



Science

LEVEL BLUE

© 2005

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: 434-440, 441-447, 448-452 <i>Applying Science</i> 439 <i>Mini LAB</i> 435</p> <p>Teacher Wraparound Edition: FF 434; FYI 449; IC 228; IL 446; LD 439; SJ 437, 438; TH 432; UA 437</p>

STANDARDS	PAGE REFERENCES
1.1.2 Motion of Objects	
Understand the positions, relative speeds, and changes in speed of objects. W	<p>Student Edition: 550-555, 556-562, 563-568 <i>Applying Math</i> 559 <i>Lab</i> 569, 570-571 <i>Mini LAB</i> 554 <i>National Geographic</i> 565 <i>Science and Society</i> 572</p> <p>Teacher Wraparound Edition: AC 552, 553; FYI 559; IM 558; LD 567; SJ 559; TPK 550, 556</p>
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	<p>Student Edition: 694-700, 701-705, 707-713 <i>Applying Math</i> 698 <i>Mini LAB</i> 699, 710 <i>National Geographic</i> 712</p> <p>Teacher Wraparound Edition: AC 696; AP 692; D 709; DI 695; FYI 696, 697; IHE 703; QD 697, 703; SC 692E</p>
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	<p>Student Edition: 608-611, 612-617, 619, 643-645, 694, 697, 708-710 <i>Lab</i> 618 <i>Launch Lab</i> 607 <i>Mini LAB</i> 614, 615 <i>National Geographic</i> 621</p> <p>Teacher Wraparound Edition: FF 613; IC 645; MM 616; TC 606; TPK 619</p>
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	<p>Student Edition: 150-153, 154-161, 163-169, 261 <i>Mini LAB</i> 158, 164</p> <p>Teacher Wraparound Edition: AC 159; D 167; FYI 165; IC 165; IES 160; MM 157; SC 148E; TPK 150, 163; US 156</p>

STANDARDS	PAGE REFERENCES
Living Systems	
1.1.6 Characteristics of Living Matter	
Understand how to classify organisms by their external and internal structures. W	Student Edition: 38-42, 44-48 <i>Applying Math</i> 47 <i>Mini LAB</i> 40, 46 Teacher Wraparound Edition: DI 39; FYI 39, 47; IL 47; LD 41; QD 45; RC 39; TPK 44; UA 39
Component 1.2 Structures: Understand how components, structures, organizations, and interconnections describe systems.	
Systems	
1.2.1 Structure of Physical Earth/Space and Living Systems	
Analyze how the parts of a system interconnect and influence each other. W	Student Edition: 68-71, 73-81, 95-97, 150-153, 163-169 <i>Mini LAB</i> 164 <i>Science Stats</i> 84 Teacher Wraparound Edition: AS 71; D 151; DLI 81; FYI 78, 79, 80; IL 168; IM 153; SC 62F; TPK 73; VL 76
Physical Systems	
1.2.2 Energy Transfer and Transformation	
Understand how various factors affect energy transfers and that energy can be transformed from one form of energy to another. W	Student Edition: 76-77, 136-139, 498-501, 619-620 <i>Applying Math</i> 498 <i>Mini LAB</i> 76 <i>National Geographic</i> 134 Teacher Wraparound Edition: A 137; D 137, 499, 500; FYI 138, 499; SJ 498; TPK 619; UA 138

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. W</p>	<p>Student Edition: 257, 404-411, 464-466, 472-480, 492-501 <i>Applying Math</i> 498 <i>Lab</i> 481, 482-483 <i>Mini LAB</i> 411, 496 <i>National Geographic</i> 478, 493 Teacher Wraparound Edition: FYI 499; IP 473; MM 405, 496</p>
Earth and Space Systems	
1.2.4 Components and Patterns of Earth Systems	
<p>Understand the components and interconnections of Earth's systems. W</p>	<p>Student Edition: 94-97, 98-105, 106-110 <i>Applying Science</i> 101 <i>Lab</i> 111, 112-113 <i>Mini LAB</i> 99, 103 <i>National Geographic</i> 104 <i>Science and History</i> 114 Teacher Wraparound Edition: D 97, 109; IC 107; QD 95, 102; SC 92E</p>
1.2.5 Components of the Solar System and Beyond (Universe)	
<p>Understand the structure of the Solar System. W</p>	<p>Student Edition: 334-340, 342-347, 348-355, 356-359 <i>Applying Math</i> 346 <i>Lab</i> 341 <i>Mini LAB</i> 345, 350 <i>National Geographic</i> 339 Teacher Wraparound Edition: CDV 350; FYI 342, 358; IL 346; IP 338; MM 337; SC 304E</p>

STANDARDS	PAGE REFERENCES
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. W</p>	<p>Student Edition: 44-48, 64-71, 73-81, 711-713 <i>Applying Math</i> 47, 77 <i>National Geographic</i> 69, 712 <i>Science Stats</i> 84</p> <p>Teacher Wraparound Edition: DI 76; FF 66; FYI 67, 75; IL 68; SJ 77; TPK 64</p>
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: 36-42, 44-48, 49-53 <i>Applying Math</i> 47 <i>Mini LAB</i> 40 <i>National Geographic</i> 51</p> <p>Teacher Wraparound Edition: D 42; DI 39, 45, 52; FYI 39, 47, 52, 53; IL 47; SJ 46</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: 64-71, 73-81 <i>Applying Math</i> 77 <i>National Geographic</i> 69 <i>Science Stats</i> 84</p> <p>Teacher Wraparound Edition: AC 66, 69; CC 66; DI 76; FYI 75, 79; IL 68; SJ 77; TPK 64, 73; VL 68, 70</p>

STANDARDS	PAGE REFERENCES
<p>Component 1.3 Changes: Understand how interactions within and among systems cause changes in matter and energy.</p>	
<p>Physical Systems</p>	
<p>1.3.1 Nature of Force</p>	
<p>Understand factors that affect the strength and direction of forces. W</p>	<p>Student Edition: 533-538, 550-555, 556-562, 563-568 <i>Applying Math</i> 534, 559 <i>Lab</i> 539, 569, 570-571 <i>National Geographic</i> 537 <i>Science and Society</i> 572 Teacher Wraparound Edition: A 552; DI 561; FYI 535, 559</p>
<p>1.3.2 Forces to Explain Motion</p>	
<p>Understand how balanced and unbalanced forces can change the motion of objects. W</p>	<p>Student Edition: 533-538, 550-555, 556-562, 563-568 <i>Applying Math</i> 534 <i>Lab</i> 569, 570-571 <i>Mini LAB</i> 567 <i>National Geographic</i> 537, 565 <i>Science and Society</i> 572 Teacher Wraparound Edition: A 568; DI 561; FF 534; IL 564; VL 535</p>
<p>1.3.3 Conservation of Matter and Energy</p>	
<p>Understand that matter is conserved during physical and chemical changes. W</p>	<p>Student Edition: 496-501 <i>Applying Math</i> 498 <i>Mini LAB</i> 496 Teacher Wraparound Edition: CC 496; DI 497; FF 497; MM 496; VL 496</p>

STANDARDS	PAGE REFERENCES
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: 122-128, 130-135, 150-153, 182-185, 190-199 <i>Mini LAB</i> 124, 133, 182 <i>National Geographic</i> 134, 152 <i>Science Stats</i> 142 Teacher Wraparound Edition: CDV 195; FF 191; FYI 197, 198; MM 196
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: 182-185, 190-199, 242-249, 250-255, 257-261 <i>Mini LAB</i> 184, 243 <i>National Geographic</i> 193, 253 Teacher Wraparound Edition: FF 245, 251; FYI 184, 244, 259; RC 247; VL 185
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: 122-128, 130-135, 150-153, 184, 248-249 <i>Applying Math</i> 126 <i>Mini LAB</i> 124, 133, 184 <i>National Geographic</i> 134, 152 Teacher Wraparound Edition: D 151; FYI 131, 184; ILS 248; IM 131; RC 135
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. <i>W</i>	Student Edition: 306-311, 312-320, 340 <i>Lab</i> 321, 341 <i>Mini LAB</i> 308, 313 <i>National Geographic</i> 339 Teacher Wraparound Edition: CA 309; CDV 307; FF 309; FYI 309, 314; ILS 307; SJ 313; VL 309

STANDARDS	PAGE REFERENCES
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: 68-71, 73-78, 98-105, 106-110, 136-139 <i>Applying Math</i> 77 <i>Lab</i> 72, 112-113, 140-141 <i>Launch LAB</i> 93 <i>National Geographic</i> 69 Teacher Wraparound Edition: A 75; FYI 138; IC 107; IL 69; TPK 98, 136</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: 50-53, 274-278 <i>National Geographic</i> 51 Teacher Wraparound Edition: D 275, 277; FYI 52, 53, 275; IM 274; MM 275; RC 50; SJ 50, 275; US 274; VL 52, 277</p>
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: 150-153, 154-161, 163-169 <i>Launch LAB</i> 93 <i>Mini LAB</i> 158, 164 <i>National Geographic</i> 152 Teacher Wraparound Edition: CA 168; D 151; DI 152; FF 155; FYI 155; IC 165; IES 160; IM 153; SJ 166; TH 92; TPK 154</p>

STANDARDS	PAGE REFERENCES
EALR 2 — INQUIRY: The student knows and applies the skills, processes, and nature of scientific inquiry.	
Component 2.1 Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	
Investigating Systems	
2.1.1 Questioning	
Understand how to generate a question that can be answered through scientific investigation. W	Student Edition: 6-11, 13-23, 724-732 <i>Applying Science</i> 14 <i>Mini LAB</i> 9 Teacher Wraparound Edition: A 15; CA 8; D 8; FF 7; FYI 7; IM 4F; SC 4E; TPK 13; UA 8; US 10
2.1.2 Planning and Conducting Safe Investigations	
Understand how to plan and conduct scientific investigations. W	Student Edition: 6-11, 13-23, 724-732 <i>Mini LAB</i> 9 <i>National Geographic</i> 20 Teacher Wraparound Edition: A 15; CA 8; CDV 10; D 8, 19; FF 7; FYI 7, 14; IE 15; UA 8; US 10
2.1.3 Explaining	
Apply understanding of how to construct a scientific explanation using evidence and inferential logic. W	Student Edition: 6-11, 13-23, 724-732, 762-766 <i>Mini LAB</i> 9 <i>National Geographic</i> 20 Teacher Wraparound Edition: A 15, 20, 22; CA 8; CC 22; D 8; DLI 23; FYI 21; US 10
2.1.4 Modeling	
Analyze how models are used to investigate objects, events, systems, and processes. W	Student Edition: 6-11, 13-23, 724-732, 758 Teacher Wraparound Edition: A 15; FYI 16; MM 16; RC 15; SJ 9; VL 9

STANDARDS	PAGE REFERENCES
2.1.5 Communicating	
Apply understanding of how to report investigations and explanations of objects, events, systems, and processes. W	Student Edition: 6-11, 13-23, 724-732, 748-751, 758, 762-766 <i>Applying Science</i> 14 Teacher Wraparound Edition: CC 16, 20; FYI 14; RC 11; SJ 9; VL 9
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. W	Student Edition: 14-15, 732 <i>Mini LAB</i> 9 Teacher Wraparound Edition: A 15; D 8; FYI 10; IS 7; UA 8; US 10, 16
2.2.2 Limitations of Science and Technology	
Understand that scientific theories explain facts using inferential logic. W	Student Edition: 9-10, 24-27, 182-185, 336-337, 404-405, 410-413 <i>Mini LAB</i> 9 Teacher Wraparound Edition: CA 10; D 183; FF 184; FYI 10, 337; IH 412; SJ 191, 410; US 10
2.2.3 Evaluating Inconsistent Results	
Analyze inconsistent results from scientific investigations to determine how the results can be explained. W	Student Edition: 182-185, 336-337, 404-405, 410-413 Teacher Wraparound Edition: D 183; EA 141, 233, 327, 657, 685; FF 184; FYI 337; IH 412; SJ 191, 410
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. W	Student Edition: 8-11, 13-23 <i>Applying Science</i> 14 <i>Mini LAB</i> 9, 18 <i>National Geographic</i> 20 Teacher Wraparound Edition: DI 8; FYI 10; IS 7; RC 11; UA 8; US 10

STANDARDS	PAGE REFERENCES
2.2.5 Evolution of Scientific Ideas	
Understand that increased comprehension of systems leads to new inquiry. W	Student Edition: 182-185, 336-337, 404-405, 410-413 Teacher Wraparound Edition: AS 11; D 183; EA 141, 233, 327, 657, 685; FF 184; FYI 337; IH 412; SJ 191, 410
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: 24-27, 748-750 Teacher Wraparound Edition: A 26; AS 27; D 25, 26; FF 25; IL 25; RC 25; TPK 24
3.1.2 Designing and Testing Solutions	
Apply the scientific design process to develop and implement solutions to problems or challenges. W	Student Edition: 7-11, 13-23, 24-27 <i>National Geographic</i> 20 Teacher Wraparound Edition: A 8; D 25; FF 17, 25; FYI 7, 10, 14, 16, 21; IE 15; SJ 9; TPK 13; VL 9
3.1.3 Evaluating Potential Solutions	
Analyze multiple solutions to a problem or challenge. W	Student Edition: <i>Mini LAB</i> 9, 46, 133, 164, 195, 388, 435 Teacher Wraparound Edition: A 46; CA 132; FYI 102

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: 10-11, 26-27</p> <p>Teacher Wraparound Edition: CDV 10, 40, 65, 95, 126, 133, 155, 160, 195, 222</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>Student Edition: 24-27</p> <p><i>Science and Society</i> 572, 600, 626, 658</p> <p>Teacher Wraparound Edition: D 25, 26; FF 25; IL 25; TPK 24</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: 26-27, 45, 50</p> <p>Teacher Wraparound Edition: IC 50, 127, 165, 197, 317, 444, 467, 622</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: 24-27, 132-133, 164-165, 245, 617</p> <p><i>Mini LAB</i> 133, 164</p> <p><i>Science and Society</i> 172</p> <p>Teacher Wraparound Edition: DI 132; FYI 165; IC 165; IS 245; VL 133</p>