

**GLENCOE CORRELATION**  
**SCIENCE LEVEL BLUE**  
**SOUTH DAKOTA**  
**Science Standards**  
**Eighth Grade**

STANDARDS	PAGE REFERENCES
<b>EIGHTH GRADE NATURE OF SCIENCE STANDARDS</b>	
<b>STUDENTS WILL:</b>	
1. explain how scientific theory, hypothesis generation, and experimentation are interrelated.	SE: 12-17, 514-519, 541, 746-755 <i>Activity</i> 31, 160-161, 616-617, 648-649 <i>National Geographic</i> 170-171 <i>Science and Society</i> 222-223
2. analyze the scientific contributions of various men and women within specific fields of science.	SE: 157, 347-351, 511-517, 660, 699-702, 707 <i>Science and History</i> 34-35, 250-251, 368-369 <i>Science and Society</i> 222-223
3. describe how scientific knowledge and processes have evolved and will continue to evolve over time.	SE: 74-75, 87, 104-106, 148-153, 346-353, 362-365, 510-519 <i>Physics Integration</i> 108 <i>Science and History</i> 96-97, 250-251
4. analyze the limitations of scientific study.	SE: 6, 26, 43, 159 <i>Science and History</i> 368-369 TWE: A 518
5. analyze uses of hypotheses in scientific investigations. (example: evaluating relevance of data, determining data to be obtained, and interpreting old and new data, identifying the need for further information)	SE: 12-15, 346-353, 746-747 <i>Activity</i> 31, 32-33, 64-65, 128-129, 160-161, 278-279, 648-649
6. understand the limits of accuracy inherent in a particular measuring device or procedure.	SE: 749-759, 763 <i>Activity</i> 64-65, 160-161, 466-467 <i>Earth Science Integration</i> 526 <i>Science and History</i> 96-97 TWE: A 518 DI 29
7. control variables to test hypotheses by repeated trials, and by identifying sources of experimental error.	SE: 18, 747-748 <i>Activity</i> 64-65, 160-161, 466-467, 530-531 TWE: DI 29
8. interpret data to justify predictions or conclusions.	SE: 16-17, 28-29, 349-351, 754-755 <i>Activity</i> 560-561, 616-617 <i>Problem Solving Activity</i> 244, 267, 478 TWE: VL 347
9. use research methods to investigate practical and/or personal scientific problems and questions.	SE: 12-15, 746-755 <i>Activity</i> 32-33, 64-65, 212, 391, 430-431, 560-561, 710-711 TWE: DI 18
10. select appropriate scientific equipment and technologies for investigations and experiments.	SE: 18-26, 45-47, 748-751, 769 <i>Activity</i> 64-65, 94-95, 147, 160-161, 336-337, 616-617

STANDARDS	PAGE REFERENCES
11. use proper safety procedures in all investigations.	SE: 19-20, 767 <i>Activity 147, 220-221, 271, 328, 495, 615, 616-617</i> <i>Science and Society 468-469</i>
<b>EIGHTH GRADE PHYSICAL SCIENCE STANDARDS</b>	
1. analyze the characteristics of types of matter based on physical and chemical properties. (example: elements, compounds, mixtures, acids, bases, salts, organic, inorganic, solids, liquids, and gases)	SE: 540-544, 547-558, 582-583 <i>Activity 559, 560-561, 615, 587</i> <i>Problem Solving Activity 545, 575</i> <i>Science and History 618-619</i>
2. describe the relationship between the organization and the predictive nature of the periodic table.	SE: 540-544, 547-558, 572-575, 578-586 <i>Activity 587, 588-589</i> <i>Problem Solving Activity 545</i> TWE: TC 538
3. investigate various models of atomic structure including Lewis, Bohr and electron-cloud (quantum) models.	SE: 510-519, 570-573, 576-577 <i>Activity 587, 588-589</i>
4. classify types of elements using atomic electron configuration.	SE: 544, 547-552, 554-556, 570-575, 578-581 TWE: EX 542
5. create equations which describe chemical reactions.	SE: 578-582, 600-603, 607 <i>Math Skills Activity 604</i> TWE: DI 606
6. observe and describe factors that affect the rates of reactions. (example: temperature, nature of reactants, catalysts, and surface area)	SE: 610-614, 740 <i>Activity 615, 616-617</i> TWE: TPK 608
7. relate the Law of Conservation of Matter and Energy to atomic theory.	SE: 602-603 <i>Math Skills Activity 604</i> TWE: CH 646 FF 644 FYI 643
8. explain how Newton's laws of motion apply to the way the world works. (example: inertia, acceleration, gravitation, and action/reaction)	SE: 641-646, 658-661, 664-668, 671-676 <i>Activity 647, 648-649, 677, 678-679</i> <i>Science and Society 680-681</i> TWE: CH 670
9. relate change of speed and direction to unbalanced forces acting on an object.	SE: 658-660, 664-670, 676, 707-709 <i>Activity 677, 678-679</i> <i>Life Science Integration 672</i> <i>National Geographic 675</i>
10. relate force to pressure in fluids.	SE: 688-693, 696-702, 704-709 <i>Activity 703</i> TWE: CH 695
11. relate variables to the speed of sound waves. (example: wavelength, frequency, density and state of medium)	SE: 301
12. investigate and understand states and forms of energy using temperature scales and heat transfer.	SE: <i>Activity 94-95, 425, 430-431, 466-467, 495, 496-497, 616-617</i> <i>Problem Solving Activity 478</i>

<b>STANDARDS</b>	<b>PAGE REFERENCES</b>
13. describe states and forms of energy. (example: mechanical, chemical, electrical)	SE: 143, 149-159, 185, 410-414, 489-490, 571-572, 604-607 <i>Activity</i> 616-617 <i>National Geographic</i> 415 <i>Physics Integration</i> 120
14. describe ways energy is transferred by means of heat flow, light, and sound.	SE: 301, 456, 489-490 <i>Activity</i> 430-431 <i>Earth Science Integration</i> 187, 334 <i>Environmental Science Integration</i> 526 <i>Physics Integration</i> 152
15. differentiate among reflection, refraction, and diffraction of water, light, and sound waves.	SE: 42-44, 298-300 <i>Activity</i> 48
<b>EIGHTH GRADE LIFE SCIENCE STANDARDS</b>	
1. relate structures and functions of cells, tissues, organs, and body systems to each other.	SE: 174-176, 180-183, 186-188, 213-219, 230-234, 240-241, 246-247, 258-262, 288-296 <i>Science and History</i> 250-251
2. model the process of cell division and reproduction. (example: mitosis and meiosis)	SE: 275, 320-327, 329-331 <i>Science and Society</i> 338-339
3. analyze the workings of the immune system as it protects the human body from foreign organisms. (example: viruses, bacteria, fungi)	SE: 258-262, 269-270 <i>Activity</i> 271
4. compare the complexity of human systems to those of other organisms. (example: frogs, earthworms)	SE: 303 <i>Activity</i> 192-193 <i>National Geographic</i> 170-171 TWE: EX 187 FYI 216, 244 QD 232
5. describe structure and function of the human immune system.	SE: 258-262, 269-270, 272-273
6. investigate the lineage of organisms for traits and features. (example: family genealogy, bloodline of a registered pet)	SE: 329-335 <i>Activity</i> 336-337 <i>Science and Society</i> 338-339 TWE: RE 353
7. investigate the role of probability in the study of heredity.	SE: 329-330, 332 <i>Math Skills Activity</i> 333 <i>MiniLab</i> 331
8. investigate the role of DNA in the transmission of traits and characteristics in organisms.	SE: 320-322, 329-332, 361 TWE: CD 360 FYI 481
9. recognize the impact of selective breeding, natural selection, genetic defects, and environmental adaptations on the development and survival of species.	SE: 325, 347-351, 480-483 <i>Activity</i> 354 <i>Explore Activity</i> 345 TWE: CD 331, 360 RE 353
10. investigate how organisms adapt to biotic and abiotic factors in a biome.	SE: 350-351, 480-483 <i>Activity</i> 354 <i>Explore Activity</i> 345 TWE: CD 360

STANDARDS	PAGE REFERENCES
11. describe the physical and chemical processes of photosynthesis and its importance to plant and animal life.	SE: 408 TWE: DI 606
12. describe interactions that exist among members of a biological population. (example: competition, cooperation, social hierarchy, territorial imperative)	SE: 348, 364-365, 388 <i>Problem Solving Activity</i> 349 <i>Science and Society</i> 400-401 TWE: DI 383 FYI 386
13. describe ways in which organisms within an ecosystem are dependent on one another and on nonliving components of the environment. (example: energy flow in food chains, food webs, and food pyramids)	SE: 385, 408 TWE: CB 487 FYI 395 SJ 384
14. analyze the relationships among ecosystem dynamics and human activity. (example: change in habitat size, quality, structure)	SE: 384, 387-390, 392-397 <i>Activity</i> 391 <i>Science and Society</i> 400-401 TWE: FYI 386 QD 385
15. investigate the complex relationships in terrestrial and freshwater ecosystems to predict changes within the systems.	SE: 347-349, 384-387 <i>Activity</i> 398-399 TWE: SJ 388
<b>EIGHTH GRADE EARTH/SPACE SCIENCE STANDARDS</b>	
1. analyze the role of plate tectonics in shaping Earth.	SE: 490
2. investigate and understand that many aspects of Earth's history can be inferred by studying rocks and fossils.	SE: 346, 355-357, 359, 363-365 <i>Earth Science Integration</i> 526 <i>National Geographic</i> 358
3. analyze the effects of density differences and energy transfer on the activities of the atmosphere, oceans, and Earth's interior.	SE: 450-464, 478, 490 <i>Activity</i> 465, 495 <i>MiniLab</i> 485 <i>National Geographic</i> 486-487 <i>Physics Integration</i> 85 <i>Science and History</i> 498-499
4. analyze how energy transfer between the sun, Earth, and Earth's atmosphere drives weather and climate on Earth.	SE: 450-451, 456-464, 476-479, 484-485, 489-492 <i>Activity</i> 465 <i>National Geographic</i> 486-487 TWE: CD 455
5. predict the potential impact of human activities on long-range changes in surface and climate of Earth. (example: rain forest, clear cutting, El Nino)	SE: 389-390, 416-424, 491-494 <i>Activity</i> 425, 495 <i>Explore Activity</i> 407 <i>Problem Solving Activity</i> 478 <i>Science and Society</i> 400-401
6. investigate theories related to the origin and evolution of the solar system, a galaxy, and the universe.	SE: 87, 106, 110-111, 126-127, 154-158 <i>National Geographic</i> 107

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7. describe the origin of stars and of stellar systems.	SE: 148-153, 159 <i>National Geographic</i> 158
8. describe the components of the universe.	SE: 74-76, 80-87, 92-93, 104-105, 110-121, 124-127, 138-139, 143-146, 150-155
9. relate the discovery of the speed of light to how distance is measured in the universe.	SE: 43, 141 <i>Activity</i> 128-129 <i>MiniLab</i> 156
10. investigate apparent relationships among various components of the universe.	SE: 74-76, 80-87, 92-93, 104-105, 110-121, 124-127, 138-139, 143-146, 150-155
<b>EIGHTH GRADE SCIENCE, TECHNOLOGY, ENVIRONMENT, AND SOCIETY STANDARDS</b>	
1. analyze science issues. (example: cloning, aging, farming, mining, timber)	SE: 60-62, 127, 202-206, 352-353, 408-414, 488-494 <i>Life Science Integration</i> 54 <i>Science and History</i> 368-369 <i>Science and Society</i> 222-223, 532-533
2. explain how science helps drive research and provides knowledge for better understanding.	SE: 12-20, 27-30, 52-54, 60-62, 411-414, 510-519, 707-709 <i>Science and Society</i> 222-223, 680-681
3. determine how cultural backgrounds and beliefs of different groups can affect scientific thinking.	SE: 510, 532-533 <i>Science and Society</i> 222-223, 400-401 TWE: CC 15, 52 CD 18, 383 DI 397 FF 701 FYI 9
4. analyze how society and need can affect the direction taken by science.	SE: 49-56, 60-63, 263-270, 347-353, 392-397, 408-414 <i>Science and History</i> 250-251, 368-369 <i>Science and Society</i> 222-223, 680-681
5. analyze scientific advancements that have had an impact on the environment.	SE: 389-390, 416-424 <i>Environmental Science Integration</i> 275, 526 <i>MiniLab</i> 46, 410 <i>Problem Solving Activity</i> 478
6. analyze the importance of public access to scientific discoveries.	SE: 126-127, 263-270, 461-464 <i>National Geographic</i> 170-171, 376-377 <i>Science and History</i> 250-251, 368-369 <i>Science and Society</i> 222-223, 532-533, 680-681
7. explain the importance of testing technology and products of technology in a controlled setting before submission to the general public.	SE: 27-30, 274-277 <i>Environmental Science Integration</i> 275, 526 <i>Health Integration</i> 325, 558 <i>Science and Society</i> 680-681
8. analyze the possible consequences of various alternative decisions for technological-related issues.	SE: 60-62, 210-211, 268-270, 408-414 <i>Science and History</i> 368-369 <i>Science and Society</i> 66-67, 222-223, 400-401, 532-533
9. investigate and discuss public policy decisions relating to the environment.	SE: 393-397, 419, 464, 491-494 <i>Activity</i> 560-561 TWE: DI 385 FYI 388

## Codes Used for TWE Pages

A	Activity
CB	Content Background
CC	Curriculum Connection
CD	Cultural Diversity
CH	Challenge
DI	Discussion
EX	Extension
FF	Fun Fact
FYI	Teacher FYI
QD	Quick Demo
RE	Reteach
SJ	Science Journal
TC	Theme Connection
TPK	Tie to Prior Knowledge
VL	Visual Learning