

GLENCOE CORRELATION
EARTH SCIENCE
MONTANA
Standards for Science – End of Grade 8

BENCHMARKS	PAGE REFERENCES
Science Content Standard 1	
Students design, conduct, evaluate and communicate scientific investigations.	
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: <i>MiniLab</i> 11 <i>Activity</i> 52-53, 80-81, 202-203, 230-231, 354-355, 452-453, 540-541, 626-627, 758-759
2. select and accurately use appropriate equipment and technology to measure (in SI units), gather, process and analyze data from a scientific investigation.	SE: <i>Activity</i> 45, 52-53, 80-81, 197, 202-203, 452-453, 540-541, 618 <i>MiniLab</i> 561, 621
3. communicate and defend results of investigations; question results of investigations if different from predicted.	SE: <i>Activity</i> 202-203, 388-389, 420-421, 452-453, 512-513, 540-541, 626-627 <i>Communicating Your Data</i> 143, 231, 759
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: 190-196, 244-250, 434-441, 470-471, 613 <i>Life Science Integration</i> 193 <i>Activity</i> 687, 707, 726-727 TWE: LD 492 V 613
5. create models to illustrate scientific concepts and use the model to predict change (e.g., computer simulation, a stream table, graphic representation).	SE: <i>Activity</i> 262-263, 388-389, 413, 539, 692-693 <i>Explore Activity</i> 397, 609 <i>MiniLab</i> 553 TWE: MM 43, 440
6. distinguish between controlled and uncontrolled experiments by consistency of results.	SE: 9-11 <i>MiniLab</i> 11 <i>Activity</i> 202-203, 230-231, 262-263, 354-355, 511, 512-513 TWE: R 14 SJ 20
Science Content Standard 2	
Students demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems.	
1. examine, describe, compare and classify objects and substances based on common physical properties and simple chemical properties.	SE: 39-44, 46-51, 68-72 <i>Activity</i> 45, 52-53, 80-81 <i>Math Skills Activity</i> 47 <i>Problem-Solving Activity</i> 70 TWE: VL 16 R 44
2. classify, describe, and model matter in terms of elements, compounds, mixtures, atoms and molecules.	SE: 34-38, 39-44, 46-51, 54-55 <i>MiniLab</i> 35, 43 <i>Skill Builder Activities</i> 44 TWE: CB 32E ACT 36 R 38

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3. model and explain that states of matter, solids, liquids and gases, are dependent upon the quantity of energy present in the system.	SE: 46-51 <i>Chemistry Integration 97</i> TWE: TFYI 47
4. identify and predict what will change and what will remain unchanged when matter experiences an external force or energy change.	SE: 46-51, 65, 91-93, 94-96 <i>Explore Activity 33</i> TWE: QD 40 R 51 A 188 UA 444
5. identify, build, describe, measure, and analyze mechanical systems (e.g., simple and complex machines).	TWE: MM 132
6. define energy and compare and contrast the characteristics of light, heat, motion, magnetism, electricity, sound and mechanical waves.	SE: 308-312, 532-534, 640-641 <i>Physics Integration 309, 683</i> TWE: CO 83 LD 312 R 538
Science Content Standard 3	
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.	
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
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: 557-564 <i>Life Science Integration 558</i> TWE: QD 498 TFYI 558 D 559 IM 559
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 101</i> <i>Math Skills Activity 131</i> TWE: MAM 107
4. investigate and explain the interdependent nature of biological systems in the environment and how they are affected by human interaction.	SE: 557-564, 565-569, 584-587, 628-629 <i>Life Science Integration 440</i> TWE: A 441 TPK 557 IS 562 CD 566 TFYI 568

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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 5</i> <i>Activity 27, 263</i> <i>Activity: Model and Invent 232-233</i> <i>National Geographic 246</i> TWE: AC 26
Science Content Standard 4	
Students demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.	
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.	SE: 284-293, 304-307, 313-315, 337-339, 778-781 <i>Science Online 287</i> TWE: CB 274E-F MM 314 C 339
2. differentiate between rocks and classify rocks by how they are formed.	SE: 90-93, 94-97, 99-102, 103-109, 117 #21 <i>Activity 98, 110-111</i> TWE: CB 88E-F R 109 A 111
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.	SE: 277-279, 368-375, 404-405 <i>Activity 420-421</i> 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.	SE: 434-441, 445-446, 493-494, 501-503, 578 <i>Science Online 436</i> TWE: SJ 445 R 446 CC 493 TFYI 494
5. describe and model the motion and tilt of Earth in relation to the Sun, and explain the concept of day, night, seasons, year.	SE: 500-501, 672-677 <i>Explore Activity 671</i> <i>Activity 692-693</i> 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.	SE: 537-538, 672-677, 678-682, 702-706, 708-713, 714-721, 722-725 <i>MiniLab 679</i> <i>Activity 687, 726-727</i>
Science Content Standard 5	
Students understand how scientific knowledge and technological developments impact society.	
1. identify the specific fields of scientific endeavor and related occupations within those fields.	SE: <i>Career Connections 27, 205, 297, 455, 543</i> TWE: E 9 IS 168 C 315

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2. model collaborative problem solving and give examples of how scientific knowledge is shared, critiqued, and scrutinized by other scientists and the public.	SE: 15-21 <i>Activity 23</i> , 142-143 TWE: R 22, 625 ACT 597, 665
3. investigate local problems and/or issues and propose solutions or products that address a need, which considers variables (e.g., environmental risks).	SE: <i>Activity 142-143</i> <i>Communicating Your Data</i> 263 <i>Skill Builder Activities</i> 594 <i>MiniLab</i> 597 TWE: ACT 133, 199 E 194 II 265 C 599
4. apply scientific knowledge and process skills to understand issues and everyday events.	SE: 176-177, 198-201, 264-265, 483-484 <i>Problem-Solving Activity</i> 140 <i>Activity</i> 442 TWE: II 113 C 201, 441 D 265
Science Content Standard 6	
Students understand historical developments in science and technology.	
1. trace developments that demonstrate scientific knowledge is subject to change as new evidence becomes available.	SE: 15-21, 276-279, 280-282, 284-293, 628-629, 702-706, 754-757 <i>Science Online</i> 277 TWE: SJ 285
2. identify major milestones in science that have impacted science, technology and society.	SE: 82-83, 386, 401-402, 628-629, 647-654, 655-661, 688-691 TWE: SJ 386, 704

Codes Used for TWE Pages

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