



Science

LEVEL RED

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STANDARDS	PAGE REFERENCES
<p>EALR 1 — SYSTEMS: The student knows and applies scientific concepts and principles to understand the properties, structures, and changes in physical, earth/space, and living systems.</p>	
<p>Component 1.1 Properties: Understand how properties are used to identify, describe, and categorize substances, materials, and objects and how characteristics are used to categorize living things.</p>	
<p>Physical Systems</p>	
<p>1.1.1 Properties of Substances</p>	
<p>Understand how to use physical and chemical properties to sort and identify substances. W</p>	<p>Student Edition: 70-73, 75-77, 79, 80-82, 84 <i>LAB 87</i> <i>LaunchLAB 69</i> <i>National Geographic 78</i> Teacher Wraparound Edition: A 77, 78; D 75; LD 72; QD 71; TPK 70; USW 72</p>
<p>1.1.2 Motion of Objects</p>	
<p>Understand the positions, relative speeds, and changes in speed of objects. W</p>	<p>Student Edition: 130-135 <i>Applying Math 131, 132, 134</i> <i>Integrate Earth Science 132</i> <i>LAB 152-153</i> Teacher Wraparound Edition: AS 135; DI 131; QD 134; SJ 134; VL 133</p>

STANDARDS	PAGE REFERENCES
<p>1.1.3 Wave Behavior</p>	
<p>Understand sound waves, water waves, and light waves using wave properties, including amplitude, wavelength, and speed. Understand wave behaviors, including reflection, refraction, transmission, and absorption. W</p>	<p>Student Edition: 226-230, 231-235, 237-241 <i>LAB</i> 236, 244-245 <i>LaunchLAB</i> 225 <i>Mini LAB</i> 238 <i>National Geographic</i> 242</p> <p>Teacher Wraparound Edition: A 228, 235; CD 238; D 233; DI 227, 234, 239; IM 227; LD 240</p>
<p>1.1.4 Forms of Energy</p>	
<p>Understand that energy is a property of matter, objects, and systems and comes in many forms (i.e., heat [thermal] energy, sound energy, light energy, electrical energy, kinetic energy, potential energy, and chemical energy). W</p>	<p>Student Edition: 162-164, 166-167, 170-171, 178-182 <i>Integrate Life Science</i> 164 <i>LAB</i> 183, 184-185 <i>LaunchLAB</i> 161 <i>Mini LAB</i> 167, 176</p> <p>Teacher Wraparound Edition: D 167; DI 164; IL 166; QD 171, 179</p>
<p>Earth and Space Systems</p>	
<p>1.1.5 Nature and Properties of Earth Materials</p>	
<p>Understand how to classify rocks, soils, air, and water into groups based on their chemical and physical properties. W</p>	<p>Student Edition: 256-260, 264-267, 269-271, 272-274, 320-321, 342-345 <i>Applying Science</i> 261 <i>LAB</i> 278-279, 322 <i>Mini LAB</i> 261, 320 <i>National Geographic</i> 268</p> <p>Teacher Wraparound Edition: A 259; AIL 278; D 260; DI 260; QD 260; SJ 344; TFYI 258</p>

STANDARDS	PAGE REFERENCES
Living Systems	
1.1.6 Characteristics of Living Matter	
<p>Understand how to classify organisms by their external and internal structures. W</p>	<p>Student Edition: 477, 498-500, 501-505, 506-511, 512-513, 530-532, 534, 536, 538, 541, 545, 547-548 <i>LAB</i> 482 <i>LaunchLAB</i> 497 <i>National Geographic</i> 514-515, 533 Teacher Wraparound Edition: A 499, 509; AS 500; DI 548; LD 502; QD 517</p>
<p>Component 1.2 Structures: Understand how components, structures, organizations, and interconnections describe systems.</p>	
Systems	
1.2.1 Structure of Physical Earth/Space and Living Systems	
<p>Analyze how the parts of a system interconnect and influence each other. W</p>	<p>Student Edition: 8-9, 213-214, 348-355, 356-361, 380-384, 440-446, 560-572, 618-625 <i>Integrate Health</i> 9 <i>LAB</i> 215, 477, 626 <i>Mini LAB</i> 8 <i>National Geographic</i> 206 Teacher Wraparound Edition: DI 381; LD 207, 382; QD 8; R 11; SJ 8</p>
Physical Systems	
1.2.2 Energy Transfer and Transformation	
<p>Understand how various factors affect energy transfers and that energy can be transformed from one form of energy to another. W</p>	<p>Student Edition: 162-164, 166-168, 174-177, 178-182 <i>Integrate Life Science</i> 164 <i>LAB</i> 183 <i>LaunchLAB</i> 161 Teacher Wraparound Edition: CA 169; DI 180; IM 163; QD 175; SJ 163; TFYI 167</p>

STANDARDS	PAGE REFERENCES
1.2.3 Structure of Matter	
<p>Understand that all matter is made of particles called atoms and that atoms may combine to form molecules and that atoms and molecules can form mixtures. <i>W</i></p>	<p>Student Edition: 98-105, 115-117 <i>Applying Science</i> 115 <i>Integrate Earth Science</i> 117 <i>LAB</i> 118-119</p> <p>Teacher Wraparound Edition: A 102; CC 116; DI 115, 116; IL 103; MM 104; QD 116</p>
Earth and Space Systems	
1.2.4 Components and Patterns of Earth Systems	
<p>Understand the components and interconnections of Earth’s systems. <i>W</i></p>	<p>Student Edition: 292-293, 295-297, 299-305, 323, 325-331, 348-355, 560-572 <i>LAB</i> 298, 306-307 <i>Mini LAB</i> 301 <i>National Geographic</i> 294, 324, 346</p> <p>Teacher Wraparound Edition: A 293, 294; AIL 333; D 303, 351; MM 327</p>
1.2.5 Components of the Solar System and Beyond (Universe)	
<p>Understand the structure of the Solar System. <i>W</i></p>	<p>Student Edition: 448-455 <i>Applying Science</i> 453 <i>LAB</i> 464-465 <i>Mini LAB</i> 450</p> <p>Teacher Wraparound Edition: A 452; D 454; IM 453, 454; LD 450; TPK 448; VL 449, 451</p>
Living Systems	
1.2.6 Structure and Organization of Living Systems	
<p>Understand that specialized cells within multicellular organisms form different kinds of tissues, organs, and organ systems to carry out life functions. <i>W</i></p>	<p>Student Edition: 483-485, 487 <i>Mini LAB</i> 484 <i>National Geographic</i> 486 <i>Science and Society</i> 490</p> <p>Teacher Wraparound Edition: A 486; CA 487; D 485; DI 486; IL 486; QD 485; SJ 484; TPK 483</p>

STANDARDS	PAGE REFERENCES
1.2.7 Molecular Basis of Heredity	
<p>Understand that organisms pass on genetic information in their life cycle and that an organism’s characteristics are determined by both genetic and environmental influences. W</p>	<p>Student Edition: 599-605 <i>Applying Math</i> 603 <i>LAB</i> 606-607 <i>Mini LAB</i> 601</p> <p>Teacher Wraparound Edition: AIL 606; CD 601; D 600, 603; DI 602; IL 600; IM 588F; TPK 599; UA 602</p>
1.2.8 Human Biology	
<p>Understand human life functions and the interconnecting organ systems necessary to maintain human life. W</p>	<p>Student Edition: 560-564, 566-572, 574-576 <i>LAB</i> 573 <i>LaunchLAB</i> 559 <i>Mini LAB</i> 569</p> <p>Teacher Wraparound Edition: A 563, 567; CD 567; D 561; DI 566, 571; LD 562; MM 571; TFYI 564; TPK 560</p>
<p>Component 1.3 Changes: Understand how interactions within and among systems cause changes in matter and energy.</p>	
Physical Systems	
1.3.1 Nature of Force	
<p>Understand factors that affect the strength and direction of forces. W</p>	<p>Student Edition: 136-141, 143 <i>LAB</i> 151 <i>National Geographic</i> 142</p> <p>Teacher Wraparound Edition: A 137; IM 128F, 140; QD 137; TPK 136</p>
1.3.2 Forces to Explain Motion	
<p>Understand how balanced and unbalanced forces can change the motion of objects. W</p>	<p>Student Edition: 137 <i>LAB</i> 151 <i>National Geographic</i> 142</p> <p>Teacher Wraparound Edition: DI 142; QD 137</p>

STANDARDS	PAGE REFERENCES
1.3.3 Conservation of Matter and Energy	
Understand that matter is conserved during physical and chemical changes. <i>W</i>	Student Edition: 84-85, 100 <i>Applying Science</i> 85 Teacher Wraparound Edition: CA 86; IL 85; LD 101; TFYI 100
Earth and Space Systems	
1.3.4 Processes and Interactions in the Earth System	
Understand the processes that continually change the surface of the Earth. <i>W</i>	Student Edition: 292-293, 295-297, 299-305, 316-321, 323, 325-331 <i>Applying Science</i> 304 <i>Mini LAB</i> 301, 319 <i>National Geographic</i> 294, 324 Teacher Wraparound Edition: A 293, 294; D 303; DI 295, 328; IL 317; MM 327; QD 292, 300; TFYI 301
1.3.5 History and Evolution of the Earth	
Understand how fossils and other evidence are used to document life and environmental changes over time. <i>W</i>	Student Edition: 270-271, 317, 319-321 <i>Mini LAB</i> 270 Teacher Wraparound Edition: TFYI 270
1.3.6 Hydrosphere and Atmosphere	
Analyze the relationship between weather and climate and how ocean currents and global atmospheric circulation affect weather and climate. <i>W</i>	Student Edition: 344-345, 347, 348-355, 356-361, 380-384 <i>LAB</i> 364-365 <i>Mini LAB</i> 359 <i>National Geographic</i> 346 Teacher Wraparound Edition: A 350; AIL 364; CC 358, 360; CD 353; D 351, 381; DI 361; IL 353

STANDARDS	PAGE REFERENCES
1.3.7 Interactions in the Solar System and Beyond (Universe)	
Understand the effects of the regular and predictable motions of planets and moons in the Solar System. W	Student Edition: 440-446, 448 <i>LAB 447</i> <i>Mini LAB 441</i> Teacher Wraparound Edition: A 443, 445; CD 444; IM 453; LD 450; TPK 440; VL 442, 443
Living Systems	
1.3.8 Life Processes and the Flow of Matter and Energy	
Understand how individual organisms, including cells, obtain matter and energy for life processes. W	Student Edition: 478-481, 501, 506-507, 509-510, 531, 563-564, 566, 630, 633-635 <i>LAB 482, 488-489, 520-521</i> <i>LaunchLAB 559</i> <i>National Geographic 565</i> Teacher Wraparound Edition: LD 480; TC 558; TFYI 564; UA 479; VL 634
1.3.9 Biological Evolution	
Understand how the theory of biological evolution accounts for species diversity, adaptation, natural selection, extinction, and change in species over time. W	Student Edition: Expression of traits, diversity, and adaptation: 535, 538, 542, 545-549, 600-605 <i>National Geographic 514-515, 533</i> Teacher Wraparound Edition: A 538, 547; D 552; DI 533, 542; TPK 618
1.3.10 Interdependence of Life	
Understand how organisms in ecosystems interact with and respond to their environment and other organisms. W	Student Edition: 618-620, 622-625, 627-632 <i>LAB 626, 636-637</i> <i>LaunchLAB 617</i> <i>Mini LAB 623, 628</i> <i>National Geographic 621</i> <i>Science and Society 638</i> Teacher Wraparound Edition: A 619, 630; D 630; DI 621; IL 622; QD 624; SJ 621; TFYI 630; VL 619

STANDARDS	PAGE REFERENCES
<p>EALR 2 — INQUIRY: The student knows and applies the skills, processes, and nature of scientific inquiry.</p>	
<p>Component 2.1 Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.</p>	
<p>Investigating Systems</p>	
<p>2.1.1 Questioning</p>	
<p>Understand how to generate a question that can be answered through scientific investigation. W</p>	<p>Student Edition: 6, 12-13 <i>Applying Science</i> 85, 115, 392 <i>LAB</i> 60-61, 87, 88-89, 118-119, 151, 216-217, 322, 332-333, 379, 396-397, 447, 488-489 Teacher Wraparound Edition: A 5; AIL 216, 333; IM 10</p>
<p>2.1.2 Planning and Conducting Safe Investigations</p>	
<p>Understand how to plan and conduct scientific investigations. W</p>	<p>Student Edition: 12-20, 27-29, 678-686 <i>LAB</i> 32-33 <i>Mini LAB</i> 14 Teacher Wraparound Edition: AIL 32; D 15; DI 16; IL 17; IM 15; LD 14; QD 18; VL 13</p>
<p>2.1.3 Explaining</p>	
<p>Apply understanding of how to construct a scientific explanation using evidence and inferential logic. W</p>	<p>Student Edition: 16, 27-29 <i>LAB</i> 31, 32-33, 151, 183, 216-217, 244-245, 332-333, 365, 488-489 <i>Mini LAB</i> 23 Teacher Wraparound Edition: TFYI 16</p>
<p>2.1.4 Modeling</p>	
<p>Analyze how models are used to investigate objects, events, systems, and processes. W</p>	<p>Student Edition: 21-23, 25-26, 100-105, 681 <i>LAB</i> 216-217, 236, 306-307, 396-397 <i>Mini LAB</i> 212 <i>National Geographic</i> 24 <i>Science and History</i> 120 Teacher Wraparound Edition: A 24; D 22, 101; DI 24; IL 103; LD 174; MM 25; TPK 21</p>

STANDARDS	PAGE REFERENCES
2.1.5 Communicating	
Apply understanding of how to report investigations and explanations of objects, events, systems, and processes. <i>W</i>	Student Edition: 17, 56-59, 686, 701-704 <i>Applying Math 17</i> <i>Communicating Your Data</i> 333, 379, 447, 489, 521 <i>LAB</i> 60-61, 151, 152-153, 277 Teacher Wraparound Edition: A 28; D 58; LD 57; R 59
Component 2.2 Nature of Science: Understand the nature of scientific inquiry.	
Nature of Science	
2.2.1 Intellectual Honesty	
Apply curiosity, honesty, skepticism, and openness when considering explanations and conducting investigations. <i>W</i>	Student Edition: 6-7, 13, 27-30, 685-686 <i>LAB</i> 31 Teacher Wraparound Edition: D 29; DI 16; IM 7; TPK 27; USW 7; VL 7
2.2.2 Limitations of Science and Technology	
Understand that scientific theories explain facts using inferential logic. <i>W</i>	Student Edition: 7 <i>Mini LAB</i> 23 Teacher Wraparound Edition: D 7; TFYI 16
2.2.3 Evaluating Inconsistent Results	
Analyze inconsistent results from scientific investigations to determine how the results can be explained. <i>W</i>	Student Edition: 16, 29, 685-686 <i>LAB</i> 31, 32-33, 244-245, 364-365 Teacher Wraparound Edition: A 43; AYD 119, 245, 365; CYD 183
2.2.4 Evaluating Methods of Investigation	
Understand how to make the results of scientific investigations reliable and how to make the methods of investigation valid. <i>W</i>	Student Edition: 18, 28-29, 44-49, 682-685 <i>Mini LAB</i> 44 Teacher Wraparound Edition: CD 18; D 15, 29, 45; IL 48; QD 18; R 30

STANDARDS	PAGE REFERENCES
2.2.5 Evolution of Scientific Ideas	
<p>Understand that increased comprehension of systems leads to new inquiry. W</p>	<p>Student Edition: 99-105, 138-143 <i>Integrate History</i> 99 <i>LAB</i> 32-33 <i>National Geographic</i> 108 <i>Science and History</i> 90, 120 Teacher Wraparound Edition: AIL 32; CC 15, 99; CD 18; D 18, 90; DI 16, 104; IM 15</p>
<p>EALR 3 — APPLICATION: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.</p>	
<p>Component 3.1 Designing Solutions: Apply knowledge and skills of science and technology to design solutions to human problems or meet challenges.</p>	
Designing Solutions	
3.1.1 Identifying Problems	
<p>Analyze common problems or challenges in which scientific design can be or has been used to design solutions. W</p>	<p>Student Edition: 77, 79, 146-150, 202-204, 213-214, 410-413 <i>Applying Science</i> 115, 392 <i>LAB</i> 88-89, 152-153 <i>National Geographic</i> 206 <i>Science and Society</i> 490 Teacher Wraparound Edition: A 149; AIL 88, 152, 216; CC 173; CD 75, 149, 376</p>
3.1.2 Designing and Testing Solutions	
<p>Apply the scientific design process to develop and implement solutions to problems or challenges. W</p>	<p>Student Edition: <i>Applying Science</i> 115, 453 <i>LAB</i> 152-153, 379, 396-397, 414, 430-431, 464-465, 668-669 Teacher Wraparound Edition: AIL 464</p>

STANDARDS	PAGE REFERENCES
3.1.3 Evaluating Potential Solutions	
<p>Analyze multiple solutions to a problem or challenge. <i>W</i></p>	<p>Student Edition: <i>Applying Science</i> 115, 665 <i>LAB</i> 152-153, 215, 430-431, 464-465, 636-637 <i>Mini LAB</i> 147 <i>Science and Society</i> 432 Teacher Wraparound Edition: AIL 668</p>
<p>Component 3.2 Science, Technology, and Society: Analyze how science and technology are human endeavors, interrelated to each other, society, the workplace, and the environment.</p>	
<p>Science, Technology, and Society</p>	
3.2.1 All Peoples Contribute to Science and Technology	
<p>Analyze how science and technology have been developed, used, and affected by many diverse individuals, cultures, and societies throughout human history.</p>	<p>Student Edition: 99-105, 138 <i>National Geographic</i> 108 <i>Science and History</i> 34, 90, 218, 582 Teacher Wraparound Edition: CC 15, 173, 262, 352, 416; CD 75, 145, 149, 166, 238, 292, 416; DI 104, 205</p>
3.2.2 Relationship of Science and Technology	
<p>Analyze scientific inquiry and scientific design and understand how science supports technological development and vice versa. <i>W</i></p>	<p>Student Edition: 11, 146-150, 213-214, 410-413, 415-418, 420-422, 423-429 <i>LAB</i> 216-217, 363, 364-365 <i>National Geographic</i> 142, 206, 419 Teacher Wraparound Edition: CC 425; DI 142, 147, 213; SJ 411</p>
3.2.3 Careers and Occupations Using Science, Mathematics, and Technology	
<p>Analyze the use of science, mathematics, and technology within occupational/career areas of interest.</p>	<p>Student Edition: 9-11 <i>Integrate Career</i> 13, 104, 418, 442, 485, 538, 604 <i>Integrate Earth Science</i> 117 <i>Integrate Physics</i> 577 Teacher Wraparound Edition: AIL 32; CC 99; DI 10; IC 13; R 582; TFYI 9</p>

STANDARDS	PAGE REFERENCES
3.2.4 Environmental and Resource Issues	
Analyze how human societies' use of natural resources affects the quality of life and the health of ecosystems. W	Student Edition: 646-653, 655-662 <i>LAB</i> 654, 668-669 <i>LaunchLAB</i> 645 Teacher Wraparound Edition: A 657; AIL 668; CC 661; CD 658; DI 657; IL 659; IM 657; MM 656; SJ 656