



Science

LEVEL GREEN

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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: 36-40, 55 #22, 594-598, 615 #22, #23 <i>Applying Science</i> 38 <i>Lab</i> 48, 599 <i>Mini LAB</i> 40, 597</p> <p>Teacher Wraparound Edition: A 598; LD 38; R 598; SCB 592E, F; TFYI 595; VL 604</p>

STANDARDS	PAGE REFERENCES
1.1.2 Motion of Objects	
Understand the positions, relative speeds, and changes in speed of objects. W	Student Edition: 684-689, 690-691, 717-718 <i>Applying Math</i> 686, 688 <i>Launch Lab</i> 683 <i>Mini LAB</i> 687 Teacher Wraparound Edition: ACT 687; DI 689; TFYI 685
1.1.3 Wave Behavior	
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	Student Edition: 93, 99-100, 102, 103, 161-162, 454, 719, 725, 736 Teacher Wraparound Edition: L 167; VL 454
1.1.4 Forms of Energy	
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	Student Edition: 653-654, 657-659, 716-720, 721-723, 725-727, 729-737 <i>National Geographic</i> 724 Teacher Wraparound Edition: DI 720; IM 725; LD 722; ML 723; SJ 719; TFYI 725, 734; UTIL 738
Earth and Space Systems	
1.1.5 Nature and Properties of Earth Materials	
Understand how to classify rocks, soils, air, and water into groups based on their chemical and physical properties. W	Student Edition: 36-40, 67-70, 71-77, 55 #22, 253, 594-598, 615 #22, #23 <i>Applying Science</i> 38 <i>Lab</i> 48, 66, 78, 599 <i>Mini LAB</i> 40, 597 Teacher Wraparound Edition: A 598; LD 38; R 598; SCB 592E, F; TFYI 595; VL 604

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: 214-217, 218-220, 224-230, 306-308 <i>Lab</i> 231 <i>Launch Lab</i> 213 <i>National Geographic</i> 309 Teacher Wraparound Edition: A 220; D 220; DI 219; QD 216, 224</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: 148-151, 152-155, 156-157, 160-166, 178-183, <i>Applying Science</i> 150 <i>Lab</i> 167, 168-169 <i>National Geographic</i> 158-159 <i>TIME Science and History</i> 170 Teacher Wraparound Edition: D 163; IM 157; TFYI 162; TQA 155</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: 657-659, 661-664, 684-689, 690-693, 694-698, 702-705, 716-720, 721-723, 725-727 <i>Lab</i> 728 <i>National Geographic</i> 660, 724 Teacher Wraparound Edition: D 725, 736</p>

STANDARDS	PAGE REFERENCES
1.2.3 Structure of Matter	
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. W	Student Edition: 246-249, 253, 564, 620-628, 720, 730-737 Teacher Wraparound Edition: D 248; FF 731; QD 249; TFYI 247, 249
Earth and Space Systems	
1.2.4 Components and Patterns of Earth Systems	
Understand the components and interconnections of Earth's systems. W	Student Edition: 61-67, 67-77, 90-97, 99-104, 106-107, 118-125, 148-157 <i>Design Your Own Lab</i> 108-109 <i>Integrate Life Science</i> 96 <i>National Geographic</i> 60, 105, 158-159 Teacher Wraparound Edition: IM 88F; LD 94; TFYI 104, 106
1.2.5 Components of the Solar System and Beyond (Universe)	
Understand the structure of the Solar System. W	Student Edition: 194-201 <i>Applying Science</i> 197 <i>Mini LAB</i> 199 <i>Model and Invent Lab</i> 202 Teacher Wraparound Edition: D 198, 200; DI 201; QD 200; SJ 196; TFYI 195, 198
Living Systems	
1.2.6 Structure and Organization of Living Systems	
Understand that specialized cells within multicellular organisms form different kinds of tissues, organs, and organ systems to carry out life functions. W	Student Edition: 230, 254-258, 261-265, 407, 414, 440, 444-448, 450 <i>Lab</i> 231, 266-265 Teacher Wraparound Edition: DI 230

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: 306-308, 314-320, 321-323 <i>Applying Math</i> 311 <i>Design Your Own Lab</i> 324-325 <i>Lab</i> 313 <i>Launch Lab</i> 305 <i>Mini LAB</i> 308, 316 <i>National Geographic</i> 309 Teacher Wraparound Edition: D 310; IL 307; QD 311; TFYI 317</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: 214-221, 255, 366-370, 371-376, 400-404, 412-415, 419-423, 434-437, 444-448, 449-457 <i>Design Your Own Lab</i> 458 <i>Launch Lab</i> 683 Teacher Wraparound Edition: IM 446; TFYI 447, 456</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: 666-673, 684-689, 690-693, 694-698, 700, 702-705 <i>Applying Math</i> 671, 688 <i>Design Your Own Lab</i> 674-675 <i>Lab</i> 701 <i>Launch Lab</i> 683 Teacher Wraparound Edition: A 693; DI 693; IL 698; IM 691; TFYI 685, 692</p>

STANDARDS	PAGE REFERENCES
1.3.2 Forces to Explain Motion	
Understand how balanced and unbalanced forces can change the motion of objects. <i>W</i>	Student Edition: 702-703 <i>Design Your Own Lab</i> 706-707 <i>Mini LAB</i> 704 <i>TIME Science and Society</i> 708 Teacher Wraparound Edition: D 708; DI 705; FF 704; IM 703; SJ 703; TFYI 704
1.3.3 Conservation of Matter and Energy	
Understand that matter is conserved during physical and chemical changes. <i>W</i>	Student Edition: 72-73, 609, 652-656, 657-659, 662-664 <i>National Geographic</i> 660 Teacher Wraparound Edition: D 73; IM 659; SJ 73
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: 58-59, 77, 96-97, 99-102, 106-107, 118-121, 129-130, 132-133, 160-166 <i>Design Your Own Lab</i> 108-109 <i>National Geographic</i> 60, 131, 158-159 <i>TIME Science and History</i> 170 Teacher Wraparound Edition: ILS 96; TFYI 165
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: 58-59, 61, 343-345, 347 <i>National Geographic</i> 60, 346 Teacher Wraparound Edition: FF 344; QD 345; SJ 344; TFYI 344

STANDARDS	PAGE REFERENCES
1.3.6 Hydrosphere and Atmosphere	
<p>Analyze the relationship between weather and climate and how ocean currents and global atmospheric circulation affect weather and climate. W</p>	<p>Student Edition: 95, 99-102, 103-104, 106-107, 118-125, 126-130, 132-133, 134-136, 148-151, 152-153, 160-166 <i>Design Your Own Lab</i> 108-109 <i>Launch Lab</i> 117 <i>National Geographic</i> 105, 131, 158-159 Teacher Wraparound Edition: IM 123; QD 104; TFYI 119, 122, 124</p>
1.3.7 Interactions in the Solar System and Beyond (Universe)	
<p>Understand the effects of the regular and predictable motions of planets and moons in the Solar System. W</p>	<p>Student Edition: 178-183, 184-190, 194-201 <i>Applying Science</i> 197 <i>Model and Invent Lab</i> 202-203 <i>TIME Science and Society</i> 204 Teacher Wraparound Edition: IL 198; QD 180, 200; TFYI 182, 186, 197</p>
Living Systems	
1.3.8 Life Processes and the Flow of Matter and Energy	
<p>Understand how individual organisms, including cells, obtain matter and energy for life processes. W</p>	<p>Student Edition: 216-217, 226, 228-229, 250-251, 258, 261-265, 405-410 <i>Lab</i> 266-267 <i>National Geographic</i> 259 Teacher Wraparound Edition: IM 262; MAM 409; QD 406; SJ 262; TFYI 216, 408</p>
1.3.9 Biological Evolution	
<p>Understand how the theory of biological evolution accounts for species diversity, adaptation, natural selection, extinction, and change in species over time. W</p>	<p>Student Edition: 334-337, 338-341, 343-345, 347-349, 350-353 <i>Applying Science</i> 337 <i>Design Your Own Lab</i> 354-355 Lab 342 Teacher Wraparound Edition: DI 336, 337; TFYI 344, 348; VL 348</p>

STANDARDS	PAGE REFERENCES
1.3.10 Interdependence of Life	
<p>Understand how organisms in ecosystems interact with and respond to their environment and other organisms. W</p>	<p>Student Edition: 532-536, 539-543, 544, 546-547 <i>Applying Science</i> 546 <i>Lab</i> 550-551 <i>Launch Lab</i> 531 <i>Mini LAB</i> 542 <i>National Geographic</i> 545 Teacher Wraparound Edition: DI 533; FF 545; QD 547; SJ 542</p>
<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: 4E, F, 13-14 <i>Design Your Own Lab</i> 108-109, 458-459 <i>Lab</i> 19, 20-21 <i>Mini LAB</i> 95 <i>Model and Invent Lab</i> 138-139 <i>National Geographic</i> 15 <i>Student Skills Handbook</i> 751-752 Teacher Wraparound Edition: A 664, 669; IL 16; RWQ 19</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: <i>Design Your Own Lab</i> 108-109, 236-237, 324-325, 354-355, 390-391, 458-459, 550-551 <i>Lab</i> 48-49, 98, 260 Teacher Wraparound Edition: IL 282</p>

STANDARDS	PAGE REFERENCES
2.1.3 Explaining	
<p>Apply understanding of how to construct a scientific explanation using evidence and inferential logic. W</p>	<p>Student Edition: <i>Design Your Own Lab</i> 108-109, 324-325 <i>Lab</i> 19, 35, 48-49, 66, 78-79, 98, 313, 478, 577 <i>Launch Lab</i> 29 <i>Mini LAB</i> 72, 569 Teacher Wraparound Edition: LD 596; SJ 597</p>
2.1.4 Modeling	
<p>Analyze how models are used to investigate objects, events, systems, and processes. W</p>	<p>Student Edition: <i>Design Your Own Lab</i> 108-109, 424-425, 674-675 <i>Lab</i> 20-21, 167, 168-169, 260, 266-267 <i>Launch Lab</i> 5, 177, 467 <i>Mini LAB</i> 59, 101, 157, 186, 225, 291, 368, 548 <i>Model and Invent Lab</i> 138-139, 202-203, 582-583</p>
2.1.5 Communicating	
<p>Apply understanding of how to report investigations and explanations of objects, events, systems, and processes. W</p>	<p>Student Edition: 12-18, 326 <i>Design Your Own Lab</i> 108-109, 354-355, 424-425 <i>Lab</i> 48-49, 538, 599, 665, 701 <i>Mini LAB</i> 120 <i>Model and Invent Lab</i> 138-139, 202-203 Teacher Wraparound Edition: IL 128</p>
<p>Component 2.2 Nature of Science: Understand the nature of scientific inquiry.</p>	
<p>Nature of Science</p>	
2.2.1 Intellectual Honesty	
<p>Apply curiosity, honesty, skepticism, and openness when considering explanations and conducting investigations. W</p>	<p>Student Edition: <i>Design Your Own Lab</i> 108-109, 236-237 <i>Model and Invent Lab</i> 138-139 <i>TIME Science and Society</i> 140 <i>Use the Internet Lab</i> 296-297 Teacher Wraparound Edition: IL 161</p>

STANDARDS	PAGE REFERENCES
2.2.2 Limitations of Science and Technology	
<p>Understand that scientific theories explain facts using inferential logic. W</p>	<p>Student Edition: 12-14, 16-18 <i>Lab 19</i> <i>Mini LAB 14</i> <i>National Geographic 15</i> Teacher Wraparound Edition: LD 14; TFYI 13</p>
2.2.3 Evaluating Inconsistent Results	
<p>Analyze inconsistent results from scientific investigations to determine how the results can be explained. W</p>	<p>Student Edition: 4F <i>Lab 48-49, 313</i> <i>Model and Invent Lab 138-139, 202-203</i> Teacher Wraparound Edition: AYD 21, 49, 109, 237, 267, 325, 355</p>
2.2.4 Evaluating Methods of Investigation	
<p>Understand how to make the results of scientific investigations reliable and how to make the methods of investigation valid. W</p>	<p>Student Edition: 4E, F, 6-11, 16-18 <i>Lab 20-21</i> Teacher Wraparound Edition: AYD 21, 49, 109, 237, 267, 325, 355</p>
2.2.5 Evolution of Scientific Ideas	
<p>Understand that increased comprehension of systems leads to new inquiry. W</p>	<p>Student Edition: <i>Design Your Own Lab 236-237</i> <i>Identifying Misconceptions 244F</i> Teacher Wraparound Edition: AYD 21, 49, 109, 237, 267, 325, 355</p>

STANDARDS	PAGE REFERENCES
EALR 3 — APPLICATION: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	
Component 3.1 Designing Solutions: Apply knowledge and skills of science and technology to design solutions to human problems or meet challenges.	
Designing Solutions	
3.1.1 Identifying Problems	
Analyze common problems or challenges in which scientific design can be or has been used to design solutions. W	Student Edition: 590, 723, 731-733, 737 <i>Design Your Own Lab</i> 236-237, 610-611 <i>Invent</i> 460 <i>Model and Invent Lab</i> 138-139, 202-203, 582-583 Teacher Wraparound Edition: DI 732, 734, 735, 736; IL128, 574
3.1.2 Designing and Testing Solutions	
Apply the scientific design process to develop and implement solutions to problems or challenges. W	Student Edition: 732-733, 737 <i>Invent</i> 460 <i>Model and Invent Lab</i> 138-139, 202-203, 582-583 Teacher Wraparound Edition: A 736; DI 732, 734, 735, 736; IL128, 574; SJ 735
3.1.3 Evaluating Potential Solutions	
Analyze multiple solutions to a problem or challenge. W	Student Edition: 732, 733, 737 <i>Invent</i> 460 <i>Model and Invent Lab</i> 138-139, 202-203, 582-583 Teacher Wraparound Edition: AYD 49, 109, 237, 267, 325, 355

STANDARDS	PAGE REFERENCES
<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>	
<p>3.2.1 All Peoples Contribute to Science and Technology</p>	
<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: 6-11, 234 <i>Integrate History</i> 369, 502, 634 <i>Integrate Social Studies</i> 229, 408, 708 <i>National Geographic</i> 222-223 <i>TIME Science and History</i> 392 <i>TIME Science and Social Studies</i> 140, 204, 426, 708 Teacher Wraparound Edition: CD 9, 182, 188; TFYI 10</p>
<p>3.2.2 Relationship of Science and Technology</p>	
<p>Analyze scientific inquiry and scientific design and understand how science supports technological development and vice versa. W</p>	<p>6-11, 234 <i>Integrate History</i> 369, 502, 634 <i>Integrate Social Studies</i> 229, 408, 708 <i>National Geographic</i> 222-223 <i>TIME Science and History</i> 392 <i>TIME Science and Social Studies</i> 140, 204, 426, 708 Teacher Wraparound Edition: CD 182, 188</p>
<p>3.2.3 Careers and Occupations Using Science, Mathematics, and Technology</p>	
<p>Analyze the use of science, mathematics, and technology within occupational/career areas of interest.</p>	<p>Student Edition: <i>Integrate Astronomy</i> 605 <i>Integrate Career</i> 74, 161, 196, 263, 277, 317, 480, 534, 631</p>
<p>3.2.4 Environmental and Resource Issues</p>	
<p>Analyze how human societies' use of natural resources affects the quality of life and the health of ecosystems. W</p>	<p>Student Edition: 96-97, 163-165, 568-576, 578-581, 730 <i>Lab</i> 167, 577 <i>Mini LAB</i> 569 <i>Science Online</i> 163, 580 Teacher Wraparound Edition: DI 572; TFYI 570, 575; TTPK 568</p>