



**NEVADA**

**Earth and Space Sciences Content Standards for Grade 8**

*Earth Materials and Processes F*

*The Changing Surface of Earth G*

*The Water Planet H*

*The Air Around You I*

*Astronomy J © 2005*

CONTENT STANDARDS		PAGE REFERENCES	
<b>Earth and Space Sciences</b>			
<b>Content Standard 10.0: Earth Structures and Composition</b> — <i>Students understand that the Earth is composed of interrelated systems of rocks, water, air, and life.</i>			
By the end of <b>Grade 8</b> , students know and are able to do everything required in previous grades and:			
10.8.1 Investigate and describe how rocks and minerals have different properties and characteristics.	W/L	(F)	8-12, 14-18, 19-25, 36-39, 40-43, 45-48, 49-55 <i>Launch Lab 7, 35</i> <i>Lab 26-27</i>
10.8.2 Investigate and describe how the combination of <b>constructive and destructive forces</b> result in the formation of landforms. G 3.8.1; G 3.8.2; G 5.8.1; G 5.8.5	E/S	(F) (G)	106-115 SCB 96E-F LD 108 36-41, 64-68, 69-74, 76-81, 92-102 <i>Science Online 39</i> IM 62F
10.8.3 Explain, using models, how the Earth is layered with a crust, both continental and oceanic, hot, convecting mantle, and dense, metallic core. G 3.8.1	E/S	(F)	106-111, 135-137 CC 135 DI 136 QD 136 UAA 136 CFU 137
10.8.4 Investigate and describe how soils have properties of color, texture, and capacity to retain water and provide nutrients for life. G 3.8.3	I/L	(G)	42-48 <i>MiniLAB 44</i> <i>Integrate Chemistry 45</i> <i>Applying Math 46</i> <i>Lab 49</i> ACT 43 V 43 QD 45 DI 47 IL 47

CONTENT STANDARDS		PAGE REFERENCES	
10.8.5 Explain how the atmosphere is a mixture of particular gases, whose properties vary with elevation. G 3.8.1; G 3.8.3	W/L	(I)	8-15 <i>Science Online</i> 10 <i>Applying Science</i> 12 TPK 8 VL 9 TFYI 13 MM 14 CFU 15 R 15
10.8.6 Explain that earthquakes, landslides, volcanoes, and floods are geologic phenomena. G 2.8.6; G 3.8.1; G 3.8.2; G 5.8.5	E/S	(F)	112-115, 126-129, 156-161 <i>Launch Lab</i> 125 CC 113 DI 114 A 161 CFU 161 R 161
<b>Content Standard 11.0: Earth Models</b> — <i>Students understand that the Earth may be represented by a variety of maps and models.</i>			
11.8.1 Describe how positions on the Earth's surface can be located using latitude and longitude. G 1.8.1	W/L	(G)	14-17, 33 #16 <i>MiniLAB</i> 15 <i>Applying Math</i> 31 SCB 6E DI 15 CFU 17 A 17
11.8.2 Compare a variety of map types, and locate Nevada and Nevada features on each. G 1.8.2; G 1.8.5	W/L	(G)	18-24 A 15, 24 TPK 18 ACT 20, 21 IL 22 R 24
11.8.3 Use a color-coded map to compare and contrast various geological features such as temperature, population density, geology, or precipitation. G 1.8.2; G 1.8.3; G 1.8.4; G 1.8.5	W/S	(F) (G) (I)	150 #8 TFYI 23 70-71, 120 #13 <i>Section Review</i> 73 <i>Accidents in Science</i> 118
11.8.4 Identify the time of day in various places throughout the world, given the local time of day. G 2.12.7	W/L	(G)	16-17, 31 #18 <i>Applying Math</i> 31 DIS 16 QD 16 ACT 17 R 17

CONTENT STANDARDS	PAGE REFERENCES
<b>Content Standard 12.0: Earth History</b> — <i>Students understand that Earth systems (such as weather and mountain formation) change on variety.</i>	
<p>12.8.1            Explain how some changes on the Earth's surface are due to slow processes, and others due to rapid processes. G 2.8.6; G 3.8.2</p>	<p>E/S (F) 126-129, 156-161  <i>Lab 105</i>            CFU 101            (G) 64-68, 69-74, 92-102  <i>Lab 75</i>  <i>Science Stats 84</i>            R 68</p>
<p>12.8.2            Investigate and describe how fossils provide important evidence of how life and environmental conditions have changed throughout geologic time.</p>	<p>E/S (F) 99-100            (G) 124-131  <i>Launch Lab 123</i>  <i>Integrate Life Science 130</i>  <i>Model and Invent Lab 144-145</i>            SCB 122E            DI 125, 130            DIS 128            SJ 129</p>
<p>12.8.3            Explain how the Earth's processes we observe today are similar to those that occurred in the past.</p>	<p>E/S (F) 36-39            TFYI 39            (G) 36, 143            IM 122F            SJ 142</p>
<b>Content Standard 13.0: Cycles of Matter and Energy</b> — <i>Students understand that Earth systems have a variety of cycles through which energy and matter continually flow.</i>	
<p>13.8.1            Investigate and describe how the sun is the major source of energy for phenomena on Earth's surface (e.g., growth of plants, winds, ocean currents, and the water cycle).</p>	<p>E/S (F) 76            (I) 13, 17-20, 21-25, 36-37            SCB 6E            A 20            CFU 25            (J) 109            TPK 109</p>
<p>13.8.2            Explain how global patterns of atmospheric movement, topography, and proximity to bodies of water influence local weather, and seasons are caused by variations in the amount of the sun's energy hitting the surface due to the tilt of the Earth's axis.            H 3.8.1</p>	<p>E/S (I) 66-69, 74-75  <i>Launch Lab 65</i>  <i>MiniLAB 67</i>            SCB 64E            IM 64F            QD 66            A 69            R 69            (J) 43-45</p>
<p>13.8.3            Explain how water, which covers the majority of the Earth's surface, circulates through the crust, oceans, and atmosphere.</p>	<p>E/S (H) 22-25, 36-43, 44-49, 51-53, 68-74, 104-109            R 25            DI 71            (I) 19</p>

CONTENT STANDARDS	PAGE REFERENCES
13.8.4 Simulate and describe how clouds, latitude, altitude, topographical features, and proximity to large bodies of water affect weather and climate. G 3.8.1	I/S (I) 66-69, 91 #20 <i>Launch Lab</i> 65 <i>Applying Science</i> 68 CFU 69 DIS 69 R 69
13.8.5 Investigate and describe some changes that are reversible and others that are not.	E/L (F) 162-169 DI 164 (G) 50-53 <i>Science and Society</i> 116 R 53 (H) 24-25 VL 25 (I) 74-84 <i>Science and History</i> 88 CC 80
13.8.7 Explain that the energy that the Earth receives over geologic time approximately equals the energy that it loses.	W/L (I) 17* *This reference discusses the amount of solar energy that is absorbed or reflected by Earth's atmosphere and surface.
13.8.8 Describe the relationships among <b>geothermal</b> and <b>tectonic</b> processes. G 3.8.1	E/S (F) 78, 112-113, 156-161 <i>Use the Internet Lab</i> 116-117 CC 113 SCB 154E CFU 161 (G) 107 SJ 107
<b>Content Standard 14.0: The Solar System and the Universe</b> — <i>Students understand that the Earth is part of a planetary system within the Milky Way Galaxy, which is part of the known universe.</i>	
14.8.1 Investigate and describe the size, composition, and surface features of the planets in our solar system.	W/L (J) 70-74, 76-81, 82-89 <i>Launch Lab</i> 69 <i>MiniLAB</i> 84 SCB 68E DI 72 QD 78 ACT 83
14.8.2 Investigate and describe how seasons, eclipses, moon phases, and tides are caused by the effects of relative motion and positions of the sun, Earth, and moon.	E/S (H) 113-116 DI 115 (J) 43-45, 46-50 <i>Science Online</i> 45 <i>Lab</i> 55 QD 44 R 45 ACT 50 LD 50

CONTENT STANDARDS		PAGE REFERENCES	
14.8.3 Explain that billions of galaxies form most of the visible mass in the universe.	W/L	(J)	120
14.8.5 Explain how various tools (e.g., optical and radio telescopes, unmanned robotic spacecraft) allow us to investigate objects in the sky that are too distant, faint, or bright to observe directly from Earth. M 9.8.5; H 10.8.1	I/L	(J)	8-13, 15-22, 23-29 <i>Launch Lab 7</i> <i>Lab 14</i> SCB 6E-F QD 10 SJ 11 R 22 DI 27
14.8.6 Investigate and describe the laws of motion and gravity and their development. M 2.8.2; M 8.8.3; M 9.8.3	I/S	(J)	15-17, 70-74 <i>Integrating Physics 72</i> <i>MiniLAB 79</i> LD 26 V 73
<b>The Nature and History of Science</b>			
<b>Content Standard 18.0: Scientific, Historical, and Technological Perspectives</b> — <i>Students understand that science is a unique way of knowing about things. Many men and women have contributed to the traditions of science. The ability to pursue activities and careers in science is accessible to people from all cultures and all levels of ability.</i>			
18.8.1 Explain that scientific investigations involve the use of logic, respect for the rules of evidence, openness to criticism, and public reporting of methods and procedures. C 5.8.6	E/S	(F) (G) (H) (I) (J)	<i>Science Skill Handbook</i> 186-194 <i>Science Skill Handbook</i> 186-194 <i>Science Skill Handbook</i> 158-166 <i>The Nature of Science</i> 2-5 <i>Science Skill Handbook</i> 126-134 <i>The Nature of Science</i> 2-5 <i>Science Skill Handbook</i> 136-144
18.8.2 Explain that scientific inquiry done in a school setting is similar to what scientists do.	I/L	(F) (G) (H) (I) (J)	<i>The Nature of Science</i> 2-5 <i>Science Skill Handbook</i> 186-194 <i>Science Skill Handbook</i> 186-194 <i>Science Skill Handbook</i> 158-166 <i>Science Skill Handbook</i> 126-134 <i>The Nature of Science</i> 2-5 <i>Science Skill Handbook</i> 136-144
18.8.3 Explain, using examples, that ancient peoples provided knowledge about the natural world that is still regarded as valid today, even though that knowledge may not have originated by scientific methods.	I/L	(F) (G) (H) (I) (J)	TFYI 23 CD 52 CD 10 CC 18 CC 23, 41 <i>Science and History</i> 62 CD 41, 84
18.8.4 Explain that scientists may work in teams and some may work alone, but all communicate extensively with each other.	E/L	(F) (G) (H) (I) (J)	<i>Science Skill Handbook</i> 194 CB 28 <i>Science Skill Handbook</i> 194 <i>Science Skill Handbook</i> 166 <i>The Nature of Science</i> 2-5 <i>Science Skill Handbook</i> 134 <i>Science Skill Handbook</i> 144

CONTENT STANDARDS		PAGE REFERENCES	
18.8.5 Explain that scientific inquiry and technological design have similarities and differences. Scientists propose explanations for questions about the natural world and engineers propose solutions relating to human problems, needs, and aspirations.	W/L	(F) (H) (I)	<i>The Nature of Science</i> 2-5 <i>You Do It</i> 5 <i>The Nature of Science</i> 2-5 <i>You Do It</i> 5 <i>The Nature of Science</i> 2-5
18.8.6 Explain that scientific knowledge is revised through a process of incorporating new evidence gained through continual investigation.	E/S	(F) (H) (J)	98-101, 102-104, 106-115 CB 28 <i>The Nature of Science</i> 2-5 70-74 <i>The Nature of Science</i> 2-5 SJ 72
18.8.7 Identify and describe how science is subject to strengths and limitations related to other human social and intellectual activities.	I/L	(F) (G) (I) (J)	<i>Science and History</i> 28 <i>The Nature of Science</i> 2-5 <i>You Do It</i> 5 <i>Science and Society</i> 58 <i>Science and Society</i> 32 CD 20
<b>Content Standard 19.0: Reasoning and Critical Response Skills—Students understand that many decisions require critical consideration of scientific evidence.</b>			
19.8.1 Identify and evaluate critically the use of statistics, data, and graphs. E 2.8.4; E 4.8.4; G 7.8.3; M 5.8.5; M 6.8.5; M 7.8.12	E/S	(F) (G) (H) (I) (J)	<i>Use the Internet Lab</i> 116-117 <i>Lab</i> 146-147 <i>Design Your Own Lab</i> 54-55, 82-83 <i>Lab</i> 58-59 DI 48 <i>Lab</i> 86-87 <i>Use the Internet Lab</i> 116-117 <i>Use the Internet Lab</i> 30-31 <i>Lab</i> 60-61
19.8.2 Give examples of human activities with their associated benefits, costs, and risks. Ec 1.8.3	I/L	(H) (I)	54-57, 76-84, 143-147 <i>Science and Society</i> 28 CC 56 CFU 57 81-84, 96-102, 104-110, 111-115
19.8.3 Analyze and describe a system for efficiency, optimal function, and possible sources of malfunction. M 6.8.2; M 6.8.9	W/L	(F) (H) (I)	<i>Model and Invent Lab</i> 88-89 ACT 79 DI 20, 102 IL 56 AIL 158 <i>Model and Invent Lab</i> 56-57
19.8.4 Critically evaluate information to distinguish between fact and opinion when responding to information. C 4.8.4; E 4.8.4	E/S	(F) (G) (H) (I) (J)	<i>Science Skill Handbook</i> 186 DIS 15 <i>Science Skill Handbook</i> 186 <i>Science Skill Handbook</i> 158 <i>Lab</i> 16 <i>Science Skill Handbook</i> 126 <i>Science Skill Handbook</i> 136

## Codes Used for TWE Pages

A	Assessment
ACT	Activity
AIL	Alternative Inquiry Lab
CB	Content Background
CC	Curriculum Connection
CD	Cultural Diversity
CFU	Check for Understanding
DI	Differentiated Instruction
DIS	Discussion
IL	Inquiry Lab
IM	Identifying Misconceptions
LD	Lab Demonstration
MM	Make a Model
QD	Quick Demo
R	Reteach
SCB	Science Content Background
SJ	Science Journal
TFYI	Teacher FYI
TPK	Tie to Prior Knowledge
UAA	Use an Analogy
V	Visualizing
VL	Visual Learning