

GLENCOE CORRELATION
EARTH SCIENCE
GEOLOGY, THE ENVIRONMENT, AND THE UNIVERSE
NEVADA
Science Content Standards
Grade Eight

CONTENT STANDARDS	PAGE REFERENCES
Earth and Space Sciences	
Content Standard 10.0: Earth Structures and Composition — <i>Students understand that the Earth is composed of interrelated systems of rocks, water, air, and life.</i>	
By the end of Grade 8 , 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 SE: 77-83, 84-91, 99-106, 107-113, 121-127, 128-132, 133-139 <i>Design Your Own GeoLab</i> 92-93 <i>Discovery Lab</i> 99 <i>MiniLab</i> 108
10.8.2 Investigate and describe how the combination of constructive and destructive forces result in the formation of landforms. G 3.8.1; G 3.8.2; G 5.8.1; G 5.8.5	E/S SE: 153-161, 162-166, 181-190, 191-197, 198-203, 222-227, 228-229 <i>MiniLab</i> 229 TWE: CB 152C, 180C
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 SE: 8, 455-459, 502-504, 523-527, 580-581 <i>Discovery Lab</i> 523, 577 TWE: CB 503 A 504 ITI 581
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 SE: 167-173 <i>Problem-Solving Lab</i> 172 TWE: CB 152C-D, 168 M 169 CL 171 A 171 SF 264
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 SE: 271-274, 278-284, 375-377 <i>Science in the News</i> 294 TWE: CB 272, 275 D 272 EC 273 A 277
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 SE: 181-190, 219-221, 480-487, 495-499 <i>Discovery Lab</i> 495 TWE: CB 180C, 494C-D CL 184 ITI 485 IM 497

CONTENT STANDARDS		PAGE REFERENCES
Content Standard 11.0: Earth Models — <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	SE: 27-31, 49 <i>MiniLab 29</i> <i>Test Practice 47</i> TWE: M 28 A 29, 31 R 41
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	SE: 32-36 <i>MiniLab 29</i> TWE: A 27, 36 P 30 D 32
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	SE: 33-36 <i>Mapping GeoLab 42-43, 204-205, 258-259, 322-323, 430-431, 734-735</i> TWE: MIN 48
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	SE: 30-31, 47 #18 <i>Section Assessment 31</i> TWE: P 30 CFU 31
Content Standard 12.0: Earth History — <i>Students understand that Earth systems (such as weather and mountain formation) change on variety.</i>		
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	E/S	SE: 153-161, 162-166, 181-190, 220-221, 228-231, 528-534 TWE: CB 4C EC 185 IM 522D, 559
12.8.2 Investigate and describe how fossils provide important evidence of how life and environmental conditions have changed throughout geologic time.	E/S	SE: 445, 553-556, 566-569, 592-593, 609-611, 892-897 <i>Discovery Lab 553</i> TWE: CB 552D ACT 566 EC 568
12.8.3 Explain how the Earth's processes we observe today are similar to those that occurred in the past.	E/S	SE: 347-351, 369-374, 557-561 <i>Problem-Solving Lab 610</i> TWE: CB 585
Content Standard 13.0: Cycles of Matter and Energy – <i>Students understand that Earth systems have a variety of cycles through which energy and matter continually flow.</i>		
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).	E/S	SE: 275-277, 290-291, 299-304, 305-311, 683-684, 690-692 <i>MiniLab 302</i> TWE: IM 682D

CONTENT STANDARDS		PAGE REFERENCES
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	E/S	SE: 299-304, 305-311, 329-333, 341-346, 347-351, 361-363, 370, 758-762 <i>MiniLab</i> 761 TWE: TPK 343
13.8.3 Explain how water, which covers the majority of the Earth's surface, circulates through the crust, oceans, and atmosphere.	E/S	SE: 211-221, 239-243, 290-291 <i>MiniLab</i> 290 TWE: A 240 AC 240 CB 240 R 243, 291 CL 289
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	SE: 285-291, 299-304, 305-311, 329-333, 341-346, 361-363 <i>Using Math</i> 310 TWE: CFU 291 A 311 ITI 362
13.8.5 Investigate and describe some changes that are reversible and others that are not.	E/L	SE: 67-69, 102-106, 138-139, 153-161, 228-231, 290-291, 347-351, 369-374, 375-377 <i>GeoLab</i> 140-141
13.8.7 Explain that the energy that the Earth receives over geologic time approximately equals the energy that it loses.	W/L	SE: 578-579 TWE: CB 578
13.8.8 Describe the relationships among geothermal and tectonic processes. G 3.8.1	E/S	SE: 99-106, 455-459, 460-463, 471-475, 538-539, 693-694 TWE: CB 442C-D, 470C ITI 485
Content Standard 14.0: The Solar System and the Universe — <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	SE: 778-785, 786-792, 859, 921 TWE: ACT 780 CFU 785 A 785 R 785, 792
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	SE: 400-403, 758-767, 858 <i>MiniLab</i> 761 <i>Problem-Solving Lab</i> 766 TWE: ITI 760 M 760 MIN 763 A 767

CONTENT STANDARDS	PAGE REFERENCES
14.8.3 Explain that billions of galaxies form most of the visible mass in the universe.	W/L SE: 839-846
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 SE: 747-752, 903-907 <i>Using Math</i> 748 <i>Discovery Lab</i> 775 <i>Science in the News</i> 800, 828 TWE: E 749 R 752 P 756 A 861
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 SE: 778-779, 803 #27 <i>Problem-Solving Lab</i> 791 TWE: D 778 CFU 779
Environmental Sciences	
Content Standard 15.0: Ecosystems — <i>Students will demonstrate an understanding that ecosystems display patterns of organization, change, and stability as a result of the interactions and interdependencies among the life forms and the physical components of the Earth.</i>	
15.8.1 Investigate and describe how living and non-living components of ecosystems interact in various ways. G 3.8.3; G 3.8.4	E/S SE: 166, 167-168, 711-715 TWE: DIS 155 ITP 713 CB 720
15.8.2 Characterize organisms in any ecosystems by their function. G 3.8.3; G 3.8.4	I/L SE: <i>Science & the Environment</i> 432 TWE: TS 432 A 439 TPK 628 AC 720
15.8.3 Investigate and describe how the major energy source in most ecosystems is sunlight which is converted by producers into chemical energy. G 3.8.3	E/S SE: 584-585, 664, 683-684 TWE: E 65
15.8.4 Describe how geographically distinct ecosystems on the Earth have similarities and differences. G 3.8.3; G 3.8.4	I/L SE: 230-231, 364-366 TWE: P 364 CON 366 CFU 368 CB 437

CONTENT STANDARDS	PAGE REFERENCES
Content Standard 16.0: Natural Resources — <i>Students demonstrate and understand that natural resources include renewable and non-renewable materials and energy. All organisms, including human, use resources to maintain and improve their existence, and the use of resources can have positive and negative consequences.</i>	
16.8.1 Investigate and describe the identifying characteristics of renewable and non-renewable resources. G 5.8.6	E/S SE: 655-658, 683-689, 690-697, 740 <i>Discovery Lab</i> 655, 711 <i>Test Practice</i> 681 TWE: A 656, 658 SF 740
16.8.2 Explain how some natural resources are limited in their abundance and/or accessible location (e.g., water in the desert). Ec 6.8.3; G 4.8.6; G 5.8.2; H 3.8.5	E/S SE: 388-389, 657-658, 670-671 TWE: TPK 730
16.8.3 Investigate and describe the location and distribution of various natural resources. Ec 6.8.1; G 4.8.6	I/L SE: 657-658, 670-671 TWE: EC 90 CB 98C, 686 ITU 653 AC 671
16.8.4 Investigate and describe how organisms alter their local environment through their use of natural resources. G 3.8.3; G 5.8.1	I/L SE: 167-168, 711-715, 724-729, 730-733 <i>Science & the Environment</i> 234, 260 TWE: EC 189
16.8.5 Describe how unintended consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. G 5.8.1; H 10.8.3; H 10.8.1	E/L SE: 664-668, 698-703, 716-723, 724-729, 730-733, 740-743 <i>Design Your Own GeoLab</i> 676-677, 704-705 <i>Science & the Environment</i> 706 TWE: CB 701
Content Standard 17.0: Conservation — <i>Students understand that humans have the unique ability to change personal and societal behavior based on ethical considerations regarding other organisms, the planet as a whole and future generations.</i>	
17.8.1 Analyze different conservation options for Nevada's resources. G 5.8.7; H 10.8.3	I/L SE: 672-675, 698-703, 728-729, 730-733 TWE: ESJ 255 CFU 703 A 733
17.8.2 Investigate and describe how in some ecosystems, populations of organisms are in dynamic equilibrium , and in other ecosystems they are not. G 2.8.6; G 3.8.3; G 3.8.4	I/L SE: 711-715

CONTENT STANDARDS		PAGE REFERENCES
17.8.3 Evaluate how changes in environments can be beneficial or harmful. G 2.8.6; G 3.8.3; G 5.8.1; H 10.8.3	E/L	SE: 153-161, 181-190, 191-197, 198-203, 228-231 <i>Science & the Environment</i> 706 TWE: ESJ 164 EC 185 MIN 230
17.8.4 Investigate and describe how actions which might affect Nevada's environment can be evaluated in terms of trade-offs that may have regional, national, or global effects. G 2.8.6; G 5.8.1; H 10.8.3	I/L	SE: <i>Science & the Environment</i> 260 <i>Science in the News</i> 294 TWE: TS 294, 736 CB 701 CFU 723 A 735
The Nature and History of Science		
Content Standard 18.0: Scientific, Historical, and Technological Perspectives— <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	SE: 11-16, 17-19, 928-931 TWE: CB 4D A 5
18.8.2 Explain that scientific inquiry done in a school setting is similar to what scientists do.	I/L	SE: 11-16, 17-19, 924 TWE: CFU 16 A 19
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	SE: <i>Science & Technology</i> 116 TWE: CD 7, 89, 226, 685 AC 365
18.8.4 Explain that scientists may work in teams and some may work alone, but all communicate extensively with each other.	E/L	SE: 17-19
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	SE: 10, 24 #8 <i>Science & Technology</i> 22, 72, 466 TWE: E 673

CONTENT STANDARDS		PAGE REFERENCES
18.8.6 Explain that scientific knowledge is revised through a process of incorporating new evidence gained through continual investigation.	E/S	SE: 11-16, 443-447, 448-454, 455-459, 460-463, 775-779 TWE: CB 4C TPK 375
18.8.7 Identify and describe how science is subject to strengths and limitations related to other human social and intellectual activities.	I/L	SE: 320-321 <i>Science & Technology</i> 324, 854 TWE: CB 298D UA 319 R 377 ACT 589
Content Standard 19.0: Reasoning and Critical Response Skills — <i>Students understand that many decisions require critical consideration of scientific evidence.</i>		
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	SE: 25 #17 <i>Problem-Solving Lab</i> 17, 172, 200, 217, 253, 283, 401 <i>Science & Math</i> 206, 380
19.8.2 Give examples of human activities with their associated benefits, costs and risks. Ec 1.8.3	I/L	SE: 157-158, 375-377, 666-668, 716-723, 724-729 <i>Science & the Environment</i> 234, 260 <i>Science in the News</i> 294 TWE: EC 9 CB 260
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	SE: <i>Design Your Own GeoLab</i> 676-677, 704-705 TWE: CFU 227 M 695
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	TWE: TPK 11 IM 76D
Scientific Inquiry: Processes and Skills		
Content Standard 20.0: Systems, Models, Risk, and Predictions — <i>Students understand that a variety of models can be used to describe or predict things and events.</i>		
20.8.1 Investigate and describe how different models can be used to demonstrate the same thing.	W/L	SE: 32-36 TWE: A 27, 43 MIN 32 D 32 CB 33 ITI 34
20.8.2 Use a model to predict change (e.g., stream table). M 2.8.2	I/L	SE: <i>MiniLab</i> 229, 376, 688 <i>GeoLab</i> 232-233 <i>Discovery Lab</i> 299 TWE: M 183, 214, 225, 250 MIN 202

CONTENT STANDARDS		PAGE REFERENCES
20.8.3 Identify and illustrate natural cycles within systems (e.g., water, planetary motion, climate, geological changes).	E/S	SE: 138-139, 144 #14, 211-212, 290-291, 369-374, 762-763 TWE: A 139 R 243, 291 CB 258C-D
20.8.4 Analyze data from two groups, comparing both their middles and ranges.	I/S	SE: <i>Science & Math</i> 206 <i>GeoLab</i> 232-233, 292-293 <i>Problem-Solving Lab</i> 350, 360, 401
20.8.5 Use a systematic approach to thinking critically about risks and benefits. M 6.8.5	E/L	SE: <i>Science in the News</i> 142 <i>Science & the Environment</i> 176 <i>Science & Technology</i> 324 TWE: A 53 R 197 AES 230 TS 294, 572 MIN 656
Content Standard 21.0: Scientific Values and Attitudes — <i>Students understand that science is an active process of systematically examining the natural world.</i>		
21.8.1 Explain why it is important to keep honest, clear, and accurate records.	I/L	SE: 17-19
21.8.2 Explain that hypotheses are valuable even if they turn out to be incorrect, if they lead to fruitful investigations. M 6.8.5	I/L	SE: 11-13
21.8.3 Describe how different explanations can often be given for the same evidence, and it is not always possible to tell which one is correct. E 10.8.4	I/L	SE: 376 <i>Science in the News</i> 596 TWE: TPK 375
Content Standard 22.0: Communication Skills — <i>Students understand that a variety of communication methods can be used to share scientific information.</i>		
22.8.1 Write clear, step-by-step instructions for a procedure. E 5.8.2; E 9.8.5	I/S	SE: <i>Design Your Own GeoLab</i> 92-93, 378-379, 798-799 TWE: P 13, 685 ACT 158 R 257 A 346 M 702
22.8.2 Organize information in tables and graphs and describe the relationships they reveal. E 5.8.2; M 5.8.1; M 7.8.9; G 7.8.3	E/S	SE: 17-19 <i>GeoLab</i> 20-21, 140-141, 174-175, 232-233, 292-293 <i>Discovery Lab</i> 271 <i>Design Your Own GeoLab</i> 378-379 TWE: P 213 A 699

CONTENT STANDARDS	PAGE REFERENCES
<p>22.8.3 Discuss scientific topics by paraphrasing, asking for clarification or elaboration, and expressing alternative positions using available multimedia resources. E 10.8.1; E 10.8.2; E 10.8.3; E 10.8.4; E 11.8.5; C 5.8.6</p>	<p>I/L TWE: P 82 ITI 82 E 90 A 91, 221, 340, 368, 593 DIS 135 ESJ 256</p>
<p>Content Standard 23.0: Scientific Applications of Mathematics—<i>Students understand that scientific inquiry is enhanced and often communicated by using mathematics.</i></p>	
<p>23.8.1 Explain that quantities can vary in proportion to one another (e.g., the ratio of mass to volume in the calculation of density). M 3.8.5</p>	<p>W/L SE: 15, 36, 87-88, 218-219 <i>GeoLab</i> 20-21, 140-141 <i>Problem-Solving Lab</i> 35 <i>Science & Math</i> 44 TWE: A 35 AC 85</p>
<p>23.8.2 State the purpose of each step in a calculation. M 1.8.3</p>	<p>I/L SE: <i>Using Math</i> 247, 395, 563, 590 <i>Science & Math</i> 644, 770 TWE: A 394 AC 426 MIN 503</p>
<p>23.8.3 Estimate probabilities of outcomes in familiar situations. M 5.8.1; M 1.8.7</p>	<p>W/L TWE: P 615</p>
<p>23.8.4 Select and use the appropriate SI unit for a particular measurement (e.g., meters for length, seconds for time, and kilograms for mass).</p>	<p>E/S SE: 14-15 <i>GeoLab</i> 20-21, 140-141, 406-407, 516-517 <i>Discovery Lab</i> 211 <i>MiniLab</i> 229, 428 <i>Design Your Own GeoLab</i> 798-799 TWE: P 424</p>
<p>23.8.5 Judge whether repeated measurements and computations of quantities are reasonably precise and accurate. M 3.8.2</p>	<p>I/S SE: <i>GeoLab</i> 20-21, 826-827 <i>Problem-Solving Lab</i> 110 TWE: CB 15 D 15</p>
<p>23.8.6 Make predictions based on all known data from similar conditions. M 5.8.6</p>	<p>I/L SE: <i>Problem-Solving Lab</i> 18, 217, 253 <i>MiniLab</i> 254, 290 <i>GeoLab</i> 292-293 <i>Mapping GeoLab</i> 322-323 TWE: A 18, 253, 321</p>
<p>Content Standard 24.0: Laboratory Skills and Safety—<i>Students can appropriately and safely apply the tools and techniques of scientific inquiry.</i></p>	
<p>24.8.1 Use instruments and laboratory safety equipment properly.</p>	<p>E/S SE: 12-13, 910-911 <i>MiniLab</i> 12 <i>GeoLab</i> 20-21, 70-71, 114-115, 174-175 <i>Design Your Own GeoLab</i> 92-93, 378-379, 676-677</p>

CONTENT STANDARDS		PAGE REFERENCES
24.8.2 Handle and dispose of chemicals according to established standards.	E/L	SE: 910 <i>Design Your Own GeoLab</i> 92-93 <i>GeoLab</i> 114-115
24.8.3 Choose appropriate common materials for making and repairing simple mechanical constructions.	I/L	TWE: M 28, 693, 695 P 191
24.8.4 Keep an organized record of scientific investigations. E 5.8.5; E 6.5.5; E 6.8.6; E 7.8.1; E 7.8.3; E 7.8.4; E 7.8.5; E 11.8.3; E 11.8.4	E/L	SE: <i>Design Your Own GeoLab</i> 570-571 TWE: A 59, 79 EC 90 P 218, 700 CL 308, 667, 684
24.8.5 Use appropriate technology in laboratory procedures for measuring, recording, and analyzing data (e.g., computers, graphing calculators, and probes). M 6.8.13; M 6.8.14; G 7.8.2; M 9.8.6; M 9.8.5	I/L	SE: <i>Internet GeoLab</i> 352-353, 488-489, 642-643, 852-853 TWE: P 693
24.8.6 Design a controlled experiment.	E/S	SE: <i>Design Your Own GeoLab</i> 92-93, 378-379, 704-705 TWE: P 13, 685 A 71, 115, 163 MIN 129 R 398

Codes Used for TWE Pages

A	Assessment	IM	Identifying Misconceptions
AC	Across the Curriculum	ITI	Interpreting the Illustration
ACT	Activity	ITP	Interpreting the Photo
AES	Applying Earth Science	ITU	Introducing the Unit
CB	Content Background	M	Modeling
CD	Cultural Diversity	MIN	Meeting Individual Needs
CFU	Check For Understanding	P	Project
CL	Collaborative Learning	R	Reteach
CON	Concept Development	SF	Section Focus
D	Demo	TPK	Tying to Prior Knowledge
DIS	Discussion	TS	Teaching Strategies
E	Enrichment	UA	Using an Analogy
EC	Environmental Connection		
ESJ	Earth Science Journal		