GLENCOE CORRELATION
EARTH SCIENCE
MARYLAND
Science Content Standards
Grade Eight

CONTENT STANDARDS	PAGE REFERENCES
1.0 Skills and Processes – Students will demonstrate the thinking and acting inherent in the practice of science.	
Scientific Inquiry	
By the end of **grade 8**, students know and are able to do everything required at earlier grades and:	
1.8.1 access and process information from readings, investigations, and/*or oral communications.* (MLO 1.1.1)	SE: *Science Online* 9 *Activity* 23, 142-143, 442 *MiniLab* 322 TWE: ACT 13 A 316 CC 341 IS 436
1.8.2 formulate questions, which lead to the development of a testable **hypothesis**. (MLO 1.1.2)	SE: *Design Your Own Experiment* 52-53, 80-81, 202-203, 230-231, 354-355, 452-453, 540-541, 570-571, 626-627, 662-663
1.8.3 use observations, research, and select appropriate scientific information to form **predictions** and **hypotheses**. (MLO 1.1.3)	SE: *Design Your Own Experiment* 52-53, 80-81, 230-231, 452-453, 540-541, 626-627 *Activity* 174-175, 618 *MiniLab* 369
1.8.4 recognize/*develop* well-designed procedures that identify the independent and dependent **variables,** the need for control when testing a factor, the importance of multiple trials, the selection of appropriate materials/equipment, and the development of clear, logical directions **within an investigation**. (MLO 1.1.4)	SE: 6-14 *Life Science Integration* 10 *MiniLab* 11 *Design Your Own Experiment* 202-203, 230-231 *Activity* 262-263 TWE: CB 4E LD 8 R 14 SJ 20
1.8.5 demonstrate safety when conducting an investigation.	SE: *Design Your Own Experiment* 52-53, 80-81, 230-231, 452-453, 626-627 *Activity* 67, 136, 197, 539 TWE: SJ 110
1.8.6 use appropriate instruments and metric units when making measurements and collecting data. (MLO 1.1.5)	SE: *Activity* 24-25, 45, 223, 262-263, 512-513, 539, 619 *Design Your Own Experiment* 80-81, 452-453 *MiniLab* 620

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1.8.7 collect, organize, and display data in ways others can verify (i.e., numbers, statistics, tables, graphs, drawings, charts, diagrams) using appropriate instruments (e.g., *calculators, spreadsheets, databases, and graphing programs).* (MLO 1.1.6)	SE: *Skill Builder Activities* 51, 66, 135, 161, 293, 451, 477, 677, 719, 740
1.8.8 analyze and summarize data to identify **trends** and form a logical argument about a cause and effect relationship or a sequence of events. (MLO 1.1.7)	SE: *Activity* 136, 262-263, 294-295, 316, 324-325, 348 *Problem-Solving Activity* 140 *Explore Activity* 491 TWE: C 469, 480
1.8.9 interpret and communicate findings (i.e., *speaking*, writing, and drawing) in a form suited to the purpose and audience, using developmentally appropriate methods including technology tools and telecommunications. (MLO 1.1.8)	SE: *Communicating Your Data* 53, 231 *Activity* 294-295, 420-421, 570-571, 662-663 *Skill Builder Activities* 510 TWE: A 23 ACT 54 C 141
Critical Thinking	
1.8.10 describe similarities and differences of objects, materials, concepts, and actions. (MLO 1.2.1)	SE: 184-189, 436-439, 708-713, 714- 721, 774-777 *Activity* 110-111 *Skill Builder Activities* 375 *MiniLab* 711 TWE: A 66, 216
1.8.11 construct and use classification systems for grouping objects, materials, concepts, and actions, organisms, etc. (MLO 1.2.2)	SE: 786-789 *MiniLab* 43, 104 *Skill Builder Activities* 51, 625 *Activity* 98, 110-111, 261 TWE: A 98 IS 747
*1.8.12 critique scientific information and identify possible sources of **bias**.*	SE: 20-22, 811 *Problem-Solving Activity* 21 TWE: CC 21 D 21
1.8.13 analyze the adequacy of the supporting evidence used to form conclusions, devise a plan, or solve a practical problem. (MLO 1.2.3)	SE: *Activity* 23, 45, 294-295, 420-421 *MiniLab* 127 *Design Your Own Experiment* 202-203, 354-355, 452-453, 540-541 TWE: LD 8
1.8.14 provide supporting evidence when forming conclusions, devising a plan or solving a practical problem. (MLO 1.2.4)	SE: *Activity* 23, 98, 136, 324-325, 539 *Design Your Own Experiment* 52-53, 80-81 *Problem-Solving Activity* 171 TWE: A 33 C 129
1.8.15 analyze and extend patterns. (MLO 1.2.5)	SE: *Skill Builder Activities* 216 *Problem-Solving Activity* 225, 494 *Activity* 413, 600-601

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1.8.16 modify ideas based on new information from developmentally appropriate readings, data, and the ideas of others. (MLO 1.2.6)	TWE: IM 60F, 154F, 182F, 210F, 302F, 366F, 396F, 432F, 490F, 670F
1.8.17 describe to others how scientific information was used. (MLO 1.2.7)	SE: *Communicating Your Data* 67 *Science Connection* 153 *Science Online* 199 TWE: A 23, 663 E 288
Applications of Science	
1.8.18 apply scientific principles and/or concepts to understand a new situation. (MLO 1.3.1)	SE: *Science and Society* 112-113, 264-265, 484-485, 602-603, 664-665 *Science and History* 176-177, 628-629 *Activity* 442 TWE: A 25
1.8.20 apply concepts and processes of science to take and defend a position relative to an issue. (MLO 1.3.2)	SE: *Connections* 265, 603, 665 TWE: D 128 ITI 485
1.8.21 use the knowledge of science and available scientific equipment to devise a plan to solve a global problem. (MLO 1.3.3)	SE: *Activity* 142-143 TWE: ACT 133 ITI 265
Technology	
1.8.22 explain that a **model** has advantages and disadvantages and may need to be changed for different purposes. (MLO 1.4.1)	SE: 36, 807 *Activity* 174-175, 388-389
1.8.23 demonstrate and explain that tools are essential to scientific investigation for such purposes as to **observe**, estimate, measure, compute, collect, and communicate scientific data and information (i.e., size, distance, **motion**). (MLO 1.4.2)	SE: 12-14, 280-282, 311-315, 640-645, 647-654, 655-661 *Science Online* 17 TWE: CB 4F E 480
*1.8.24 design, plan, and construct things in response to a particular need or problem (e.g., instruments, machines, structures, and **systems**).*	SE: *Activity* 142-143, 482-483 TWE: ACT 133, 562 ITI 265 C 323 MM 590
*1.8.25 evaluate and modify designs and products, when demonstrating that a solution to one problem can result in other problems and taking into account various constraints (e.g., **gravity**, property of materials, economic, political, social, ethical, and aesthetic issues).*	SE: *Activity* 142-143, 388-389, 482-483 TWE: ITI 265
1.8.26 explain that science and technology have strongly influenced life under different technological circumstances in the past and continue to do so today.	SE: 12-14 TWE: E 13 CD 16

CONTENT STANDARDS	PAGE REFERENCES
History of Science	
1.8.27 explain how people from different cultures and times have made important contributions to the advancement of science, mathematics, and technology in different cultures at different times.	SE: 36, 276-279 *Science and History* 82-83, 694-695 *Accidents in Science* 144-145 TWE: IS 12 CD 106, 336, 673 E 126
1.8.28 explain that scientists are employed in various fields that are located in diverse places ranging from laboratories to natural field settings and their findings become available to everyone in the world.	SE: 8-9 *Career Connection* 27, 205, 297, 455, 543 TWE: E 9, 653 R 22 C 315
2.0 Earth/Space Science - Students will use scientific skills and processes to explain the chemical and physical interactions (i.e., natural forces and cycles, transfer of energy) of the environment, Earth, and the universe that occur over time.	
Materials and Processes That Shape A Planet	
2.8.1 explain that some changes in a **planet's** surface are due to slow processes (i.e., **erosion**, **weathering**) and some changes are due to rapid processes (i.e., landslides, tornadoes, hurricanes, volcanic eruptions, earthquakes, flooding, and **tsunamis**). (MLO 2.1)	SE: 184-189, 212-216, 240-250, 304-307, 334-339 *Design Your Own Experiment* 202-203 TWE: CB 182E SJ 185 C 189 TFYI 335
Earth History	
*2.8.2 analyze the arrangement and size of **minerals** contained within rocks in order to describe the environmental conditions present during formation.*	SE: 62-66, 96-97, 99-100, 106-109 *Section Assessment* 97 *Activity* 98 TWE: E 78 CB 88E-F
*2.8.3 describe how **temperature**, pressure, and dissolved minerals cause the formation of rocks.*	SE: 90-93, 94-97, 99-102, 103-109 *MiniLab* 91 *Science Online* 100 TWE: CB 88E-F C 93 SJ 105 A 109
2.8.4 explain the physical processes that produce renewable and nonrenewable natural resources (e.g., fertile soils, fossils, fuels, and timber).	SE: 120-129, 130-135, 190-196 *Explore Activity* 119 TWE: CB 118E-F MM 123, 132 UA 124 V 126 LD 132

CONTENT STANDARDS	PAGE REFERENCES
2.8.5 explain that **fossils** and layers of **sedimentary rock** provide evidence of Earth's **biologic** and **geologic** history including how life and environmental conditions have changed. (MLO 2.2)	SE: 368-375, 376-381, 383-387 *Science Online* 377 *Activity* 382, 388-389 TWE: CB 366E E 373, 379 D 378
Plate Tectonics	
2.8.6 explain how Earth's **crustal plates** are influenced by activity in the **mantle** and core to produce major geologic events (i.e., mountain building, earthquakes, volcanic eruptions, ocean basin formation, sea-floor spreading, and subduction). (MLO 2.3)	SE: 276-279, 280-282, 284-293, 304-307, 337-339 *Activity* 283 TWE: A 293, 339 QD 306 C 339
Astronomy	
*2.8.7 explain that there are billions and billions of galaxies and each **galaxy** contains billions of stars that cannot be distinguished by the naked eye because of their great distance from Earth.*	SE: 752-753 *MiniLab* 754 TWE: TFYI 753
*2.8.8 compare and classify **celestial** objects (i.e., stars, planets, moons, asteroids, comets, and meteors) according to sizes, **compositions**, and surface features.*	SE: 702-706, 708-713, 714-721, 722-725, 746-751 *MiniLab* 716 TWE: A 706 ACT 709, 720 QD 710
2.8.9 explain that the motion of most objects in the **solar system** is regular and predictable and explains phenomena (i.e., day, year, phases of the moon, tides, eclipses). (MLO 2.4)	SE: 672-677, 678-682 *Science Online* 675, 681 *Section Assessment* 686 *Activity* 687, 707 TWE: LD 682 ACT 682 R 686
2.8.10 demonstrate and explain the causes of the seasons, relative lengths of days and nights, and flow of energy to and from the Earth (i.e., **tilt**, **orbit**, **latitude**, sun's **energy**). (MLO 2.5)	SE: 443-445, 447-448, 500-501, 673-677 *MiniLab* 493 *Explore Activity* 671 *Science Online* 675 *Activity* 692-693 TWE: QD 676 R 677

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2.8.11 explain the phenomenon of **tides** as related to the concept of gravity. (MLO 2.6)	SE: 535-538, 546#15 *Skill Builder Activities* 538 TWE: QD 535 TFYI 537 C 538 VL 538
Interactions of Hydrosphere and Atmosphere	
2.8.12 explain how **climate** is affected by **ocean currents**, Earth's surface features, latitude, and the **atmosphere** (i.e., volcanic eruptions, **El Niño**, fluctuations in the **jet stream**). (MLO 2.7)	SE: 492-495, 500-509, 519#21 *MiniLab* 493, 501 *Section Assessment* 510 TWE: TFYI 435 R 495 CB 503 C 531
*2.8.13 analyze Earth (i.e., land and water) data collected from space-based instruments and relate it to **weather** patterns.*	SE: *Science Online* 471 TWE: C 172
2.8.14 describe and model large-scale and local weather systems.	SE: 470-477 *Section Assessment* 477 *Activity* 481 TWE: CC 472 QD 472 R 477 A 477
2.8.15 describe the distribution and circulation of the world's water through ocean currents, glaciers, rivers, ground water, and atmosphere.	SE: 244-250, 251-256, 445-446, 526- 531 *Section Assessment* 446 *Science Online* 527 TWE: CB 238E-F SJ 445 R 446
2.8.16 describe the composition, properties, and structure of the atmosphere.	SE: 434-441 *Explore Activity* 433 *Science Online* 436 *Problem-Solving Activity* 438 *Skill Builder Activities* 441 TWE: CB 432E LD 438 TFYI 439
6.0 Environmental Science - Students will use scientific skills and processes to explain the interactions of environmental factors (living and non-living) and analyze their impact from a local to a global perspective.	
Flow of Matter and Energy	
6.8.1 explain how matter is transformed between the physical environment and organisms (e.g., food webs, nitrogen cycle) and that the total amount of matter remains constant.	SE: 93, 557-558 *Skill Builder Activities* 563 TWE: TPK 557 LSI 558 VL 558 MM 558

CONTENT STANDARDS	PAGE REFERENCES
Interdependence of Organisms	
6.8.2 identify and explain the interdependency of organisms within the environment in a given ecosystem (i.e., producer/consumer, predator/prey, host/parasite). (MLO 6.1)	SE: 557-564 TWE: TFYI 558 IS 562 R 563
Natural Resources and Human Needs	
*6.8.4 compare how different parts of the world have varying amounts and types of **natural resources** and how the use of those resources determines environmental quality (i.e., soil erosion, water pollution, deforestation).*	SE: 565-569, 588-594 *Connections* 145 *Activity* 570-571 TWE: E 122, 255, 567 V 126 CC 138 TPK 584
Environmental Issues	
6.8.5 analyze how human activities can accelerate or magnify many naturally occurring changes (i.e., erosion, air and water quality, populations). (MLO 6.2)	SE: 198-201, 215-216, 507-510, 584-587, 610-617, 619-625 *Section Assessment* 216 *Activity* 570-571 TWE: CB 582E-F
6.8.6 compare different ways of obtaining, transforming, and distributing energy from various sources (e.g., fossil fuels, sun, water, radioisotopes) and their impact on the environment.	SE: 120-129, 130-135 *Physics Integration* 131 *Science Online* 133 TWE: CB 118E-F QD 131 C 135 E 537

Codes Used for TWE Pages

A	Assessment
ACT	Activity
C	Challenge
CB	Content Background
CC	Curriculum Connection
CD	Cultural Diversity
D	Discussion
E	Extension
IM	Identifying Misconceptions
IS	Inclusion Strategies
ITI	Investigate the Issue
LD	Lab Demonstration
LSI	Life Science Integration
MM	Make a Model
QD	Quick Demo
R	Reteach
SJ	Science Journal
TFYI	Teacher FYI
TPK	Tie to Prior Knowledge
UA	Use an Analogy
V	Visualizing
VL	Visual Learning