

**GLENCOE CORRELATION**  
**INTRODUCTION TO PHYSICAL SCIENCE**  
**MONTANA**

Standards for Science – End of Grade 8

BENCHMARKS	PAGE REFERENCES
<b>Science Content Standard 1</b>	
<b>Students design, conduct, evaluate and communicate scientific investigations.</b>	
Students will:	
1. identify a question, formulate a hypothesis, control and manipulate variables, devise and safely conduct experiments, predict outcomes and compare and analyze results.	SE: 12-20 <i>Activity 31, 32-33, 94-95</i> <i>Design Your Own Experiment 214-215, 276-277, 394-395</i> <i>Science Skill Handbook 522-531</i> TWE: LD 14
2. select and accurately use appropriate equipment and technology to measure (in SI units), gather, process and analyze data from a scientific investigation.	SE: 42-49, 50-54 <i>Problem-Solving Activity 17</i> <i>MiniLAB 44</i> <i>Design Your Own Experiment 60-61, 302-303</i> <i>Use the Internet 250-251</i> <i>Activity 354</i> TWE: D 15 LD 57
3. communicate and defend results of investigations; question results of investigations if different from predicted.	SE: 27-29, 56-59, 530-531 <i>Activity 31</i> <i>Communicating Your Data 153, 213, 303, 335, 461</i> TWE: A 43
4. analyze the processes, parts and sub- systems of familiar (e.g., electrical circuits, bacteria) and infer cause and effect relationships among components of the system.	SE: 8-9, 297-301, 421-425 <i>MiniLAB 8</i> <i>Design Your Own Experiment 276-277</i> <i>National Geographic 299</i> <i>Activity 459</i> TWE: SJ 8 R 11 C 425
5. create models to illustrate scientific concepts and use the model to predict change (e.g., computer simulation, a stream table, graphic representation).	SE: 21-26, 527 <i>Activity 183, 460-461</i> <i>Design Your Own Experiment 184-185, 214-215, 334-335</i> TWE: E 170
6. distinguish between controlled and uncontrolled experiments by consistency of results.	SE: 18, 523 <i>Activity 32-33</i> <i>Design Your Own Experiment 302-303, 334-335</i> TWE: D 18, 29 A 43 EA 95, 153

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<b>Science Content Standard 2</b>	
<b>Students demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems.</b>	
1. examine, describe, compare and classify objects and substances based on common physical properties and simple chemical properties.	SE: 136-140, 141-144 <i>Math Skills Activity 137</i> <i>Skill Builder Activity 140</i> <i>Activity 152-153</i> TWE: TPK 136 A 142
2. classify, describe, and model matter in terms of elements, compounds, mixtures, atoms and molecules.	SE: 76-81, 82-87, 89-93 <i>Activity 88, 94-95</i> TWE: MM 80 C 81 D 91
3. model and explain that states of matter, solids, liquids and gases, are dependent upon the quantity of energy present in the system.	SE: 104-108, 108-117 <i>National Geographic 112</i> <i>MiniLAB 114</i> <i>Activity 117</i> TWE: IM 111 E 112
4. identify and predict what will change and what will remain unchanged when matter experiences an external force or energy change.	SE: 194-199, 200-206, 207-211 <i>Design Your Own Experiment 214-215</i> TWE: IM 202 D 202 LD 211 A 504
5. identify, build, describe, measure, and analyze mechanical systems (e.g., simple and complex machines).	SE: 264-268, 269-275 <i>National Geographic 273</i> <i>Activity 276-277</i> TWE: MM 272 LD 272 C 275
6. define energy and compare and contrast the characteristics of light, heat, motion, magnetism, electricity, sound and mechanical waves.	SE: 228-232, 290-293, 344-353, 404-408, 440-446, 470-472, 477-483 <i>Use the Internet 250-251</i> <i>MiniLAB 478</i> <i>Activity 354</i>
<b>Science Content Standard 3</b>	
<b>Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.</b>	
1. compare the structure and function of prokaryotic cells (bacteria) and eukaryotic cells (plant, animal, etc.).	See Glencoe's <i>Life Science</i> SE: 39, 41, 42, 189 <i>Activity 46</i> TWE: AC 39 DI 39 VL 41 RT 45 AS 45

BENCHMARKS	PAGE REFERENCES
2. explain how organisms and systems of organisms obtain and use energy resources to maintain stable conditions and how they respond to stimuli (e.g., photosynthesis, respiration).	SE: <i>Life Science Integration</i> 237, 267, 384 TWE: E 231
3. communicate the differences in the reproductive processes of a variety of plants and animals using the principles of genetic modeling (e.g., Punet squares).	See Glencoe's <i>Life Science</i> SE: 101-102, 104-107, 130-131, 225, 276-277 <i>MiniLab</i> 101 <i>Math Skills Activity</i> 131 TWE: MAM 107
4. investigate and explain the interdependent nature of biological systems in the environment and how they are affected by human interaction.	See Glencoe's <i>Life Science</i> SE: 728-731, 733, 786-794 <i>National Geographic</i> 732 <i>Time: Science and Society</i> 770-771 <i>Activity</i> 795 TWE: RT 794
5. use a basic classification scheme to identify local plants and animals.	See Glencoe's <i>Life Science</i> SE: 22-26 <i>Explore Activity</i> 5 <i>Activity</i> 27, 263 <i>Activity: Model and Invent</i> 232-233 <i>National Geographic</i> 246 TWE: AC 26
<b>Science Content Standard 4</b>	
<b>Students demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.</b>	
1. model and explain the internal structure of the Earth and describe the formation and composition of Earth's external features in terms of the rock cycle and plate tectonics.	See Glencoe's <i>Earth Science</i> SE: 284-293, 304-307, 313-315, 337-339, 778-781 <i>Science Online</i> 287 TWE: CB 274E-F MM 314 C 339
2. differentiate between rocks and classify rocks by how they are formed.	SE: <i>Earth Science Integration</i> 93
3. explain scientific theories about the origin and evolution of the Earth and Solar System by describing how fossils are used as evidence of climatic change over time.	See Glencoe's <i>Earth Science</i> SE: 277-279, 368-375, 404-405 <i>Activity</i> 420-421 TWE: VL 374 IS 374 E 404
4. describe the water cycle, the composition and structure of the atmosphere, and the impact of oceans on large scale weather patterns.	See Glencoe's <i>Earth Science</i> SE: 434-441, 445-446, 493-494, 501-503, 578 <i>Science Online</i> 436 TWE: SJ 445 R 446 CC 493 TFYI 494

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5. describe and model the motion and tilt of Earth in relation to the Sun, and explain the concept of day, night, seasons, year.	See Glencoe's <i>Earth Science</i> SE: 500-501, 672-677 <i>Explore Activity</i> 671 <i>Activity</i> 692-693 TWE: IM 490F R 677
6. describe the Earth, Moon, planets and other objects in space in terms of size, structure, and movement in relation to the Sun.	See Glencoe's <i>Earth Science</i> SE: 537-538, 672-677, 678-682, 702-706, 708-713, 714-721, 722-725 <i>MiniLab</i> 679 <i>Activity</i> 687, 726-727
<b>Science Content Standard 5</b>	
<b>Students understand how scientific knowledge and technological developments impact society.</b>	
1. identify the specific fields of scientific endeavor and related occupations within those fields.	SE: 9-11 TWE: USW 9 D 9 IM 10 E 10, 24
2. model collaborative problem solving and give examples of how scientific knowledge is shared, critiqued, and scrutinized by other scientists and the public.	SE: 17, 27-30 <i>Design Your Own Experiment</i> 60-61 TWE: E 16 A 24 C 289
3. investigate local problems and/or issues and propose solutions or products that address a need, which considers variables (e.g., environmental risks).	SE: 242-249, 295 <i>Use the Internet</i> 250-251 <i>Science and Society</i> 462-463 TWE: E 143 D 305 C 458
4. apply scientific knowledge and process skills to understand issues and everyday events.	SE: <i>Problem-Solving Activity</i> 113, 244 <i>Design Your Own Experiment</i> 126-127, 302-303 <i>Life Science Integration</i> 142 <i>National Geographic</i> 442 TWE: E 122, 143 D 292 R 295
<b>Science Content Standard 6</b>	
<b>Students understand historical developments in science and technology.</b>	
1. trace developments that demonstrate scientific knowledge is subject to change as new evidence becomes available.	SE: 75-81 <i>Science and History</i> 96-97 <i>National Geographic</i> 386 TWE: E 84
2. identify major milestones in science that have impacted science, technology and society.	SE: 389-393, 421-423 <i>Science and Society</i> 278-279 <i>Science and History</i> 396-397 <i>Oops</i> 428-429 TWE: CC 15, 391 TFYI 417 SJ 423

## Codes Used for TWE Pages

A	Activity
C	Challenge
CC	Curriculum Connection
D	Discussion
E	Extension
EA	Error Analysis
IM	Identifying Misconceptions
LD	Lab Demonstration
MM	Make a Model
R	Reteach
SJ	Science Journal
TFYI	Teacher For Your Information
TPK	Tie to Prior Knowledge
USW	Use Science Words