



SCIENCE

A CLOSER LOOK

Grade 6

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STANDARDS	PAGE REFERENCES
<p>STANDARD 1: Students apply the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.</p>	
<p>1. ask questions and state hypotheses that lead to different types of scientific investigations <i>(for example: experimentation, collecting specimens, constructing models, researching scientific literature)</i></p>	<p>Student Edition: 2-7 <i>Be a Scientist</i> 66-67, 104-105, 306-307, 612-613, 708-709 <i>Explore</i> 487, 511, 605, 627 <i>Focus on Skills</i> 548-549 <i>Forming a Hypothesis</i> 5 <i>Quick Lab</i> 37, 683 Teacher Wraparound Edition: AE 47; OI 105, 511</p>
<p>2. use appropriate tools, technologies and metric measurements to gather and organize data and report results</p>	<p>Student Edition: 6-9, R2-R9 <i>Explore</i> 47, 139, 243, 487 <i>Focus on Skills</i> 12-13, 494-495 <i>Quick Lab</i> 27, 165, 331 Teacher Wraparound Edition: DMI 8; EMI R7; SB 8, R2</p>

STANDARDS	PAGE REFERENCES
<p>3. interpret and evaluate data in order to formulate logical conclusions</p>	<p>Student Edition: 6-11 <i>Analyzing the Data</i> 9 <i>Be A Scientist</i> 66-67 <i>Explore</i> 69, 95, 151, 171, 185, 221, 283, 327, 339, 541, 589 <i>Focus on Skills</i> 378-379 <i>Quick Lab</i> 99, 321, 343, 373 Teacher Wraparound Edition: GI 67</p>
<p>4. demonstrate that scientific ideas are used to explain previous observations and to predict future events (<i>for example: plate tectonics and future earthquake activity</i>)</p>	<p>Student Edition: 4-7, 86-87, 142-146, 186-187, 256-262, 272-275, 334 <i>Explore</i> 255 <i>Focus on Skills</i> 194-195, 378-379 <i>Literature</i> 238-239 <i>Look and Wonder</i> 220 <i>Quick Check</i> 229, 261 <i>Reading in Science</i> 44-45, 232-233, 280-281 <i>Writing in Science</i> 78-79 Teacher Wraparound Edition: AR 281; C 194; SB 4; WU 220</p>
<p>5. identify and evaluate alternative explanations and procedures</p>	<p>Student Edition: <i>Explore</i> 69, 85, 185, 255, 369, 523, 541, 589, 615, 627 <i>Focus on Skills</i> 602-603, 656-657 <i>Quick Lab</i> 515 Teacher Wraparound Edition: AE 33; AI 379</p>
<p>6. communicate results of their investigations in appropriate ways (<i>for example: written reports, graphic displays, oral presentations</i>)</p>	<p>Student Edition: <i>Explore</i> 47, 407, 487 <i>Focus on Skills</i> 252-253, 430-431 <i>Quick Lab</i> 491 <i>Writing in Science</i> 78-79, 158 <i>Write About It</i> 158 Teacher Wraparound Edition: AE 207; AI 79; DI 565; IW 78, 158, 430, 548; TI 79; WAI 79</p>

STANDARDS	PAGE REFERENCES
<p>STANDARD 2: Physical Science: Students know and understand common properties, forms, and changes in matter and energy. (Focus: Physics and Chemistry)</p>	
<p><u>Properties of Substances</u></p>	
<p>1. physical properties of solids, liquids, gases and the plasma state and their changes can be explained using the particulate nature of matter model</p>	<p>Student Edition: 488-493, 498-507, 511-519 <i>Explore</i> 487, 497 <i>Focus on Skills</i> 494-495 <i>Math in Science</i> 509 <i>Quick Lab</i> 491, 503, 515 Teacher Wraparound Edition: DI 513; DMI 512; EMI 503; HA 518; SB 488, 514, 517</p>
<p>2. mixtures of substances can be separated based on their properties (<i>for example: solubilities, boiling points, magnetic properties, densities and specific heat</i>)</p>	<p>Student Edition: 524-533, 536-537 <i>Be a Scientist</i> 534-535 <i>Explore</i> 523 <i>Look and Wonder</i> 522 <i>Quick Check</i> 525, 527, 531, 532 <i>Quick Lab</i> 529 Teacher Wraparound Edition: DI 525, 530; DMI 526, 530; EMI 531; IW 534; OI 535;</p>
<p>3. mass is conserved in a chemical or physical change</p>	<p>Student Edition: 518, 525, 543 <i>Explore</i> 541 Teacher Wraparound Edition: GI 541; SI 541</p>
<p>4. mass and weight can be distinguished</p>	<p>Student Edition: 488, 608-611 <i>Be a Scientist</i> 612-613 <i>Quick Lab</i> 609 <i>Quick Check</i> 609, 610 Teacher Wraparound Edition: DI 609; DMI 610; DV 609; UV 610</p>

STANDARDS	PAGE REFERENCES
Atomic and Molecular Structure	
<p>5. all matter is made up of atoms that are comprised of protons, neutrons and electrons and when a substance is made up of only one type of atom it is an element</p>	<p>Student Edition: 498-503, 507 <i>Quick Lab</i> 503</p> <p>Teacher Wraparound Edition: DI 502, 503; DMI 500; DV 500, 502; ELLS 501; EMI 501; FA 507; SB 500, 504</p>
<p>6. when two or more elements are combined a compound is formed which is made up of molecules</p>	<p>Student Edition: 90-91, 504-507</p> <p>Teacher Wraparound Edition: DI 505; DMI 90, 506; EMI 505; FA 91; UV 504</p>
Forces and Motion	
<p>7. quantities (<i>for example: time, distance, mass, force</i>) that characterize moving objects and their interactions within a system (<i>for example, force, speed, velocity, potential energy, kinetic energy</i>) can be described, measured and calculated</p>	<p>Student Edition: 590-601, 606-611, 616-623 <i>Explore</i> 589, 605 <i>Focus on Skills</i> 602-603 <i>Look and Wonder</i> 588</p> <p>Teacher Wraparound Edition: AE 589; APK 588; DI 591, 593, 595; DMI 590, 592, 594, 596; EMI 595; OI 589; UV 592, 594, 595; WU 588</p>
Forms and Transfer of Energy	
<p>8. that there are different forms of energy and those forms of energy can be transferred and stored (<i>for example: kinetic, potential</i>) but total energy is conserved</p>	<p>Student Edition: 618-621 <i>Quick Check</i> 619, 621 <i>Quick Lab</i> 619</p> <p>Teacher Wraparound Edition: DI 619, 621; DMI 618, 619, 620; DV 618, 620; ELLS 620; UV 621</p>
<p>9. electric circuits provide a means of transferring electrical energy when heat, light, sound, magnetic effects and chemical changes are produced</p>	<p>Student Edition: 620-621, 694-707 <i>Be a Scientist</i> 708-709 <i>Quick Check</i> 705</p> <p>Teacher Wraparound Edition: DMI 698, 699, 703, 704; EMI 698, 700; IR 708; UV 700</p>

STANDARDS	PAGE REFERENCES
10. white light is made up of different colors that correspond to different wavelengths	<p>Student Edition: 672-677 <i>Explore</i> 671 <i>Look and Wonder</i> 670 <i>Quick Check</i> 673 <i>Quick Lab</i> 673</p> <p>Teacher Wraparound Edition: AE 671; DI 673, 674; DMI 672, 674; FA 677; HA 676; SB 672; UV 674</p>
<p>STANDARD 3: Life Science: Students know and understand the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment. (Focus: Biology-- Anatomy, Physiology, Botany, Zoology, Ecology)</p>	
<p><u>Structure and Function in Living Systems</u></p>	
1. classification schemes can be used to understand the structure of organisms	<p>Student Edition: 22-29 <i>Explore</i> 21 <i>Focus on Skills</i> 30-31</p> <p>Teacher Wraparound Edition: DI 25; DMI 24, 26, 28; FA 29; HA 24; OI 21; WU 20</p>
2. human body systems have specific functions and interaction (<i>for example: circulatory and respiratory, muscular and skeletal</i>)	<p>Student Edition: 58-65, R10-R20 <i>Be a Scientist</i> 66-67 <i>Explore</i> 57</p> <p>Teacher Wraparound Edition: AE 57; APK R10, R11, R12, R13, R14; DMI R10, R11, R14, R16, R20; DI R10, R13, R17; FA 65; UV R12</p>
3. there is a differentiation among levels of organization (cells, tissues, and organs) and their roles within the whole organism	<p>Student Edition: 86-91 <i>Explore</i> 85 <i>Quick Lab</i> 89</p> <p>Teacher Wraparound Edition: DI 88; DMI 88; DV 88; SB 86; UV 87</p>

STANDARDS	PAGE REFERENCES
<p>4. multicellular organisms have a variety of ways to get food and other matter to their cells (<i>for example: digestion, transport of nutrients by circulatory system</i>)</p>	<p>Student Edition: 58-63, 65, 98-103, R12-R13 <i>Be a Scientist</i> 104-105 <i>Explore</i> 57 <i>Focus on Skills</i> 92-93 <i>Quick Lab</i> 63, 99</p> <p>Teacher Wraparound Edition: APK 56; DI 59, 63; DMI 60, 62, 98, 100, 102; FA 65</p>
<p>5. photosynthesis and cellular respiration are basic processes of life (<i>for example, set up a terrarium or aquarium and make changes such as blocking out light</i>)</p>	<p>Student Edition: 37, 43, 100-101, 103 <i>Be a Scientist</i> 104-105 <i>Explore</i> 33 <i>Quick Check</i> 101 <i>Quick Lab</i> 37</p> <p>Teacher Wraparound Edition: AM 101; DMI 100; DV 100; EMI 37; FA 43; UV 101</p>
<p>6. different types of cells have basic structures, components and functions (<i>for example: cell membrane, nucleus, cytoplasm, chloroplast, single-celled organisms in pond water, Elodea, onion cell, human cheek cell</i>)</p>	<p>Student Edition: 86-91, 96-97, 103 <i>Explore</i> 85, 95 <i>Quick Check</i> 97 <i>Quick Lab</i> 89</p> <p>Teacher Wraparound Edition: AE 95; DI 97; DMI 96; SB 96; WU 94</p>
<p>7. there are noncommunicable conditions and communicable diseases (<i>for example: heart disease and chicken pox</i>)</p>	<p>Student Edition: R14-R15</p> <p>Teacher Wraparound Edition: APK R15; DI R15; DMI R15</p>
Populations and Ecosystems	
<p>8. there is a flow of energy and matter in an ecosystem (<i>for example: as modeled in a food chain, web, pyramid, decomposition</i>)</p>	<p>Student Edition: 186-189, 198-203 <i>Be a Scientist</i> 204-205 <i>Explore</i> 185 <i>Quick Lab</i> 201</p> <p>Teacher Wraparound Edition: AE 197; APK 196; DI 187, 189, 199; DMI 186, 198, 200, 202; EMI 199; FA 203; HA 202; IW 204; SB 198; WU 196</p>

STANDARDS	PAGE REFERENCES
<u>Reproduction and Heredity</u>	
9. asexual and sexual cell reproduction/division can be differentiated	Student Edition: 108-117, 124-125 <i>Explore</i> 107 <i>Quick Lab</i> 113 Teacher Wraparound Edition: AM 115; DI 113, 115; DMI 110, 112, 114, 124; DV 112, 124; ELLS 114; EMI 111, 115; FA 117; UV 125
10. chromosomes and genes play a role in heredity (<i>for example, genes control traits, while chromosomes are made up of many genes</i>)	Student Edition: 140-147, 152-157, 162-163 <i>Explore</i> 139, 151, 161 <i>Focus on Skills</i> 148-149 <i>Quick Lab</i> 145, 155 Teacher Wraparound Edition: AE 151; APK 150, 160; DI 145, 153, 163; DMI 140, 152, 154, 156, 162; FA 147, 157; SB 154
<u>Biological Evolution</u>	
11. changes in environmental conditions can affect the survival of individual organisms, populations, and entire species	Student Edition: 222-231 <i>Explore</i> 221 <i>Literature</i> 364-365 <i>Look and Wonder</i> 220 <i>Quick Lab</i> 225 Teacher Wraparound Edition: AE 221; AM 225; APK 220; DI 223, 225; DMI 222, 223, 224, 230; EMI 225; FA 231; OI 221; UV 223; WU 220
12. changes or constancy in groups of organisms over geologic time can be revealed through evidence	Student Edition: 172-177, 228-229 <i>Explore</i> 171 <i>Look and Wonder</i> 170 <i>Quick Lab</i> 175 <i>Reading in Science</i> 178-179 Teacher Wraparound Edition: DI 173, 175, 229; DMI 172, 174, 176, 228; EMI 229; HA 176; SB 172; UV 229

STANDARDS	PAGE REFERENCES
<p>13. individual organisms with certain traits are more likely than others to survive and have offspring.</p>	<p>Student Edition: 172-177 <i>Explore</i> 171 <i>Quick Lab</i> 175 <i>Reading in Science</i> 178-179 Teacher Wraparound Edition: AE 171; DI 173, 175; DMI 172, 174, 176; DV 174; FA 177; OI 171; SB 172</p>
<p>STANDARD 4: Earth and Space Science: Students know and understand the processes and interactions of Earth's systems and the structure and dynamics of Earth and other objects in space. (Focus: Geology, Meteorology, Astronomy, Oceanography)</p>	
<p><u>Earth's Composition, Processes and History</u></p>	
<p>1. inter-relationships exist between minerals, rocks, and soils</p>	<p>Student Edition: 285-286, 290-291, 314-323, 341 <i>Explore</i> 313 <i>Look and Wonder</i> 312 <i>Quick Lab</i> 321 Teacher Wraparound Edition: AE 313; APK 282, 312; DI 318, 320, 321; DMI 314, 318; FA 293</p>
<p>2. humans use renewable and nonrenewable resources (for example: forests and fossil fuels)</p>	<p>Student Edition: 328, 330-333, 340-343 <i>Explore</i> 327, 339 <i>Look and Wonder</i> 338 <i>Math in Science</i> 337 <i>Quick Lab</i> 331, 343 Teacher Wraparound Edition: APK 338; DI 342, 343; DMI 328, 340, 342; HA 346</p>
<p>3. natural processes shape the Earth's surface (for example: landslides, weathering, erosion, mountain building, volcanic activity)</p>	<p>Student Edition: 268-271, 274-279, 284-289 <i>Explore</i> 267, 283 <i>Look and Wonder</i> 266, 282 <i>Quick Lab</i> 270, 286 <i>Writing in Science</i> 294-295 Teacher Wraparound Edition: DI 285, 286, 289; DMI 274, 278, 288; IW 294; UV 286</p>

STANDARDS	PAGE REFERENCES
<p>4. major geological events such as earthquakes, volcanic eruptions, and mountain building are associated with plate boundaries and attributed to plate motions</p>	<p>Student Edition: 268-271, 274-279 <i>Explore</i> 267 <i>Quick Check</i> 269, 271, 278 <i>Quick Lab</i> 271 <i>Read a Diagram</i> 269 <i>Read a Map</i> 270 <i>Reading in Science</i> 280-281 Teacher Wraparound Edition: APK 266; DI 268; DMI 276; FA 279; HA 278</p>
<p>5. fossils are formed and used as evidence to indicate that life has changed through time</p>	<p>Student Edition: 228, 300-305 <i>Quick Check</i> 229, 301 <i>Quick Lab</i> 301 Teacher Wraparound Edition: DI 229, 300; DMI 228, 300; ELLS 301; EMI 229, 303; FA 305; HA 304</p>
<p>6. successive layers of sedimentary rock and the fossils contained within them can be used to confirm age, geologic time, history, and changing life forms of the Earth; this evidence is affected by the folding, breaking and uplifting of layers</p>	<p>Student Edition: 300-305 <i>Quick Check</i> 229, 301 <i>Quick Lab</i> 301 <i>Reading a Diagram</i> 300 Teacher Wraparound Edition: DI 229, 300; DMI 228, 300; ELLS 301; EMI 229, 303; FA 305; HA 304; SB 298</p>
<p><u>Atmosphere and Weather</u></p>	
<p>7. the atmosphere has basic composition, properties, and structure (<i>for example: the range and distribution of temperature and pressure in the troposphere and stratosphere</i>)</p>	<p>Student Edition: 370-377 <i>Explore</i> 369 <i>Focus on Skills</i> 378-379 <i>Look and Wonder</i> 368 <i>Quick Check</i> 371, 373 <i>Quick Lab</i> 373 <i>Read a Diagram</i> 371 Teacher Wraparound Edition: AE 369; AM 375; DI 371; DMI 370, 374; SB 370; WU 368</p>

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<p>8. atmospheric circulation is driven by solar heating (<i>for example: the transfer of energy by radiation, convection, conduction</i>)</p>	<p>Student Edition: 372-377, 684-685 <i>Explore</i> 397 <i>Look and Wonder</i> 396 <i>Quick Lab</i> 373 Teacher Wraparound Edition: DMI 374, 376; FA 377</p>
<p>9. there are quantitative changes in weather conditions over time and space (<i>for example: humidity, temperature, air pressure, cloud cover, wind, precipitation</i>)</p>	<p>Student Edition: 370-377, 382-393, 408-413 <i>Explore</i> 369, 381, 397, 407 <i>Focus on Skills</i> 378-379 <i>Quick Lab</i> 373, 391, 401, 409 Teacher Wraparound Edition: APK 368, 380, 396; DI 383, 389; DMI 386; FA 377; HA 376</p>
<p>10. there are large-scale and local weather systems (<i>for example: fronts, air masses, storms</i>)</p>	<p>Student Edition: 388-393, 398-403, 408-413 <i>Explore</i> 397, 407 <i>Focus on Skills</i> 378-379 <i>Look and Wonder</i> 396 <i>Quick Lab</i> 391, 401, 409 Teacher Wraparound Edition: APK 396; DI 389, 399; DMI 388, 390, 398; FA 403, 413; HA 376, 392, 402, 412; WU 396</p>
<p><u>Earth's Water</u></p>	
<p>11. the world's water is distributed and circulated through oceans, glaciers, rivers, groundwater, and atmosphere</p>	<p>Student Edition: 244-245, 330-333 <i>Be a Scientist</i> 394-395 <i>Explore</i> 327 <i>Quick Check</i> 245 <i>Quick Lab</i> 331 <i>Read a Diagram</i> 289 <i>Writing in Science</i> 336 Teacher Wraparound Edition: DI 245, 330; DMI 244, 330; FA 335; SB 244, 328; UV 245; WU 326</p>

STANDARDS	PAGE REFERENCES
<p>12. the ocean has a certain composition and physical characteristics (<i>for example: currents, waves, features of the ocean floor, salinity, and tides</i>)</p>	<p>Student Edition: 257-262, 332, 410, 440 <i>Lesson Review</i> 263 <i>Quick Lab</i> 261 <i>Writing in Science</i> 78-79</p> <p>Teacher Wraparound Edition: DI 258, 261; DMI 258, 260, 440; EMI 259; FA 263; SB 439; UV 258</p>
<p><u>Solar System and the Universe</u></p>	
<p>13. there are characteristics (components, composition, size) and scientific theories of origin of the solar system</p>	<p>Student Edition: 446-452, 460-461, 470-474 <i>Explore</i> 469 <i>Math in Science</i> 455 <i>Quick Check</i> 473 <i>Quick Lab</i> 449, 471 <i>Reading in Science</i> 476-477 <i>Writing in Science</i> 454</p> <p>Teacher Wraparound Edition: APK 456; DI 447, 448, 451; DMI 448, 472; FA 453, 465, 475; HA 452, 474; SB 446; UV 451</p>
<p>14. relative motion, axes tilt and positions of the Sun, Earth, and Moon have observable effects (<i>for example: seasons, eclipses, moon phases</i>)</p>	<p>Student Edition: 424, 426-427, 436-440 <i>Be a Scientist</i> 442-443 <i>Explore</i> 433 <i>Quick Lab</i> 427, 439</p> <p>Teacher Wraparound Edition: AM 437; DI 427, 436, 438; DMI 426, 436, 438, 440; FA 441; WU 432</p>
<p>15. the universe consists of many billions of galaxies (each containing many billions of stars) and that vast distances separate these galaxies and stars from one another and from the Earth</p>	<p>Student Edition: 459, 470-473 <i>Explore</i> 457, 469 <i>Quick Lab</i> 459, 471</p> <p>Teacher Wraparound Edition: AE 457; APK 468; DI 459; HA 474; WU 468</p>

STANDARDS	PAGE REFERENCES
16. technology is needed to explore space (<i>for example: telescopes, spectroscopes, spacecraft, life support systems</i>)	<p>Student Edition: 3, 6-9, 422-423, 428, 434 <i>Look and Wonder</i> 420 <i>Quick Check</i> 428 <i>Reading in Science</i> 476-477 <i>Writing in Science</i> 466-467</p> <p>Teacher Wraparound Edition: AM 423; DI 423, 434; DMI 428; ELLS 422; SB 6; WU 420</p>
<p>STANDARD 5: Students understand that the nature of science involves a particular way of building knowledge and making meaning of the natural world.</p>	
1. a controlled experiment must have comparable results when repeated	<p>Student Edition: 4</p> <p>Teacher Wraparound Edition: DMI 4, 10; SB 4</p>
2. scientific knowledge changes as new knowledge is acquired and previous ideas are modified (<i>for example: through space exploration</i>)	<p>Student Edition: 176, 434-435, 446-447, 450-451 <i>Writing in Science</i> 454</p> <p>Teacher Wraparound Edition: DI 434, 447; DMI 176</p>
3. contributions to the advancement of science have been made by people in different cultures and at different times in history	<p>Student Edition: 24, 86-87, 142-144, 148, 172-173, 176, 256, 489, 500, 502 <i>Reading in Science</i> 128-129, 476-477, 520-521, 673</p> <p>Teacher Wraparound Edition: CE 426; DI 87; HA 262</p>
4. models can be used to predict change (<i>for example: computer simulation, video sequence, stream table</i>)	<p>Student Edition: 6-9, 402 <i>Explore</i> 283 <i>Quick Lab</i> 75 <i>Reading in Science</i> 280-281</p> <p>Teacher Wraparound Edition: DI 9; HA 402; SB 8, 9, 398; WU 338</p>

STANDARDS	PAGE REFERENCES
<p>5. there are interrelationships among science, technology and human activity that affect the world</p>	<p>Student Edition: 3-10, 146, 164-166, 176, 344-346, 352-356, 392, 402, 572-576 <i>Be a Scientist</i> 168-169 <i>Explore</i> 351 <i>Literature</i> 134-135 <i>Quick Lab</i> 165, 355, 575 <i>Reading a Science</i> 44-45, 128-129, 280-281, 348-349</p> <p>Teacher Wraparound Edition: DI 87, 355; DMI 176; HA 146, 166; SB 164</p>