWE: APK 68; DI 71, 72, 97, 98, 101; DMI 70, 72, 96, 98, 102
5.1b An organism's overall body plan and its environment determine the way that the organism carries out the life processes.	SE: 48-56, 62-68, 168, 170-174 <i>Writing in Science</i> 58 <i>Math in Science</i> 59 TWE: AE 167; APK 166; DI 54	SE: 71-77, 96-102 <i>Be a Scientist</i> 104-105 <i>Explore</i> 69 <i>Quick Lab</i> 75, 99 <i>Read a Photo</i> 73 TWE: APK 68; DI 71, 72, 97, 98, 101; DMI 70, 72, 96, 98, 102

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5.1c All organisms require energy to survive. The amount of energy needed and the method for obtaining this energy vary among cells. Some cells use oxygen to release the energy stored in food.	SE: 25-27, 54-56, 144-149, 548 TWE: DMI 56; LW 140; SB 50; SYP TR41; UV 56	SE: 58, 100-101 TWE: DMI 101; UV 101
5.1d The methods for obtaining nutrients vary among organisms. Producers, such as green plants, use light energy to make their food. Consumers, such as animals, take in energy-rich foods.	SE: 36, 54-56, 144-149 <i>Math Link 57</i> <i>Explore 141</i> TWE: APK 140; DI 145, 149; DMI 36, 144; ELL 144; EMI 54; SYP TR44; VA 138D; WU 140	SE: 198-203 <i>Quick Lab 201</i> TWE: DMI 198, 200; EMI 199; HA 202
5.1e Herbivores obtain energy from plants. Carnivores obtain energy from animals. Omnivores obtain energy from both plants and animals. Decomposers, such as bacteria and fungi, obtain energy by consuming wastes and/or dead organisms.	SE: 144-149 <i>Explore 141</i> TWE: DI 145; DMI 144; FA 151; SYP TR44; VA 138D	SE: 199, 200 TWE: DI 199; DMI 200; FA 203
5.1f Regulation of an organism's internal environment involves sensing the internal environment and changing physiological activities to keep conditions within the range required for survival. Regulation includes a variety of nervous and hormonal feedback systems.	SE: 80 <i>Be a Scientist 82-83</i> <i>Human Body Systems R16-17</i>	SE: R16-R20 TWE: APK R17, R18, R20; DI R17, R19; DMI R16, R19; EMI R17, R20; UV R18

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5.1g The survival of an organism depends on its ability to sense and respond to its external environment	SE: 80 <i>Human Body Systems</i> R16-17 TWE: DMI 80; EMI R17	SE: R16-R20 TWE: APK R17, R18, R20; DI R17, R19; DMI R16, R19; EMI R17, R20; UV R18
PERFORMANCE INDICATOR 5.2 Describe the importance of major nutrients, vitamins, and minerals in maintaining health and promoting growth, and explain the need for a constant input of energy for living organisms.		
5.2a Food provides molecules that serve as fuel and building material for all organisms. All living things, including plants, must release energy from their food, using it to carry on their life processes.	SE: 144-149 <i>Quick Lab</i> 148 <i>Math in Science</i> 153 TWE: DI 149; DMI 148; DV 148; FA 151; SYP TR44; UV 149	SE: 90, 100-101, 202 <i>Be a Scientist</i> 104-105 <i>Read a Diagram</i> 100 TWE: DMI 100; UV 101
5.2b Foods contain a variety of substances, which include carbohydrates, fats, vitamins, proteins, minerals, and water. Each substance is vital to the survival of the organism.	SE: 76* *Reference discusses how digestion breaks down foods into nutrients, such as proteins and fats.	SE: 90, 564-565, 620-621 <i>Quick Lab</i> 565 <i>Read a Photo</i> 565 TWE: DI 565; DMI 90
5.2c Metabolism is the sum of all chemical reactions in an organism. Metabolism can be influenced by hormones, exercise, diet, and aging.	This objective can be met through classroom discussion.	This objective can be met through classroom discussion.

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
5.2d Energy in foods is measured in Calories. The total caloric value of each type of food varies. The number of Calories a person requires varies from person to person.	See <i>Science A Closer Look, Grade 6</i> © 2008.	SE: 682 TWE: DI 683; DV 683
5.2e In order to maintain a balanced state, all organisms have a minimum daily intake of each type of nutrient based on species, size, age, sex, activity, etc. An imbalance in any of the nutrients might result in weight gain, weight loss, or a diseased state.	TWE: FA 499* *Reference discusses trace elements needed for good health.	See <i>Science A Closer Look, Grade 5</i> © 2008.
5.2f Contraction of infectious disease, and personal behaviors such as use of toxic substances and some dietary habits, may interfere with one's dynamic equilibrium. During pregnancy these conditions may also affect the development of the child. Some effects of these conditions are immediate; others may not appear for many years.	SE: <i>Be a Scientist</i> 2-11 <i>Explore</i> 3 <i>Human Body Systems</i> R14-15 TWE: AE 3; DI R15; DMI R15; ELL R14; SB 11	See <i>Science A Closer Look, Grade 5</i> © 2008.

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
Key Idea 6: Plants and animals depend on each other and their physical environment.		
PERFORMANCE INDICATOR 6.1 Describe the flow of energy and matter through food chains and food webs. Major Understandings:		
6.1a Energy flows through ecosystems in one direction, usually from the Sun, through producers to consumers and then to decomposers. This process may be visualized with food chains or energy pyramids.	SE: 144-145, 148-149 <i>Explore</i> 141 <i>Quick Lab</i> 148 TWE: CE 142; DI 149; DV 144, 148; ELL 146; FA 151; GI 141; OI 141; UV 149; VA 138D; WU 140	SE: 198-203 <i>Explore</i> 197 <i>Look and Wonder</i> 196 <i>Quick Lab</i> 201 TWE: APK 196; DI 199; DMI 198, 200, 202; EMI 199; HA 202; LW 196; UV 201; WU 196
6.1b Food webs identify feeding relationships among producers, consumers, and decomposers in an ecosystem.	SE: 146-147 TWE: DI 147; DMI 146; DV 146; ELL 146; FA 151; VA 138D	SE: 200-201 <i>Quick Lab</i> 201 TWE: DMI 200; FA 203; HA 202; UV 201
6.1c Matter is transferred from one organism to another and between organisms and their physical environment. Water, nitrogen, carbon dioxide, and oxygen are examples of substances cycled between the living and nonliving environment.	SE: 56, 184-190 <i>Explore</i> 183 <i>Quick Lab</i> 189 <i>Art Link</i> 191 TWE: AE 183; DI 189; DMI 186, 188; DV 185; ELL 184; FA 191; UV 188; VA 180D	SE: 188-189 <i>Be a Scientist</i> 204-205 <i>Quick Check</i> 189 <i>Read a Diagram</i> 189 TWE: DI 189; DMI 188; FA 193; UV 189

STANDARDS	PAGE REFERENCES	
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PERFORMANCE INDICATOR 6.2 Provide evidence that green plants make food and explain the significance of this process to other organisms.		
6.2a Photosynthesis is carried on by green plants and other organisms containing chlorophyll. In this process, the Sun's energy is converted into and stored as chemical energy in the form of a sugar. The quantity of sugar molecules increases in green plants during photosynthesis in the presence of sunlight.	SE: 54-56, 144, 186-187 <i>Write About It</i> 58 TWE: DMI 54, 56; DV 54; EMI 54; UV 56	SE: 37, 100 <i>Quick Lab</i> 37 <i>Read a Diagram</i> 100 TWE: AM 101; DMI 100; EMI 37; UV 101
6.2b The major source of atmospheric oxygen is photosynthesis. Carbon dioxide is removed from the atmosphere and oxygen is released during photosynthesis.	SE: 54-56, 186-187 TWE: DI 187; DMI 54, 56, 186; EMI 54	SE: 100-101, 189 <i>Be a Scientist</i> 204-205 TWE: DI 189; DMI 188
6.2c Green plants are the producers of food which is used directly or indirectly by consumers.	SE: 56, 144-150, 186-187 <i>Writing Link</i> 57 <i>Explore</i> 141 TWE: APK 140; DI 145; DMI 144; ELL 144; LW 140; UV 145; WU 140	SE: 198-203 <i>Explore</i> 197 TWE: APk 196; DMI 202; EMI 199; FA 203

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
Key Idea 7: Human decisions and activities have had a profound impact on the physical and living environment.		
PERFORMANCE INDICATOR 7.1 Describe how living things, including humans, depend upon the living and nonliving environment for their survival.		
7.1a A population consists of all individuals of a species that are found together at a given place and time. Populations living in one place form a community. The community and the physical factors with which it interacts compose an ecosystem.	SE: 142-143 <i>Explore</i> 155 TWE: APK 154; DI 143; DMI 142; DV 143; HA 150; UV 143	SE: 186-193 <i>Explore</i> 185 <i>Focus on Skills</i> 194-195 <i>Quick Check</i> 187, 191 <i>Quick Lab</i> 187 TWE: APK 184; DI 187, 189, 191; DMI 186, 188, 190, 191, 192; EMI 190; FA 193; UV 189
7.1b Given adequate resources and no disease or predators, populations (including humans) increase. Lack of resources, habitat destruction, and other factors such as predation and climate limit the growth of certain populations in the ecosystem.	SE: 156-157 <i>Quick Lab</i> 157 <i>Lesson Review</i> 163 <i>Focus on Skills</i> 164-165 TWE: AM 157; DI 157; DMI 150; DV 157; ELL 156; IW 164; SB 158	SE: 222-227 <i>Explore</i> 221 <i>Look and Wonder</i> 220 <i>Quick Check</i> 223 <i>Quick Lab</i> 225 <i>Read a Diagram</i> 226 TWE: APK 220; DI 223, 225, 227; DMI 222, 224, 226; EMI 226

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
7.1c In all environments, organisms interact with one another in many ways. Relationships among organisms may be competitive, harmful, or beneficial. Some species have adapted to be dependent upon each other with the result that neither could survive without the other.	SE: 147, 158-162 <i>Writing in Science</i> 152 <i>Focus on Skills</i> 164-165 <i>Performance Assessment</i> 179 TWE: DI 147, 161; DMI 160, 162; DV 161, 162; ELL 160; FA 163; IW 164; UV 160; WU 154	SE: 190-193 <i>Quick Check</i> 191 <i>Read a Photo</i> 191 TWE: DI 191; DMI 190, 191, 192; EMI 191; FA 193
7.1d Some microorganisms are essential to the survival of other living things.	SE: 40, 186-187 <i>Writing Link</i> 43 TWE: DI 187; UV 187	SE: 121-127, 191 <i>Explore</i> 121 <i>Look and Wonder</i> 120 <i>Quick Lab</i> 126 TWE: APK 120; DMI 122; FA 127; HA 126; SB 122; WU 120
7.1e The environment may contain dangerous levels of substances (pollutants) that are harmful to organisms. Therefore, the good health of environments and individuals requires the monitoring of soil, air, and water, and taking steps to keep them safe.	SE: 344-350 <i>Ranger Rick</i> 136-137 <i>Writing in Science</i> 228 TWE: AM 350; DI 346, 349; DMI 348; EMI 348; FA 351; SB 188, 408; SYP TR46, TR53	SE: 344-346 <i>Be a Scientist</i> 204-205 <i>Quick Lab</i> 225 TWE: EMI 345

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
PERFORMANCE INDICATOR 7.2 Describe the effects of environmental changes on humans and other populations.		
7.2a In ecosystems, balance is the result of interactions between community members and their environment.	SE: 142-150, 196 TWE: SYP TR 44	SE: 186-193 <i>Explore</i> 185 <i>Look and Wonder</i> 184 <i>Quick Check</i> 187, 189 <i>Quick Lab</i> 187 TWE: APK 184; DI 189, 191; DMI 186, 188, 190, 192; FA 193
7.2b The environment may be altered through the activities of organisms. Alterations are sometimes abrupt. Some species may replace others over time, resulting in longterm gradual changes (ecological succession).	SE: 150, 196-202 TWE: AE 195; AM 197; DI 197; DMI 196, 202; DV 202; ELL 200; FA 203; HA 202; SB 158; SYP TR44-45; UV 197, 201	SE: 222-227, 230 <i>Look and Wonder</i> 220 <i>Quick Check</i> 227 <i>Quick Lab</i> 225 <i>Reading in Science</i> 232-233 TWE: APK 220; BR 232; DI 223, 227; DMI 222, 226, 230; EMI 226; FA 231; HA 230; UV 227, 230

STANDARDS	PAGE REFERENCES	
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7.2c Overpopulation by any species impacts the environment due to the increased use of resources. Human activities can bring about environmental degradation through resource acquisition, urban growth, land-use decisions, waste disposal, etc.	SE: 196-197, 319, 344-349 <i>Social Studies Link</i> 321 TWE: DMI 196; EMI 319, 345; SB 148; UV 345	SE: 222-227, 230 <i>Look and Wonder</i> 220 <i>Quick Check</i> 223, 227 <i>Quick Lab</i> 225 <i>Reading in Science</i> 232-233 TWE: APK 220; DI 223, 225; DMI 222, 224; UV 223
7.2d Since the Industrial Revolution, human activities have resulted in major pollution of air, water, and soil. Pollution has cumulative ecological effects such as acid rain, global warming, or ozone depletion. The survival of living things on our planet depends on the conservation and protection of Earth's resources.	SE: 319-320, 330-336, 344-350, 409 <i>Ranger Rick</i> 136-137 <i>Writing Link</i> 321 <i>Be a Scientist</i> 323 TWE: AM 320; DI 319, 349; DV 318, 320; ELL 136; FA 321, 337, 351; HA 336; UV 318	SE: 344-347; 352-357 <i>Explore</i> 351 <i>Quick Check</i> 345, 346 <i>Quick Lab</i> 355 <i>Read a Photo</i> 344, 346 TWE: AM 353; APK 350; DI 353, 355; DMI 344, 346, 352, 354, 356; EMI 345; FA 347, 357; SB 352; WU 350

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
STANDARD 4: The Physical Setting		
Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.		
Key Idea 1:		
The Earth and celestial phenomena can be described by principles of relative motion and perspective.		
PERFORMANCE INDICATOR 1.1 Explain daily, monthly, and seasonal changes on Earth.		
1.1a Earth's Sun is an average-sized star. The Sun is more than a million times greater in volume than Earth.	SE: 458-459	SE: 460 TWE: APK 456; DI 460; DMI 460
1.1b Other stars are like the Sun but are so far away that they look like points of light. Distances between stars are vast compared to distances within our solar system.	SE: 463 <i>Explore 457</i> TWE: AM 463; DI 463; DMI 462	SE: 458-461 <i>Explore 457</i> <i>Quick Lab 459</i> TWE: DI 459; DMI 460

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
1.1c The Sun and the planets that revolve around it are the major bodies in the solar system. Other members include comets, moons, and asteroids. Earth's orbit is nearly circular.	<p>SE: 444-451 <i>Look and Wonder</i> 420 <i>Explore</i> 421 <i>Focus on Skills</i> 428-429</p> <p>TWE: DI 447, 448, 450; DMI 444, 448; DV 450; ELL 444, 451; FA 453</p>	<p>SE: 446-453 <i>Explore</i> 445 <i>Look and Wonder</i> 444 <i>Math in Science</i> 455 <i>Quick Lab</i> 449 <i>Read a Diagram</i> 447, 452 <i>Writing in Science</i> 454</p> <p>TWE: APK 444; DI 447, 448, 451; DMI 446, 448, 450, 452; FA 453; HA 452; SB 446; UV 447, 451; WU 444</p>
1.1d Gravity is the force that keeps planets in orbit around the Sun and the Moon in orbit around the Earth.	<p>SE: 422-423 <i>Look and Wonder</i> 420 <i>Explore</i> 421 <i>Lesson Review</i> 427</p> <p>TWE: DI 423; DMI 422; DV 423; WU 420</p>	<p>SE: 446</p>

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
1.1e Most objects in the solar system have a regular and predictable motion. These motions explain such phenomena as a day, a year, phases of the Moon, eclipses, tides, meteor showers, and comets.	SE: 424-426, 432-436 <i>Focus on Skills</i> 428-429 <i>Quick Lab</i> 435 TWE: DI 435; DMI 426; DV 426; ELL 424, 434; FA 427, 437; HA 426, 436	SE: 436-441, 446-447 <i>Be a Scientist</i> 442-443 <i>Quick Check</i> 437 <i>Quick Lab</i> 439 <i>Read a Diagram</i> 436 TWE: DI 436, 438; DMI 438, 440; EMI 439; FA 441; SB 439
1.1f The latitude/longitude coordinate system and our system of time are based on celestial observations.	TWE: SB 422; SYP TR54; UV 433	SE: 248, 425 <i>Quick Check</i> 425 TWE: DI 248; DMI 248
1.1g Moons are seen by reflected light. Our Moon orbits Earth, while Earth orbits the Sun. The Moon's phases as observed from Earth are the result of seeing different portions of the lighted area of the Moon's surface. The phases repeat in a cyclic pattern in about one month.	SE: 432-433 <i>Look and Wonder</i> 430 <i>Explore</i> 431 <i>Lesson Review</i> 437 TWE: AE 431; APK 430; DI 433; DV 433; UV 433	SE: 436-439 <i>Explore</i> 433 <i>Look and Wonder</i> 432 <i>Quick Check</i> 437 <i>Quick Lab</i> 439 <i>Read a Diagram</i> 436 TWE: AM 437; APK 432; DI 436, 438; DMI 436, 438; LW 432

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
1.1h The apparent motions of the Sun, Moon, planets, and stars across the sky can be explained by Earth's rotation and revolution. Earth's rotation causes the length of one day to be approximately 24 hours. This rotation also causes the Sun and Moon to appear to rise along the eastern horizon and to set along the western horizon. Earth's revolution around the Sun defines the length of the year as 365 1/4 days.	SE: 424-426 <i>Lesson Review 427</i> <i>Focus on Skills 428-429</i> <i>Reading in Science 580-581</i> TWE: AE 421; FA 427; SYP TR54	SE: 424-427 <i>Quick Check 425, 427</i> <i>Quick Lab 427</i> TWE: DI 424; DMI 424, 426; EMI 428; SB 425
1.1i The tilt of Earth's axis of rotation and the revolution of Earth around the Sun cause seasons on Earth. The length of daylight varies depending on latitude and season.	SE: 424-425 <i>Quick Lab 425</i> TWE: AM 425; DI 425; DMI 424; FA 427	SE: 424-427 <i>Quick Check 425</i> <i>Quick Lab 427</i> TWE: DI 424, 427; DMI 426
1.1j The shape of Earth, the other planets, and stars is nearly spherical.	SE: 424-426, 434-435, 444-447* <i>Focus on Skills 428-429</i> <i>Math Link 437</i> <i>Quick Lab 447</i> *These page references include figures that illustrate the shapes of planets and stars; they do not directly discuss the shapes.	SE: <i>Quick Lab 449</i>

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
Key Idea 2: Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land.		
PERFORMANCE INDICATOR 2.1 Explain how the atmosphere (air), hydrosphere (water), and lithosphere (land) interact, evolve, and change.		
2.1a Nearly all the atmosphere is confined to a thin shell surrounding Earth. The atmosphere is a mixture of gases, including nitrogen and oxygen with small amounts of water vapor, carbon dioxide, and other trace gases. The atmosphere is stratified into layers, each having distinct properties. Nearly all weather occurs in the lowest layer of the atmosphere.	SE: 348, 366-369, 496 TWE: DI 367; DMI 366; DV 366; EMI 367; SB 364; SYP TR52	SE: 328-329; 370-371 <i>Quick Check</i> 329, 371 <i>Reading a Diagram</i> 371 TWE: DI 329, 371; DMI 328, 370; SB 370
2.1b As altitude increases, air pressure decreases.	SE: 366-369 TWE: AM 367; DI 367, 369; DMI 368; ELL 368; UV 368	SE: 374 TWE: DI 374; DMI 374
2.1c The rock at Earth's surface forms a nearly continuous shell around Earth called the lithosphere.	SE: 246 <i>Lesson Review</i> 247	SE: 250
2.1d The majority of the lithosphere is covered by a relatively thin layer of water called the hydrosphere.	SE: 246 TWE: DMI 246; DV 246	SE: 244-245, 250

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
2.1e Rocks are composed of minerals. Only a few rock-forming minerals make up most of the rocks of Earth. Minerals are identified on the basis of physical properties such as streak, hardness, and reaction to acid.	SE: 302-303 <i>Time for Kids</i> 234-235 <i>Explore</i> 301 TWE: AE 301; AM 307; DI 303, 309; DV 303; ELL 234; HA 310; IW 338; UV 303	SE: 314-319 <i>Explore</i> 313 <i>Look and Wonder</i> 312 <i>Quick Check</i> 317 <i>Read a Diagram</i> 316 TWE: APK 312; DI 315, 317, 318; DMI 314, 316, 318; UV 315, 316, 317
2.1f Fossils are usually found in sedimentary rocks. Fossils can be used to study past climates and environments.	SE: 253, 326-329 <i>Writing in Science</i> 338 TWE: DI 327; DV 326; FA 311; WU 324	SE: 228, 300-301; 320 <i>Quick Lab</i> 301 TWE: DI 300; DMI 300
2.1g The dynamic processes that wear away Earth's surface include weathering and erosion.	SE: 284-291 <i>Explore</i> 283 <i>Quick Lab</i> 284 TWE: DI 285, 287; DMI 284, 286; DV 285, 286; ELL 284, 289; FA 293; SB 286	SE: 284-289 <i>Quick Lab</i> 287 <i>Read a Diagram</i> 285, 289 TWE: DI 285, 286, 289; DMI 284, 286, 288; FA 293

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
2.1h The process of weathering breaks down rocks to form sediment. Soil consists of sediment, organic material, water, and air.	SE: 284-285, 316-317 <i>Explore</i> 283, 315 <i>Performance Assessment</i> 297 TWE: DI 285; DMI 284, 317; ELL 284; FA 293; UV 285, 317	SE: 290-293 <i>Quick Check</i> 291 TWE: DI 291; DMI 290; FA 293; HA 292
2.1i Erosion is the transport of sediment. Gravity is the driving force behind erosion. Gravity can act directly or through agents such as moving water, wind, and glaciers.	SE: 286-291 <i>Quick Lab</i> 284 <i>Performance Assessment</i> 297 TWE: DI 288, 290, 291; DMI 286; DV 286; ELL 289; SB 286; UV 291	SE: 286-289 <i>Quick Check</i> 287, 289 <i>Quick Lab</i> 287 <i>Read a Diagram</i> 289 TWE: DI 286, 288, 289; DMI 286, 288; SB 287; UV 286
2.1j Water circulates through the atmosphere, lithosphere, and hydrosphere in what is known as the water cycle.	SE: 184-185 <i>Explore</i> 183 TWE: AE 183; DI 185; DMI 184; DV 185; ELL 184; FA 191; UV 184; VA 180D	SE: 188, 330 <i>Be a Scientist</i> 204-205 <i>Read a Diagram</i> 330 TWE: DI 189, 330; DMI 188, 330

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
PERFORMANCE INDICATOR 2.2 Describe volcano and earthquake patterns, the rock cycle, and weather and climate changes.		
2.2a The interior of Earth is hot. Heat flow and movement of material within Earth cause sections of Earth's crust to move. This may result in earthquakes, volcanic eruption, and the creation of mountains and ocean basins.	SE: 254-256, 262-263, 272-273 <i>Explore 251</i> TWE: AE 251; DI 262, 265; DMI 256; EMI 263; FA 267, 279; HA 266, 278	SE: 250, 256-263 <i>Explore 243</i> <i>Quick Check 250</i> <i>Quick Lab 261</i> TWE: DMI 250, 256, 258
2.2b Analysis of earthquake wave data (vibrational disturbances) leads to the conclusion that there are layers within Earth. These layers-the crust, mantle, outer core, and inner core-have distinct properties.	SE: 246, 496 TWE: DMI 246; DV 246	SE: 250 <i>Explore 243</i> <i>Quick Check 250</i> TWE: DMI 250
2.2c Folded, tilted, faulted, and displaced rock layers suggest past crustal movement.	SE: 254, 272-273 <i>Explore 251</i> <i>Lesson Review 257</i> TWE: AE 251; DMI 256; OI 251	SE: 268-269 <i>Quick Check 269</i> <i>Read a Diagram 269</i> TWE: DMI 268

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
2.2d Continents fitting together like puzzle parts and fossil correlations provided initial evidence that continents were once together.	SE: 252-253 <i>Writing in Science</i> 258 TWE: AM 252; DI 253; DMI 252; ELL 252; IW 258; UV 253; WU 250	SE: 256-257 <i>Quick Check</i> 257 <i>Read a Map</i> 257 TWE: DMI 256; EMI 257
2.2e The Theory of Plate Tectonics explains how the "solid" lithosphere consists of a series of plates that "float" on the partially molten section of the mantle. Convection cells within the mantle may be the driving force for the movement of the plates.	SE: 254-255 TWE: DV 254; FA 257	SE: 257 <i>Quick Check</i> 257 <i>Read a Map</i> 257 TWE: AM 261; DMI 256; EMI 257; FA 263; HA 262
2.2f Plates may collide, move apart, or slide past one another. Most volcanic activity and mountain building occur at the boundaries of these plates, often resulting in earthquakes.	SE: 254-256, 262-263, 272-273 <i>Explore</i> 251 TWE: AE 251; DI 265; DMI 256; EMI 263; FA 267, 279; HA 266, 278; OI 251	SE: 260-263, 270 <i>Quick Lab</i> 261, 271 TWE: DI 261; DMI 260, 262, 270; UV 260
2.2g Rocks are classified according to their method of formation. The three classes of rocks are sedimentary, metamorphic, and igneous. Most rocks show characteristics that give clues to their formation conditions	SE: 306-310 <i>Focus on Skills</i> 312-313 TWE: DI 307, 308; DMI 306, 308, 310; DV 306, 308; ELL 306; EMI 308, 309; FA 311; UV 309	SE: 318-322 <i>Quick Check</i> 319, 321 <i>Quick Lab</i> 321 TWE: DI 318, 320, 321; DMI 318, 320, 322; UV 318, 320

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
2.2h The rock cycle model shows how types of rock or rock material may be transformed from one type of rock to another.	SE: 306-307 TWE: AM 310; DMI 306; DV 306; ELL 306; IW 280; UV 307	SE: 322 <i>Quick Check</i> 322 TWE: DMI 322; FA 323; UV 322
2.2i Weather describes the conditions of the atmosphere at a given location for a short period of time.	SE: 366 TWE: DV 366; FA 375	SE: 371 TWE: APK 368
2.2j Climate is the characteristic weather that prevails from season to season and year to year.	SE: 408-409 <i>Lesson Review</i> 413 TWE: DMI 408; DV 409; ELL 409	SE: 408-413 <i>Explore</i> 407 <i>Math in Science</i> 415 <i>Quick Lab</i> 409 <i>Read a Diagram</i> 408 TWE: APK 406; DI 409, 411; DMI 408, 410, 412; FA 413; HA 412; WU 406
2.2k The uneven heating of Earth's surface is the cause of weather.	SE: 364-365, 370-371, 417#9 <i>Explore</i> 363 TWE: DI 365; DMI 364; UV 365	SE: 370-377 <i>Focus on Skills</i> 378-379 <i>Quick Check</i> 373, 375, 376 <i>Quick Lab</i> 373 <i>Read a Diagram</i> 372 TWE: APK 368; DI 371, 373, 374; DMI 372, 374

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
2.2l Air masses form when air remains nearly stationary over a large section of Earth's surface and takes on the conditions of temperature and humidity from that location. Weather conditions at a location are determined primarily by temperature, humidity, and pressure of air masses over that location.	SE: 372-374, 380-388 <i>Explore</i> 393 TWE: DI 387; DMI 374, 384, 386; FA 389; HA 374; IR 390	SE: 370-377 <i>Explore</i> 369 <i>Focus on Skills</i> 378-379 <i>Look and Wonder</i> 368 <i>Quick Check</i> 373, 375, 376 <i>Quick Lab</i> 373 <i>Read a Diagram</i> 372 TWE: APK 368; DI 371, 373, 374; DMI 372, 374
2.2m Most local weather condition changes are caused by movement of air masses.	SE: 372-373, 384-388 <i>Explore</i> 393 TWE: DI 373, 385, 387; DMI 384; ELL 384; SB 395	SE: 374-375, 398- <i>Focus on Skills</i> 378-379 TWE: HA 376
2.2n The movement of air masses is determined by prevailing winds and upper air currents.	SE: 384-385 TWE: DI 387; DMI 385	SE: 374-377 <i>Quick Check</i> 375, 376, 399 TWE: DI 374, 399; DMI 374, 376; FA 377; UV 374

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
2.2o Fronts are boundaries between air masses. Precipitation is likely to occur at these boundaries.	SE: 384-385 <i>Explore</i> 393 TWE: DI 385, 387; DMI 385, 388, 396; DV 384; ELL 384; EMI 387; FA 389	SE: 400-401 <i>Quick Check</i> 401 <i>Quick Lab</i> 401 <i>Read a Diagram</i> 401 TWE: DI 401; DMI 400; FA 403; HA 402
2.2p High-pressure systems generally bring fair weather. Low-pressure systems usually bring cloudy, unstable conditions. The general movement of highs and lows is from west to east across the United States	SE: 386-388 TWE: DMI 386; ELL 386; EMI 387; FA 389; UV 387	SE: 398-399 <i>Quick Check</i> 399 TWE: DI 399
2.2q Hazardous weather conditions include thunderstorms, tornadoes, hurricanes, ice storms, and blizzards. Humans can prepare for and respond to these conditions if given sufficient warning.	SE: 394-402 <i>Time for Kids</i> 358-359 <i>Quick Lab</i> 399 TWE: DI 359, 396, 401; DMI 398, 400; ELL 258, 398; FA 403; UV 397	SE: 388-393 <i>Quick Check</i> 389, 391 <i>Quick Lab</i> 391 <i>Read a Diagram</i> 388 TWE: DI 389; DMI 388, 390, 392; EMI 391; FA 393; HA 392

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
2.2r Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things.	SE: 348-349, 409 <i>Quick Lab</i> 349 TWE: DI 349; DV 348; EMI 409; SB 408; SYP TR53	SE: 188-189, 276-277, 328-329, 345, 382-383 <i>Quick Check</i> 189, 329 <i>Read a Diagram</i> 189, 328 TWE: DI 189, 329; DMI 188, 328; EMI 345; SB 527; UV 189
Key Idea 3: Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.		
PERFORMANCE INDICATOR 3.1 Observe and describe properties of materials, such as density, conductivity, and solubility.		
3.1a Substances have characteristic properties. Some of these properties include color, odor, phase at room temperature, density, solubility, heat and electrical conductivity, hardness, and boiling and freezing points.	SE: 480-483, 504-510, 522-523 <i>Quick Lab</i> 483 <i>Writing Link</i> 485 <i>Explore</i> 503 <i>Be a Scientist</i> 512-513 TWE: APK 478; DI 505; DV 484, 522; ELL 484; HA 484; SB 480, 520; WU 502	SE: 314-317, 488-493, 512-515, 528-529 <i>Explore</i> 487, 511 <i>Focus on Skills</i> 494-495 <i>Look and Wonder</i> 486 <i>Quick Check</i> 315 <i>Quick Lab</i> 491, 515, 529 <i>Read a Diagram</i> 315 TWE: APK 486, 510; DI 315, 317, 489, 515; DMI 316, 488, 489, 490, 512; UV 492

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
3.1b Solubility can be affected by the nature of the solute and solvent, temperature, and pressure. The rate of solution can be affected by the size of the particles, stirring, temperature, and the amount of solute already dissolved.	SE: 532-533 <i>Explore 529</i> <i>Quick Lab 533</i> TWE: AE 529; DV 532, 533; FA 537; LW 528; OI 529; UV 533; WU 528	SE: 528-529 <i>Quick Lab 529</i> TWE: DI 529
3.1c The motion of particles helps to explain the phases (states) of matter as well as changes from one phase to another. The phase in which matter exists depends on the attractive forces among its particles.	SE: 484, 520-524 <i>Quick Lab 523</i> TWE: DMI 484; EMI 521; SYP TR 58; UV 484, 523	SE: 488-489, 512-519 <i>Explore 511</i> <i>Look and Wonder 510</i> <i>Quick Check 513, 515</i> <i>Quick Lab 515</i> TWE: APK 510; DI 513; DMI 512, 489
3.1d Gases have neither a determined shape nor a definite volume. Gases assume the shape and volume of a closed container.	SE: 484, 520 TWE: APK 518; EMI 521; UV 484; VA 476D	SE: 489 TWE: DMI 489
3.1e A liquid has definite volume, but takes the shape of a container.	SE: 484, 520 TWE: APK 518; EMI 521; UV 484; VA 476D	SE: 489 TWE: DMI 489

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
3.1f A solid has definite shape and volume. Particles resist a change in position.	SE: 484, 520 TWE: APK 518; EMI 521; UV 484; VA 476D	SE: 489 TWE: DMI 489
3.1g Characteristic properties can be used to identify different materials, and separate a mixture of substances into its components. For example, iron can be removed from a mixture by means of a magnet. An insoluble substance can be separated from a soluble substance by such processes as filtration, settling, and evaporation.	SE: 504-510, 515#11, 534-536, 556-557 <i>Quick Lab</i> 507 <i>Be a Scientist</i> 538-539 TWE: DI 534, 535; DV 505; ELL 556; FA 511; SYP TR58-59; UV 523; WU 502	SE: 524-533 <i>Be a Scientist</i> 534-535 <i>Explore</i> 523 <i>Quick Check</i> 525, 527 <i>Quick Lab</i> 529 TWE: APK 522; DI 525, 530; DMI 524, 526; EMI 525, 531; UV 525, 530
3.1h Density can be described as the amount of matter that is in a given amount of space. If two objects have equal volume, but one has more mass, the one with more mass is denser.	SE: 482 <i>Quick Lab</i> 483 <i>Focus on Skills</i> 486-487 TWE: AM 483; DV 482; ELL 483; FA 485; HA 484; IM 486	SE: 490-491 <i>Quick Check</i> 491 <i>Quick Lab</i> 491 <i>Read a Photo</i> 490 TWE: DMI 490; EMI 490; UV 490, 491

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
3.1i Buoyancy is determined by comparative densities.	SE: 483 <i>Quick Lab</i> 483 <i>Focus on Skills</i> 486-487 TWE: DV 482; FA 485	SE: 490-491 <i>Quick Check</i> 491 <i>Quick Lab</i> 491 <i>Read a Photo</i> 490 TWE: DI 491; DMI 490; EMI 490
PERFORMANCE INDICATOR 3.2 Distinguish between chemical and physical changes.		
3.2a During a physical change a substance keeps its chemical composition and properties. Examples of physical changes include freezing, melting, condensation, boiling, evaporation, tearing, and crushing.	SE: 520-524, 563#14 <i>Explore</i> 519 <i>Focus on Skills</i> 526-527 TWE: DV 521, 522, 523; ELL 523; FA 525; VA 516D	SE: 512-519 <i>Explore</i> 511 <i>Look and Wonder</i> 510 <i>Quick Check</i> 513, 515 <i>Quick Lab</i> 515 TWE: APK 510; DI 513, 515; DMI 512, 514, 518; HA 518; UV 518
3.2b Mixtures are physical combinations of materials and can be separated by physical means.	SE: 530-536 <i>Be a Scientist</i> 538-539 TWE: AM 532; DI 531, 534, 535; DMI 530, 534; ELL 530; EMI 531; FA 537; SB 532	SE: 524-533 <i>Be a Scientist</i> 534-535 <i>Explore</i> 523 <i>Quick Check</i> 525, 527 <i>Quick Lab</i> 529 TWE: APK 522; DI 525, 530; DMI 524, 526, 542; EMI 525, 531; UV 525, 530

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
3.2c During a chemical change, substances react in characteristic ways to form new substances with different physical and chemical properties. Examples of chemical changes include burning of wood, cooking of an egg, rusting of iron, and souring of milk.	SE: 544-548, 563#10, 563#14 <i>Explore</i> 541 <i>Quick Lab</i> 547 <i>Lesson Review</i> 549 TWE: AE 541; APK 540; DMI 544, 546; FA 549; WU 540; VA 516D	SE: 542-547 <i>Explore</i> 541 <i>Look and Wonder</i> 540 <i>Quick Check</i> 543, 545 <i>Quick Lab</i> 545 <i>Read a Photo</i> 543 TWE: APK 540; DI 543, 545; DMI 542, 544; EMI 544; SB 542; FA 547; HA 546; UV 543, 544; WU 540
3.2d Substances are often placed in categories if they react in similar ways. Examples include metals, nonmetals, and noble gases.	SE: 494-495, 504-510 <i>Lesson Review</i> 499, 511 <i>Explore</i> 503 <i>Be a Scientist</i> 512-513 TWE: AR 501; DI 495; DMI 490, 494; ELL 494; FA 511; UV 495	SE: 502-503 <i>Quick Check</i> 503 <i>Quick Lab</i> 503 TWE: DI 502, 503; DMI 502; EMI 503
3.2e The Law of Conservation of Mass states that during an ordinary chemical reaction matter cannot be created or destroyed. In chemical reactions, the total mass of the reactants equals the total mass of the products.	SE: 544-545, 563#13 <i>Explore</i> 531 <i>Lesson Review</i> 549 TWE: FA 549; OI 541	SE: 525, 543 TWE: DI 543

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
PERFORMANCE INDICATOR 3.3 Develop mental models to explain common chemical reactions and changes in states of matter.		
3.3a All matter is made up of atoms. Atoms are far too small to see with a light microscope.	SE: 490-493, 498 <i>Quick Lab</i> 493 <i>Lesson Review</i> 499 TWE: AM 493; DMI 498; DV 491	SE: 498-501 <i>Explore</i> 497 TWE: DMI 500; FA 507; UV 500
3.3b Atoms and molecules are perpetually in motion. The greater the temperature, the greater the motion.	SE: 484, 492, 520-524 <i>Quick Lab</i> 523 TWE: EMI 521; UV 484, 523	SE: 488-489, 512-515 <i>Explore</i> 511 <i>Quick Check</i> 513 <i>Quick Lab</i> 515 <i>Reading a Diagram</i> 513 TWE: DMI 489, 512
3.3c Atoms may join together in well-defined molecules or may be arranged in regular geometric patterns.	SE: 304-305, 492-493 <i>Quick Lab</i> 305, 493 TWE: DI 304, 493; DMI 504; SB 302; SYP TR 50; UV 304	SE: 506 <i>Quick Check</i> 506 TWE: DMI 506; FA 507; UV 506

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
3.3d Interactions among atoms and/or molecules result in chemical reactions.	SE: 542-548 <i>Math in Science</i> 551 TWE: DMI 544; ELL 544; UV 545	SE: 542-545 <i>Quick Check</i> 545 <i>Quick Lab</i> 545 <i>Read a Photo</i> 543 TWE: DI 543, 545; DMI 542, 544; EMI 544; UV 543, 544
3.3e The atoms of any one element are different from the atoms of other elements.	SE: 490-495, 504 TWE: DI 491; SYP TR58	SE: 500-501
3.3f There are more than 100 elements. Elements combine in a multitude of ways to produce compounds that account for all living and nonliving substances. Few elements are found in their pure form.	SE: 490-497 TWE: DI 496, 497; DMI 496; DV 491; FA 499; SYP TR58; UV 497	SE: 498-507 <i>Quick Check</i> 499 <i>Quick Lab</i> 503 TWE: DI 499, 505; DMI 506; FA 507
3.3g The periodic table is one useful model for classifying elements. The periodic table can be used to predict properties of elements (metals, nonmetals, noble gases).	SE: 494-495, 504, 508-509 <i>Reading in Science</i> 500-501 <i>Performance Assessment</i> 515 TWE: EMI 496; SYP TR56-57; UV 495	SE: 502-503 <i>Quick Check</i> 503 <i>Quick Lab</i> 503 TWE: DI 502, 503; UV 502

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
Key Idea 4: Energy exists in many forms, and when these forms change energy is conserved.		
PERFORMANCE INDICATOR 4.1 Describe the sources and identify the transformations of energy observed in everyday life.		
4.1a The Sun is a major source of energy for Earth. Other sources of energy include nuclear and geothermal energy.	SE: 56, 184, 327, 330, 333-334, 364-365 <i>Writing in Science</i> 603 TWE: AM 335; EMI 331, 335; UV 334, 335	SE: 354-355 <i>Quick Lab</i> 355 TWE: DI 355; UV 355
4.1b Fossil fuels contain stored solar energy and are considered nonrenewable resources. They are a major source of energy in the United States. Solar energy, wind, moving water, and biomass are some examples of renewable energy resources.	SE: 326-336 <i>Explore</i> 325 <i>Lesson Review</i> 337 TWE: AE 325; APK 324; DI 331, 335; DMI 332, 334; ELL 332; FA 337; SB 326	SE: 340-343, 354-355 <i>Quick Check</i> 341, 343, 355 <i>Quick Lab</i> 343, 355 TWE: DI 342, 343, 355; DMI 340, 342, 354
4.1c Most activities in everyday life involve one form of energy being transformed into another. For example, the chemical energy in gasoline is transformed into mechanical energy in an automobile engine. Energy, in the form of heat, is almost always one of the products of energy transformations.	SE: 148-149, 330-335, 602, 632, 668 <i>Reading in Science</i> 674-675 TWE: DI 334; DMI 632; FA 603; HA 602; UV 149, 632; WU 624	SE: 618-621 <i>Quick Lab</i> 619 <i>Read a Photo</i> 621 TWE: DI 619, 620; DMI 618, 619, 620; UV 621

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
4.1d Different forms of energy include heat, light, electrical, mechanical, sound, nuclear, and chemical. Energy is transformed in many ways.	SE: 326-335, 600-602, 626-632, 638-646, 652-660, 666-672 <i>Explore</i> 625, 637 <i>Quick Lab</i> 631 TWE: AE 625, 637; DI 629, 640; DV 602, 667; FA 603; UV 627, 639; VA 622D	SE: 618-621 <i>Quick Lab</i> 619 <i>Read a Photo</i> 621 TWE: DI 619, 620; DMI 618, 619, 620; UV 621
4.1e Energy can be considered to be either kinetic energy, which is the energy of motion, or potential energy, which depends on relative position.	SE: 600-602 <i>Quick Lab</i> 601 TWE: DI 601; DMI 600; DV 600; ELL 600; FA 603; SYP TR60-61	SE: 618-619 <i>Quick Lab</i> 619 TWE: DMI 618
PERFORMANCE INDICATOR 4.2 Observe and describe heating and cooling events.		
4.2a Heat moves in predictable ways, flowing from warmer objects to cooler ones, until both reach the same temperature.	SE: 626-632 <i>Focus on Skills</i> 634-635 TWE: AM 627; DI 629; DMI 626; FA 632; SYP TR62; UV 627; VA 622D	SE: 684-685 <i>Read a Diagram</i> 684 TWE: EMI 684

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
4.2b Heat can be transferred through matter by the collisions of atoms and/or molecules (conduction) or through space (radiation). In a liquid or gas, currents will facilitate the transfer of heat (convection).	SE: 628 TWE: DI 629; DMI 628; DV 629; ELL 631; EMI 630; FA 632; HA 632; SYP TR62; UV 628, 630; VA 622D	SE: 684-685 <i>Quick Check</i> 685 <i>Read a Diagram</i> 684 TWE: DMI 684; EMI 684
4.2c During a phase change, heat energy is absorbed or released. Energy is absorbed when a solid changes to a liquid and when a liquid changes to a gas. Energy is released when a gas changes to a liquid and when a liquid changes to a solid.	SE: 520-524 <i>Explore</i> 519 TWE: AE 519; DI 519, 627; DMI 520, 522; EMI 521; FA 525; SYP TR58	SE: 512-515 <i>Quick Lab</i> 515 <i>Read a Diagram</i> 513 TWE: DI 515; DMI 512, 514
4.2d Most substances expand when heated and contract when cooled. Water is an exception, expanding when changing to ice.	SE: 524 <i>Writing Link</i> 525 TWE: DV 524; FA 525	SE: 514 <i>Explore</i> 511 TWE: DMI 514
4.2e Temperature affects the solubility of some substances in water.	SE: 532-533 <i>Quick Lab</i> 533 TWE: FA 537	SE: 518, 528-529 <i>Quick Lab</i> 529 TWE: DI 529

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
PERFORMANCE INDICATOR 4.3 Observe and describe energy changes as related to chemical reactions.		
4.3a In chemical reactions, energy is transferred into or out of a system. Light, electricity, or mechanical motion may be involved in such transfers in addition to heat.	SE: 54-55, 544-548, 668-672 <i>Reading in Science</i> 674-675 TWE: APK 540; DMI 546; UV 548; WU 540	SE: 546, 620-621 <i>Quick Check</i> 546, 621 <i>Read a Photo</i> 621 TWE: DI 621; DMI 620; FA 547; HA 546; UV 546, 621
PERFORMANCE INDICATOR 4.4 Observe and describe the properties of sound, light, magnetism, and electricity.		
4.4a Different forms of electromagnetic energy have different wavelengths. Some examples of electromagnetic energy are microwaves, infrared light, visible light, ultraviolet light, X-rays, and gamma rays.	SE: 629, 658-660 <i>Math in Science</i> 663 <i>Performance Assessment</i> 689 TWE: DMI 660; DV 660; HA 660; IM 663; SB 626; SYP TR62; UV 660	SE: 674-675 <i>Quick Check</i> 675 <i>Read a Diagram</i> 674 TWE: DI 674; DMI 674, 675; EMI 675; UV 674
4.4b Light passes through some materials, sometimes refracting in the process. Materials absorb and reflect light, and may transmit light. To see an object, light from that object, emitted by or reflected from it, must enter the eye.	SE: 652-660 <i>Explore</i> 651 <i>Lesson Review</i> 661 TWE: DI 654, 657; DMI 656; DV 654, 657; EMI 656; FA 661; SB 652; UV 657; WU 650	SE: 660-667 <i>Explore</i> 659 <i>Quick Check</i> 661, 663, 665, 666 <i>Quick Lab</i> 665 <i>Read a Diagram</i> 662, 666 TWE: APK 658; DI 661, 662, 665; DMI 660, 662, 664; EMI 662, 663, 664; FA 667; HA 666; UV 661, 663; WU 658

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
4.4c Vibrations in materials set up wave-like disturbances that spread away from the source. Sound waves are an example. Vibrational waves move at different speeds in different materials. Sound cannot travel in a vacuum.	<p>SE: 638-646 <i>Explore</i> 637 <i>Quick Lab</i> 641 <i>Be a Scientist</i> 648-649</p> <p>TWE: AE 637; APK 636; DI 639, 640, 641; DMI 638, 640; DV 639; FA 647</p>	<p>SE: 646-651, 655 <i>Explore</i> 645 <i>Look and Wonder</i> 644 <i>Quick Check</i> 647, 649 <i>Quick Lab</i> 651 <i>Read a Table</i> 650</p> <p>TWE: APK 644; DI 647, 649; DMI 646, 650, 651; EMI 647, 649; FA 655UV 648, 650; WU 644</p>
4.4d Electrical energy can be produced from a variety of energy sources and can be transformed into almost any other form of energy.	<p>SE: 330-335, 668-672 <i>Reading in Science</i> 674-675 <i>Be a Scientist</i> 686-687</p> <p>TWE: APK 664; DI 330, 334; DMI 682; ELL 668, 682; EMI 601; IW 686; UV 683</p>	<p>SE: 694-706 <i>Explore</i> 693 <i>Look and Wonder</i> 692 <i>Quick Check</i> 695, 703 <i>Quick Lab</i> 705</p> <p>TWE: DI 695, 703; DMI 696, 703, 704; EMI 697; FA 707; UV 695, 703</p>

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
4.4e Electrical circuits provide a means of transferring electrical energy.	SE: 668-672 <i>Explore 665</i> <i>Lesson Review 673</i> <i>Reading in Science 674-675</i> <i>Be a Scientist 686-687</i> TWE: AE 665; DI 669, 671; DMI 668, 670; ELL 670; EMI 670; UV 671	SE: 700-701 <i>Quick Check 701</i> TWE: DI 701; DMI 700; EMI 700; UV 700, 701
4.4f Without touching them, material that has been electrically charged attracts uncharged material, and may either attract or repel other charged material.	SE: 666-667 <i>Lesson Review 673</i> TWE: DI 667; DMI 666; SB 666; UV 667; WU 664	SE: 694-697 <i>Explore 693</i> <i>Quick Check 695</i> TWE: DI 695, 697; DMI 696, 697; SB 694; UV 695, 697
4.4g Without direct contact, a magnet attracts certain materials and either attracts or repels other magnets. The attractive force of a magnet is greatest at its poles.	SE: 678-679 <i>Explore 677</i> <i>Lesson Review 685</i> TWE: AE 677; APK 676; DI 679, 681; DMI 678; DV 679; ELL 680; EMI 682; GI 677; LW 676; UV 679	SE: 702 TWE: DI 703; DMI 702; UV 703

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
PERFORMANCE INDICATOR 4.5 Describe situations that support the principle of conservation of energy.		
4.5a Energy cannot be created or destroyed, but only changed from one form into another.	SE: 602 TWE: DV 602; FA 603	SE: 619 <i>Quick Check</i> 619 TWE: DMI 619
4.5b Energy can change from one form to another, although in the process some energy is always converted to heat. Some systems transform energy with less loss of heat than others.	SE: 148-149, 330-335, 600-602, 632, 668, 689#16 <i>Lesson Review</i> 603 TWE: DI 330; DMI 632; FA 603; HA 602; UV 149, 602, 632	SE: 619-621 TWE: UV 621
Key Idea 5: Energy and matter interact through forces that result in changes in motion.		
PERFORMANCE INDICATOR 5.1 Describe different patterns of motion of objects.		
5.1a The motion of an object is always judged with respect to some other object or point. The idea of absolute motion or rest is misleading.	SE: 572-573 TWE: APK 570; DI 573; DV 573; UV 573	SE: 590-591 <i>Explore</i> 589 <i>Quick Check</i> 591 TWE: APK 588; DI 591; DMI 590; WU 588

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
5.1b The motion of an object can be described by its position, direction of motion, and speed.	SE: 572-578, 621#10 <i>Quick Lab 575</i> <i>Lesson Review 579</i> TWE: DI 573; DMI 574; DV 575; ELL 574, 575; FA 579; UV 574	SE: 590-593 <i>Explore 589</i> <i>Quick Check 591, 593</i> <i>Read a Graph 591</i> TWE: APK 588; DI 591, 593; DMI 590, 592; UV 592; WU 588
5.1c An object's motion is the result of the combined effect of all forces acting on the object. A moving object that is not subjected to a force will continue to move at a constant speed in a straight line. An object at rest will remain at rest.	SE: 584-589 <i>Quick Lab 589</i> <i>Lesson Review 593</i> TWE: AM 588; DI 585; DMI 588; DV 588; FA 593; UV 585	SE: 594-600 <i>Be a Scientist 612-613</i> <i>Quick Check 595, 597, 599, 600</i> <i>Quick Lab 600</i> <i>Read a Diagram 599</i> TWE: DI 595, 597, 599; DMI 594, 598, 599, 600; EMI 595, 597; FA 601; HA 600; UV 594, 597, 598

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
5.1d Force is directly related to an object's mass and acceleration. The greater the force, the greater the change in motion.	SE: 590-591 <i>Math Link</i> 593 TWE: DI 591; DMI 590; ELL 590; EMI 590; FA 593; UV 591; VA 568D	SE: 594-595, 606-607, 611 <i>Explore</i> 605 <i>Look and Wonder</i> 604 <i>Quick Check</i> 595, 607 <i>Read a Diagram</i> 607 TWE: APK 604; DI 607; DMI 606; SB 606; UV 607; WU 604
5.1e For every action there is an equal and opposite reaction.	SE: 592 TWE: DMI 592, DV 592	SE: 608, 611 <i>Quick Check</i> 609 <i>Read a Photo</i> 608 TWE: DI 609; DMI 608; EMI 608; FA 611
PERFORMANCE INDICATOR 5.2 Observe, describe, and compare effects of forces (gravity, electric current, and magnetism) on the motion of objects.		
5.2a Every object exerts gravitational force on every other object. Gravitational force depends on how much mass the objects have and on how far apart they are. Gravity is one of the forces acting on orbiting objects and projectiles.	SE: 422-423, 586 <i>Explore</i> 21 TWE: DI 423; DMI 422, 586; DV 423; ELL 586; EMI 587; HA 578; VA 568D; WU 420	SE: 608-611 <i>Quick Lab</i> 609 <i>Quick Check</i> 609, 610 TWE: DI 609; DMI 608, 610; HA 610

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
5.2b Electric currents and magnets can exert a force on each other.	SE: 680-683 <i>Quick Lab</i> 681 TWE: DI 681, 683; DV 683; ELL 682; UV 683	SE: 695, 702-703 TWE: DI 695, 703; UV 703
5.2c Machines transfer mechanical energy from one object to another.	SE: 608-616 TWE: DV 680	SE: 619-620 TWE: DI 619; DMI 620; UV 621
5.2d Friction is a force that opposes motion.	SE: 587, 615, 621#9, 632 TWE: DI 587, 588, 614; DMI 584, 586, 616; ELL 586, 587	SE: 596-599 <i>Quick Check</i> 597, 599 TWE: DI 597, 599; EMI 597; UV 597
5.2e A machine can be made more efficient by reducing friction. Some common ways of reducing friction include lubricating or waxing surfaces.	SE: <i>Quick Check</i> 616 TWE: DI 614	SE: 597 TWE: EMI 597; UV 597
5.2f Machines can change the direction or amount of force, or the distance or speed of force required to do work.	SE: 608-616 <i>Explore</i> 607 <i>Quick Lab</i> 611 <i>Math in Science</i> 619 TWE: APK 606; DMI 608, 612; DV 609; EMI 615; SB 608; UV 609	SE: 628 <i>Explore</i> 627 <i>Look and Wonder</i> 626 TWE: APK 626; DMI 628; SB 628

STANDARDS	PAGE REFERENCES	
	Grade 5	Grade 6
5.2g Simple machines include a lever, a pulley, a wheel and axle, and an inclined plane. A complex machine uses a combination of interacting simple machines, e.g., a bicycle.	<p>SE: 608-616 <i>Writing in Science</i> 618</p> <p>TWE: AE 607; AM 609; DI 609, 611, 612; DMI 614; DV 611, 616; EMI 613; FA 617; UV 610, 612; WU 606</p>	<p>SE: 628-637 <i>Explore</i> 627 <i>Look and Wonder</i> 626 <i>Quick Check</i> 629, 631, 633 <i>Quick Lab</i> 635 <i>Read a Diagram</i> 631, 633 <i>Writing in Science</i> 638</p> <p>TWE: APK 626; DI 630, 631, 635; DMI 628, 630, 632, 636; EMI 631, 635; FA 637; SB 628; UV 629, 630</p>