



**IDAHO**  
**Science Standards Grades 6-8**  
***Earth Materials and Processes F***  
***The Changing Surface of Earth G***  
***The Water Planet H***  
***The Air Around You I***  
***Astronomy J***  
**© 2005**

STANDARDS	PAGE REFERENCES
<b>617. SCIENCE STANDARDS - GRADE 6, SECTIONS 618 THROUGH 628.</b>	
<b>618. UNIFYING CONCEPTS OF SCIENCE.</b>	
01. Understand systems, order, and organization.	
a. Know that a system is an organized group of related objects that form a whole.	(F) 106-108 <i>Figure 2 127</i> <i>Applying Science 108</i> <i>Use the Internet 116-117</i> <i>National Geographic Society Visualizing 109</i>
b. Describe the function of each human body system.	(H) 16 (I) 105-106 <i>Integrate Health 105</i>
02. Understand concepts and processes of evidence, models, and explanation.	
a. Know that observations and data are evidence on which to base scientific explanations and predictions.	(F) <i>Section Review 101 #1-5</i> (G) <i>Section Review 41 #2; 48 #3</i> (H) <i>Section Review 43 #2-4</i> (I) SJ 48 (J) <i>Lab 60-61</i>
b. Know the difference between observations and inferences.	(F) <i>MiniLab 9, 18</i> (H) <i>Design Your Own Lab 26-27</i> (J) <i>MiniLab 12</i> <i>Section Review 74 #3</i> <i>Lab 113</i>
c. Use models to explain or demonstrate a concept.	(F) <i>MiniLab 37</i> <i>Model and Invent 88-89</i> QD 71 (G) <i>Model and Invent 144-145</i> (H) <i>MiniLab 80</i> (I) <i>Section Review 84 #6</i>
d. Develop skills to create scientific explanations based on scientific knowledge, logic, and analysis.	(G) 149 #18 <i>Use the Internet 176-177</i> (H) 31 #14,18 DI 23 (I) <i>Section Review 84 #1,4; 51 #1,3,5,6</i> AIL 116

STANDARDS	PAGE REFERENCES
<b>03. Understand constancy, change, and measurement.</b>	
a. Recognize that some concepts in science do not change with time.	(F) 8-9, 11-12 TP 8 (G) 130-131 (H) 8-14 <i>Integrate Life Science 14</i> <i>Section Review 14 #1-6</i>
b. Analyze changes that occur in and among systems.	(F) <i>Use the Internet 116-117</i> CD 158 (G) 156-161 SJ 157 DI 156 (J) CD 41
c. Measure using standard and metric systems with an emphasis on the metric system.	(F) <i>Lab 26-27, 82</i> (G) <i>Lab 25, 113</i> (H) <i>MiniLab 69</i> (I) <i>Lab 85</i> (J) <i>MiniLab 47</i> <i>Lab 75</i>
<b>04. Understand the theory that evolution is a process that relates to the gradual changes in the universe and of equilibrium as a physical state.</b>	
a. Understand the relationships of past, present, and future.	(F) 103-104, 98-101 <i>Section Review 101 #1-5</i> <i>Lab 105</i> ATE 90 CU 104 (G) 129-131, 154 UA 155
<b>05. Understand concepts of form and function.</b>	
a. Understand that the shape or form of an object or system is frequently related to its use or function.	(F) 158, 166-167 (H) 12-13 <i>Section Review 14 #5</i> (I) <i>Integrate Health 105</i> (J) 10-13, 16 <i>Lab 14</i>
<b>619. CONCEPTS OF SCIENTIFIC INQUIRY.</b>	
<b>01. Understand scientific inquiry and develop critical thinking skills.</b>	
a. Develop questions that can be answered by conducting scientific experiments.	(F) <i>Lab 146-147</i> (G) <i>Lab 114-115</i> (H) <i>Lab 58-59</i> (I) <i>Lab 103</i> (J) <i>Lab 55</i>
b. Conduct scientific investigations using controls and variables when appropriate.	(F) <i>Design Your Own Lab 176-177</i> (G) <i>Design Your Own Lab 54-55</i> (H) <i>Design Your Own Lab 118-119</i> (I) <i>Design Your Own Lab 26-27</i> (J) <i>Design Your Own Lab 126-127</i>

STANDARDS	PAGE REFERENCES
c. Select and use appropriate tools and techniques to gather and display data.	(F) <i>Use the Internet</i> 116-117 (G) CYD 115 (H) <i>Science Online</i> 105 (I) CC 46 AC 49 (J) <i>Model and Invent</i> 94-95
d. Analyze data in order to develop descriptions, explanations, predictions, and models using evidence.	(F) <i>Lab</i> 105 (G) <i>Lab</i> 114-115 (H) <i>Use the Internet</i> 148-149 (I) <i>Use the Internet</i> 116-117 (J) <i>Lab</i> 113 <i>Applying Math</i> 80
e. Develop a hypothesis based on observations.	(F) AIL 116 (G) <i>Lab</i> 15 AIL 83 (I) <i>Section Review</i> 73 #4 <i>Use the Internet</i> 116-117
f. Compare alternative explanations and predictions.	(F) <i>Section Review</i> 104 #5 (J) 53-54, 70-71 <i>Section Review</i> 74 #6 TF 71
g. Communicate scientific procedures and explanations.	(F) CYD 89 (G) CYD 83 (H) CYD 15 (I) CYD 117 (J) AIL 126
<b>620. CONCEPTS OF PHYSICAL SCIENCE.</b>	
01. Understand the structure and function of matter and molecules and their interactions.	
a. Explore and describe the differences among elements, compounds, and mixtures.	(F) 11-12, 23-25 <i>Launch Lab</i> 7, 35 AC 84 AS 7 (H) 12-13
b. Explore and calculate properties of matter.	(F) <i>MiniLab</i> 85 (H) <i>Lab</i> 15 <i>MiniLab</i> 11 <i>Science Online</i> 9 QD 10
c. Compare differences among solids, liquids, and gases using the concept of density; explore the effect of temperature on density.	(F) 40, 102-103, 110-111, 159 <i>Section Review</i> 104 #4 <i>MiniLab</i> 111 (H) 11 <i>MiniLab</i> 11 <i>Design Your Own Lab</i> 118-119
d. Understand the nature of physical change and how it relates to physical properties.	(F) <i>Integrate Chemistry</i> 43 (H) 8-10, 108 <i>Section Review</i> 14 #1 SJ 10 IM 12

STANDARDS	PAGE REFERENCES
<b>02. Understand chemical reactions.</b>	
a. Observe and know that substances react with each other to form new substances with different properties.	(F) 46, 67 D 46 (I) 99, 102 VL 102 CC 108
<b>03. Understand concepts of motion and forces.</b>	
a. Observe the effects of different forces (gravity and friction) on the movement, speed, and direction of an object.	(F) Lab 105 Launch Lab 125 Integrate Physics 114 (J) 15-17 Figure 8 17 MiniLab 21
b. Investigate different forms of energy.	(F) 66-71, 73-75, 76-81 Lab 82 Model and Invent 88-89 DI 80 (H) 135 (I) 17-19
<b>621. CELLULAR AND MOLECULAR CONCEPTS.</b>	
01. Understand the cell is the basis of form and function for all living things and how living things carry out their life functions.	
a. Explore the different structural levels of which an organism is comprised: cells, tissues, organs, organ systems, and organisms.	(I) 105 Integrate Health 105
b. Recognize the structural differences between plant and animal cells.	See Glencoe's <i>Life's Structure and Function A</i> © 2005, <i>From Bacteria to Plants B</i> © 2005, and <i>Animal Diversity C</i> © 2005
c. Explore the concept that traits are passed from parents to offspring.	(G) 156-158 Section Review 161 #6 Lab 169 DI 156 CD 158 AC 158
<b>622. INTERDEPENDENCE OR ORGANISMS AND BIOLOGICAL CHANGE.</b>	
No standards of Interdependence of Organisms and Biological Change apply at this grade level.	
<b>623. MATTER, ENERGY, AND ORGANIZATION IN LIVING SYSTEMS.</b>	
01. Understand the relationship between matter, energy, and organization to trace matter as it cycles and energy as it flows through living systems and between living systems and the environment.	
a. Know that the energy for life is primarily derived from the sun through photosynthesis.	(G) 163 Section Review 142 #1 Integrate Chemistry 163 (H) 135-136 (I) 17

STANDARDS	PAGE REFERENCES
<b>624. EARTH AND SPACE SYSTEMS.</b>	
01. Understand scientific theories of origin and subsequent changes in the universe and earth systems.	
a. Investigate the interactions between the solid earth, oceans, atmosphere, and organisms.	(F) DI 164 (G) <i>Integrate Life Science</i> 130 (H) 101, 106-109 <i>Section Review</i> 109 #1,2,4 (I) 36-38 <i>Integrate Life Science</i> 37 <i>Figure 5</i> 40 SJ 47
b. Know the water cycle and its relationship to weather and climate.	(H) 24-25 <i>Section Review</i> 25 #1,5,6 VL 25 AS 25 (I) 19
c. Identify cumulus, cirrus, and stratus clouds and their relationship to weather changes.	(I) 40-42 <i>Section Review</i> 43 #4,5 CC 41 US 41 R 43 D 42
d. Know that fossils are evidence of past life forms.	(F) 99-100 <i>Section Review</i> 101 #3,5 TF 100 (G) 114-131 <i>Integrate Social Studies</i> 127 SJ 129 AC 129
02. Understand geochemical cycles and energy in the earth system.	
a. Know the rock cycle and identify the three classifications of rocks.	(F) 36-37, 39 <i>National Geographic Society Visualizing</i> 38 <i>Section Review</i> 39 #2-6 <i>Lab</i> 44, 56-57 CC 38 CU 39
b. Know the layers and composition of the earth.	(F) 106-108, 110-114, 135-137 <i>National Geographic Society Visualizing</i> 109 <i>Section Review</i> 137 #3,5 DI 136 UA 136

STANDARDS	PAGE REFERENCES
<b>625. TECHNOLOGY.</b>	
01. Understand the relationship between science and technology and develop the abilities of technological design and application.	
a. Know that science and technology are human endeavors interrelated to each other, to society, and to the workplace.	(F) <i>Integrate Career 52 Science and History 28</i> (G) <i>Integrate Career 51</i> (H) <i>Integrate Career 108</i> (I) 52-54 VL 54 (J) 21-22, 23-29 <i>Integrate Career 18, 51</i>
b. Compare scientific inquiry and technological design in terms of activities, results, and influences on individuals and society; know that science enables technology and vice versa.	(F) 114-115, 133-137 <i>Science Online 133</i> (H) 131 CC 131 (J) 15-18, 20-22, 23-29 <i>National Geographic Society Visualizing 19</i>
c. Create a tool to perform a specific function.	(G) <i>Science Online 22 Lab 25</i> (I) <i>Model and Invent 56-57 MiniLab 53</i> (J) <i>Lab 14</i>
d. Use available and appropriate technology.	(F) <i>Use the Internet 116-117</i> (G) <i>Use the Internet 176-177</i> (H) <i>Science Online 45</i> (I) CYD 117 (J) <i>Use the Internet 30-31</i>
e. Explore the elements of technological design, which include the following: - Identify a problem; - Propose a solution; - Implement a proposed solution; - Evaluate the solution and its consequences; - Communicate the problem, process, and solution.	(F) <i>Model and Invent 88-89</i> (G) <i>Science Online 22 AIL 26</i> (H) IL 101 (I) <i>Model and Invent 56-57</i>
01. Understand common environmental quality issues, both natural and human induced.	
a. Identify issues for environmental studies.	(F) <i>Model and Invent 88-89</i> (H) <i>Integrate Career 79</i> DI 82 SJ 81 IL 83 CC 80 (I) <i>Use the Internet 116-117</i>

STANDARDS	PAGE REFERENCES
<b>02. Understand the causes and effects of population change.</b>	
a. Understand the effect of technological development and human population growth on the United States and/or the world.	(F) CC 71 (H) 17-18, 20-21 <i>National Geographic Society Visualizing</i> 19 CD 19 D 82 CC 83
<b>03. Understand the importance of natural resources and the need to manage and conserve them.</b>	
a. Understand the differences between renewable and nonrenewable resources.	(F) 66-71, 73-75, 76-81 <i>National Geographic Society Visualizing</i> 72 <i>Section Review</i> 75 #1,2; 81 #4,5 <i>Model and Invent</i> 88-89 AS 81 R 81
b. Understand the conservation of natural resources.	(F) 87 <i>MiniLab</i> 73 <i>Section Review</i> 81 #6 <i>Applying Science</i> 86 (H) 20, 53, 56-57 <i>Integrate History</i> 56 IL 56 R 21
<b>04. Understand different uses of technology in science and how they affect our standard of living.</b>	
a. Identify examples of technologies used in these scientific fields: - Food production; - Environmental cleanup; - Advances in medicine; - Communications; - The space program; - Weather forecasting.	(G) AP 6 (H) 82 MA 20 AIL 90 (I) VL 54 (J) 17, 20-22, 23-29 <i>National Geographic Society Visualizing</i> 19 CC 25
<b>627. HISTORY OF SCIENCE.</b>	
<b>01. Understand the significance of major scientific milestones.</b>	
a. Understand major contributions of various scientists and researchers.	(F) <i>Science and History</i> 28 SJ 107 (G) 157 DI 156 (H) <i>Integrate History</i> 56 (J) 21-22 CC 16 CD 16
<b>628. INTERDISCIPLINARY CONCEPTS.</b>	
<b>01. Understand that interpersonal relationships are important in scientific endeavors.</b>	
a. Work in teams to solve problems.	(F) DI 89 AC 100 (H) CC 41 (J) MA 25 DI 57, 72

STANDARDS	PAGE REFERENCES
<b>02. Understand technical communication.</b>	
a. Read, understand, and follow technical instructions.	(F) <i>Lab 105</i> (G) <i>Lab 25</i> (H) <i>Lab 15</i> (I) <i>Lab 55</i> (J) <i>Lab 75</i>
b. Write a lab report.	(G) <i>Design Your Own Lab 82-83</i> (H) <i>CYD 15, 50</i> (I) <i>Design Your Own Lab 26-27</i> <i>Lab 86-87</i>
<b>632. SCIENCE STANDARDS - MIDDLE GRADES (GRADES 7-8), SECTIONS 633 THROUGH 643.</b> Based on the necessary math knowledge and skills, student maturation level, and the need for secondary level Physical Science exposure, it is recommended that Earth Science be scheduled at the middle school level. The standards reflect this recommendation.	
<b>633. UNIFYING CONCEPTS OF SCIENCE.</b>	
<b>01. Understand systems, order, and organization.</b>	
a. Define and order small systems of a whole for the purpose of investigation.	(F) <i>Use the Internet 116-117</i> <i>Applying Science 108</i> <i>AC 109</i> (J) <i>MiniLab 84</i> <i>Lab 55, 75</i> <i>Model and Invent 94-95</i> <i>QD 49</i> <i>CC 85</i>
b. Know the different structural levels of which an organism is comprised: cells, tissues, organs, organ systems, and organisms.	(I) 105 <i>Integrate Health 105</i>
c. Know that there is order and predictability in the universe.	(F) 9 <i>National Geographic Society Visualizing 10</i> (J) 108, 114-119 <i>Integrate History 118</i> <i>Section Review 119 #3</i>
d. Know that patterns and similarities allow us to organize information about our universe.	(F) <i>National Geographic Society Visualizing 10</i> <i>DI 11</i> (J) <i>MiniLab 122</i> <i>Section Review 125 #1,4,5</i> <i>VL 121</i> <i>DI 123</i>
<b>02. Understand concepts and processes of evidence, models, and explanation.</b>	
a. Use observations and data as evidence on which to base scientific explanations and predictions.	(F) <i>Section Review 101 #1-5</i> (G) <i>Section Review 41 #2; 48 #3</i> (H) <i>Section Review 43 #2-4</i> (I) <i>SJ 48</i> (J) <i>Lab 60-61</i>
b. Use observations to make defensible inferences.	(F) <i>MiniLab 9, 85</i> <i>Launch Lab 35</i> (H) <i>Design Your Own Lab 26-27</i> (I) <i>Lab 86-87</i>

STANDARDS	PAGE REFERENCES
c. Develop and/or use models to explain or demonstrate a concept.	(F) <i>MiniLab</i> 37 <i>Model and Invent</i> 88-89 QD 71 (G) <i>Model and Invent</i> 144-145 (H) <i>MiniLab</i> 80 (I) <i>Section Review</i> 84 #6
d. Develop scientific explanations based on scientific knowledge, logic, and analysis.	(G) 149 #18 <i>Use the Internet</i> 176-177 (H) 31 #14, 18 DI 23 (I) <i>Section Review</i> 84 #1,4; 51 #1,3,5,6 AIL 116
<b>03. Understand constancy, change, and measurement.</b>	
a. Identify concepts in science that do not change with time.	(F) 8-9, 11-12 TP 8 (G) 130-131 (H) 8-14 <i>Integrate Life Science</i> 14 <i>Section Review</i> 14 #1-6
b. Analyze changes that occur in and among systems.	(F) <i>Use the Internet</i> 116-117 CD 158 (G) 156-161 SJ 157 DI 156 (J) CD 41
c. Measure precisely in metric units using appropriate tools.	(F) <i>Lab</i> 26-27, 82 (G) <i>Lab</i> 25, 113 (H) <i>MiniLab</i> 69 (I) <i>Lab</i> 85 (J) <i>MiniLab</i> 47 <i>Lab</i> 75
<b>04. Understand the theory that evolution is a process that relates to the gradual changes in the universe and of equilibrium as a physical state.</b>	
a. Understand the relationships of past, present, and future.	(F) 103-104, 98-101 <i>Section Review</i> 101 #1-5 <i>Lab</i> 105 ATE 90 CU 104 (G) 129-131, 154 UA 155
b. Understand that evolution refers to the biological, geological, or astronomical change over time.	(G) 156-161 <i>Section Review</i> 161 #1-6 <i>Integrate Chemistry</i> 163 SJ 157 D 159 (J) 116-119, 122-123 <i>National Geographic Society Visualizing</i> 124

STANDARDS	PAGE REFERENCES
c. Understand that equilibrium is a physical state of balance in which changes and forces occur in opposite and offsetting directions.	(F) 126, 128 (H) 8-9 <i>Science Online</i> 9 TP 8
<b>634. CONCEPTS OF SCIENTIFIC INQUIRY.</b>	
01. Understand scientific inquiry and develop critical thinking skills.	
a. Develop complex questions that can be answered by conducting long-term studies.	(F) <i>Model and Invent</i> 88-89 (G) <i>Use the Internet</i> 176-177 (H) <i>Use the Internet</i> 148-149 (I) <i>Use the Internet</i> 116-117 <i>Model and Invent</i> 56-57
b. Design and conduct scientific investigations using controls and variables when appropriate.	(F) <i>Design Your Own Lab</i> 176-177 (G) <i>Design Your Own Lab</i> 54-55 (H) <i>Design Your Own Lab</i> 118-119 (I) <i>Design Your Own Lab</i> 26-27 (J) <i>Design Your Own Lab</i> 126-127
c. Select and use appropriate tools and techniques to gather and display data.	(F) <i>Use the Internet</i> 116-117 (G) CYD 115 (H) <i>Science Online</i> 105 (I) CC 46 AC 49 (J) <i>Model and Invent</i> 94-95 DI 115
d. Analyze data in order to form conclusions.	(F) <i>Lab</i> 105 (G) <i>Lab</i> 114-115 (H) <i>Use the Internet</i> 148-149 (I) <i>Use the Internet</i> 116-117 (J) <i>Lab</i> 113 <i>Applying Math</i> 80
e. Think critically and logically to accept or reject a hypothesis.	(F) <i>Design Your Own Lab</i> 176-177 (G) <i>Design Your Own Lab</i> 54-55 <i>Use the Internet</i> 176-177 (H) <i>Design Your Own Lab</i> 118-119 (I) <i>Design Your Own Lab</i> 26-27
f. Analyze alternative explanations and predictions.	(F) <i>Section Review</i> 104 #5 (J) 53-54, 70-71 <i>Section Review</i> 74 #6 TF 71
g. Communicate and defend scientific procedures and explanations.	(F) CYD 89 (G) CYD 83 (H) CYD 15 (I) CYD 117 (J) AIL 126
h. Recognize the differences among observations, hypotheses, mathematical laws, and theories.	(F) 98-101, 102-104 <i>Section Review</i> 101 #1-3 (G) US 156 SJ 157

STANDARDS	PAGE REFERENCES
<b>635. CONCEPTS OF PHYSICAL SCIENCE.</b>	
01. Understand the structure and function of matter and molecules and their interactions.	
a. Understand that all matter is made up of atoms, which may be combined in various kinds, ways, and numbers.	(F) 8-9, 12 <i>National Geographic Society Visualizing</i> 10 (H) 8-9 VL 9
b. Use properties to identify matter.	(F) <i>Lab</i> 26-27, 44, 56-57 AIL 56 AS 57
c. Identify physical properties and know the nature of a physical change.	(F) 14-18 <i>Section Review</i> 18 #1-6 <i>Lab</i> 26-27 (H) 8-10 <i>Science Online</i> 9
02. Understand chemical reactions.	
a. Demonstrate that chemical reactions may release or consume energy.	(F) 73-75 US 74 (H) 135-137 <i>Integrate Chemistry</i> 138 TF 137
03. Understand concepts of motion and forces.	
a. Know how an object's position, direction of motion, and speed can be measured.	(F) 114-115 <i>Section Review</i> 115 #5 <i>Lab</i> 105 (J) <i>Design Your Own Lab</i> 126-127 AIL 126
b. Compare and contrast the relationships among different forms of energy.	(F) <i>Section Review</i> 75 #1-3,5; 81 #1-6 AR 73 (H) <i>Science Online</i> 9 <i>Lab</i> 15 <i>Section Review</i> 142 #1
04. Understand that the total energy in the universe is constant.	
a. Explain how energy can be transformed from one form to another but is neither destroyed nor created.	(F) 76-81 <i>Section Review</i> 81 #3 DI 67 US 74 TF 77
b. Understand that energy is transferred from one place to another.	(F) 126-127, 130-131 <i>Integrate Physics</i> 131 <i>National Geographic Society Visualizing</i> 132 (H) 110-111, 136 <i>National Geographic Society Visualizing</i> 112 IM 136
<b>636. CELLULAR AND MOLECULAR CONCEPTS.</b>	
01. Understand the cell is the basis of form and function for all living things and how living things carry out their life functions.	
a. Know the relationships among specialized cells, tissues, organs, organ systems, and organisms.	(I) 105 <i>Integrate Health</i> 105 TF 105

STANDARDS	PAGE REFERENCES
b. Know the parts of plant and animal cells and the functions of the various cell structures.	See Glencoe's <i>Life's Structure and Function A</i> © 2005, <i>From Bacteria to Plants B</i> © 2005, and <i>Animal Diversity C</i> © 2005
c. Know that most cell functions involve chemical reactions.	(H) 46, 135-137 <i>Integrate Life Science</i> 47 <i>Integrate Chemistry</i> 138 (I) 17
d. Know that genes and chromosomes carry the information for traits.	See Glencoe's <i>Life's Structure and Function A</i> © 2005
e. Know that traits are inherited, including dominant and recessive traits.	(G) 156-160 <i>Section Review</i> 161 #6 <i>Lab</i> 169 DI 156 CD 158
f. Know that genetic information is replicated and passed on to new cells.	See Glencoe's <i>Life's Structure and Function A</i> © 2005
g. Know that transmission of chromosomal information to offspring occurs through asexual or sexual reproduction.	See Glencoe's <i>Life's Structure and Function A</i> © 2005
<b>637. INTERDEPENDENCE OF ORGANISMS AND BIOLOGICAL CHANGE.</b>	
01. Understand the theory of biological evolution.	
a. Know that species change over time when random variations in individuals enhance their survival and reproductive success in a particular environment.	(G) 156-161 <i>Section Review</i> 161 #5,6 D 157, 158 AC 158
b. Know that species may become extinct when the environment changes and their adaptive characteristics are insufficient to allow their survival.	(G) 129-130, 159-161, 168 <i>Section Review</i> 161 #2; 168 #2 SJ 166
c. Know that biological classifications are based on similarities, which reflect their evolutionary relationships.	(G) 163-164, 166 <i>National Geographic Society Visualizing</i> 165 TF 164 VL 166
<b>638. MATTER, ENERGY, AND ORGANIZATION IN LIVING SYSTEMS.</b>	
01. Understand the relationship between matter, energy, and organization to trace matter as it cycles and energy as it flows through living systems and between living systems and the environment.	
a. Know that the energy stored in food is primarily derived from the sun through photosynthesis.	(H) 135-136 MA 136 AR 136 TF 137 (I) 17

STANDARDS	PAGE REFERENCES
b. Know that the distribution and abundance of organisms and populations in ecosystems are limited by the availability of matter and energy.	(H) <i>Integrate Career</i> 136 <i>Section Review</i> 142 #4 CC 136 VL 136 DI 140
c. Know that atoms and molecules cycle among the living and nonliving components of the biosphere.	(F) 66-69, 156-158 (G) 36-42 <i>National Geographic Society Visualizing</i> 43 <i>Section Review</i> 41 #1-5 <i>Science Online</i> 39 (J) AS 119
d. Trace energy flows through ecosystems in one direction, from photosynthetic organisms to herbivores to carnivores and decomposers.	(H) <i>Section Review</i> 142 #5 TP 135 MA 136 VL 136 CC 136
<b>02. Understand the individual behavior of organisms and their interactions in populations and communities as influenced by physiological and environmental factors.</b>	
a. Know that organisms have behavioral responses to internal and external stimuli.	(H) <i>National Geographic Society Visualizing</i> 141 <i>Integrate Chemistry</i> 138 IL 137 AC 141 DI 140
b. Know that living organisms have the capacity to produce populations of infinite size but that environments and resources are finite.	(H) 144-146 <i>Section Review</i> 142 #4 DI 146 CD 144 AC 140
<b>639. EARTH AND SPACE SYSTEMS.</b>	
<b>01. Understand scientific theories of origin and subsequent changes in the universe and earth systems.</b>	
a. Know that there are interactions among the solid earth, oceans, atmosphere, and organisms, which result in a change of the earth's system. (Some interactions are observable such as earthquakes and volcanic eruptions, but many take place over hundreds of millions of years.)	(F) DI 164 (G) <i>Integrate Life Science</i> 130 (H) 101, 106-109 <i>Section Review</i> 109 #1,2,4 (I) 36-38 <i>Integrate Life Science</i> 37 <i>Figure</i> 5 40 SJ 47
b. Compare earth with other planets with emphasis on conditions necessary for life.	(J) 2-3, 78, 82-83 VL 2 CB 3 D 78
c. Understand the motions that explain such occurrences as the day, the seasons, the year, phases of the moon, eclipses, and tides.	(J) 41, 42-45, 46-50 <i>Integrate Life Science</i> 41 <i>Section Review</i> 45 #2,4; 54 #1-4 R 45 QD 44

STANDARDS	PAGE REFERENCES
d. Know that the development of life caused dramatic changes in the composition of the earth's atmosphere.	(G) 163 <i>Integrate Chemistry</i> 163 (I) 8
e. Know that the universe is constantly expanding.	(J) 122-123, 125 <i>National Geographic Society Visualizing</i> 124 <i>Section Review</i> 125 #3 DI 123
f. Know that stars and galaxies have a life cycle.	(J) 116-119 <i>Section Review</i> 119 #3-5 <i>Integrate History</i> 118 <i>Science Online</i> 116 VL 117
g. Know methods used to estimate geologic time (observing rock sequences, using fossils to correlate the sequences at various locations).	(G) 136-137, 139-142 <i>Section Review</i> 143 #1,2 <i>Applying Science</i> 142 R 143
<b>02. Understand geochemical cycles and energy in the earth system.</b>	
a. Know that earth systems have internal and external sources of energy.	(F) 40, 111 <i>MiniLab</i> 111 (I) 17 TP 17
b. Know that the earth's internal heat causes the plates of the earth's surface to move.	(F) 111 <i>MiniLab</i> 111 <i>Section Review</i> 115 #3 AR 111
c. Know that the heating of the earth's surface and atmosphere by the sun drives convection within the atmosphere and oceans, producing winds and ocean currents affecting global climate.	(H) 104 (I) 17-20, 21, 24 <i>National Geographic Society Visualizing</i> 23 TP 17
<b>640. TECHNOLOGY.</b>	
<b>01. Understand the relationship between science and technology and develop the abilities of technological design and application.</b>	
a. Know that science and technology are human endeavors interrelated to each other, to society, and to the workplace.	(F) <i>Integrate Career</i> 52 <i>Science and History</i> 28 (G) <i>Integrate Career</i> 51 (H) <i>Integrate Career</i> 108 (I) 52-54 VL 54 (J) 21-22, 23-29 <i>Integrate Career</i> 18, 51
b. Compare and contrast scientific inquiry and technological design in terms of activities, results, and influences on individuals and society; know that science enables technology and vice versa.	(F) 114-115, 133-137 <i>Science Online</i> 133 (H) 131 CC 131 (J) 15-18, 20-22, 23-29 <i>National Geographic Society Visualizing</i> 19

STANDARDS	PAGE REFERENCES
c. Create a tool to perform a specific function.	(G) <i>Science Online</i> 22 <i>Lab</i> 25 (I) <i>Model and Invent</i> 56-57 <i>MiniLab</i> 53 (J) <i>Lab</i> 14
d. Use available and appropriate technology.	(F) <i>Use the Internet</i> 116-117 (G) <i>Use the Internet</i> 176-177 (H) <i>Science Online</i> 45 (I) <i>CYD</i> 117 (J) <i>Use the Internet</i> 30-31
e. Know the elements of technological design, which include the following: <ul style="list-style-type: none"> <li>● Identify a problem;</li> <li>● Propose a solution;</li> <li>● Implement a proposed solution;</li> <li>● Evaluate the solution and its consequences;</li> <li>● Communicate the problem, process, and solution.</li> </ul>	(F) <i>Model and Invent</i> 88-89 (G) <i>Science Online</i> 22 <i>AIL</i> 26 (H) <i>IL</i> 101 (I) <i>Model and Invent</i> 56-57
<b>641. PERSONAL AND SOCIAL PERSPECTIVES.</b>	
01. Understand common environmental quality issues, both natural and human induced.	
a. Identify environmental issues and conduct studies.	(F) <i>Model and Invent</i> 88-89 (H) <i>Integrate Career</i> 79 <i>DI</i> 82 <i>SJ</i> 81 <i>IL</i> 83 <i>CC</i> 80 (I) <i>Use the Internet</i> 116-117
02. Understand the causes and effects of population change.	
a. Understand the effect of technological development and the growth of human population on the living and nonliving components of the environment.	(F) <i>CC</i> 71 (H) 17-18, 20-21 <i>National Geographic Society Visualizing</i> 19 <i>CD</i> 19 <i>D</i> 82 <i>CC</i> 83
03. Understand the importance of natural resources and the need to manage and conserve them.	
a. Explore alternative sources of energy.	(F) 73-75, 76-81 <i>Section Review 75</i> #3,5; 81 #2,5,6 <i>US</i> 74 <i>AR</i> 73
b. Understand the role and effect of management of natural resources.	(F) 87 <i>MiniLab</i> 73 <i>Section Review 81</i> #6 <i>Applying Science</i> 86 (H) 20, 53, 56-57 <i>Integrate History</i> 56 <i>IL</i> 56 <i>R</i> 21

STANDARDS	PAGE REFERENCES
<b>642. HISTORY OF SCIENCE.</b>	
01. Understand the significance of major scientific milestones.	
a. Understand the impact of historical scientific events.	(F) <i>Science and History</i> 28 SJ 107 (G) 157 DI 156 (H) <i>Integrate History</i> 56 (J) 21-22 CC 16 CD 16
<b>643. INTERDISCIPLINARY CONCEPTS.</b>	
01. Understand that interpersonal relationships are important in scientific endeavors.	
a. Work in teams to solve problems.	(F) DI 89 AC 100 (H) CC 41 (J) MA 25 DI 57, 72
02. Understand technical communication.	
a. Read, understand, and follow technical instructions.	(F) <i>Lab</i> 105 (G) <i>Lab</i> 25 (H) <i>Lab</i> 15 (I) <i>Lab</i> 55 (J) <i>Lab</i> 75
b. Write and articulate technical information.	(G) <i>Design Your Own Lab</i> 82-83 (H) CYD 15, 50 (I) <i>Design Your Own Lab</i> 26-27 <i>Lab</i> 86-87
c. Write a long-term investigation.	(F) <i>Model and Invent</i> 88-89 (G) <i>Use the Internet</i> 176-177 (H) <i>Use the Internet</i> 148-149 (I) <i>Use the Internet</i> 116-117 <i>Model and Invent</i> 56-57

## Codes Used for TWE Pages

AC	Activity
AIL	Alternative Inquiry Lab
AP	About the Photo
AR	Active Reading
AS	Assessment
ATE	Analyze the Event
CB	Content Background
CC	Curriculum Connection
CD	Cultural Diversity
CU	Check for Understanding
CYD	Communicating Your Data
D	Discussion
DI	Differentiated Instruction
IL	Inquiry Lab
IM	Identifying Misconceptions
MA	Make a Model
QD	Quick Demo
R	Reteach
SJ	Science Journal
TF	Teacher FYI
TP	Tie to Prior Knowledge
UA	Use an Analogy
US	Using Science Words
VL	Visual Learning
VLB	Virtual Labs