

GLENCOE CORRELATION
SCIENCE LEVEL RED
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: 6-10, 13, 702-704, 709-711 <i>MiniLAB 9</i> <i>Design Your Own Experiment 28-29, 50-51, 172-173, 234-235, 300-301</i>
2. select and accurately use appropriate equipment and technology to measure (in SI units), gather, process and analyze data from a scientific investigation.	SE: 8-12, 704-710 <i>MiniLAB 9</i> <i>Activity 262, 609</i> <i>Design Your Own Experiment 28-29, 268-269, 482-483</i>
3. communicate and defend results of investigations; question results of investigations if different from predicted.	SE: <i>Communicating Your Data 29, 51, 173</i> <i>Design Your Own Experiment 28-29, 50-51, 172-173</i> TWE: EA 29, 173 CYD 51
4. analyze the processes, parts and sub-systems of familiar systems (e.g., electrical circuits, bacteria) and infer cause and effect relationships among components of the system.	SE: 47-49, 60-62, 498-505, 636-639 <i>Math Skills Activity 47, 61, 637</i> <i>Astronomy Integration 47</i> <i>Problem-Solving Activity 503</i> <i>MiniLAB 638</i> <i>Activity 643</i>
5. create models to illustrate scientific concepts and use the model to predict change (e.g., computer simulation, a stream table, graphic representation).	SE: 707 <i>Model and Invent 108-109, 202-203, 330-331, 362-363, 456-457</i> <i>MiniLAB 160, 232, 293, 352</i>
6. distinguish between controlled and uncontrolled experiments by consistency of results.	Experiments with controls are found in: SE: <i>Design Your Own Experiment 28-29, 50-51, 172-173, 234-235, 300-301, 482-483</i> <i>Science Online 8</i>
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: 528-531, 535-539, 540-546 <i>Science Online 529</i> <i>National Geographic 536</i> <i>MiniLAB 544</i> <i>Problem-Solving Activity 545</i> TWE: QD 529 TPK 528 A 535, 536

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2. classify, describe, and model matter in terms of elements, compounds, mixtures, atoms and molecules.	SE: 537-539 TWE: A 537 D 537, 538 MM 538
3. model and explain that states of matter, solids, liquids and gases, are dependent upon the quantity of energy present in the system.	SE: 531-533 <i>MiniLAB</i> 531 TWE: VL 532 MM 532 QD 533
4. identify and predict what will change and what will remain unchanged when matter experiences an external force or energy change.	SE: 531-533, 544-546, 562-569 <i>Problem-Solving Activity</i> 545 <i>Math Skills Activity</i> 566 <i>MiniLAB</i> 531, 564 <i>National Geographic</i> 568
5. identify, build, describe, measure, and analyze mechanical systems (e.g., simple and complex machines).	SE: 570-576 <i>Math Skills Activity</i> 571 <i>MiniLAB</i> 573 <i>Activity</i> 577 TWE: D 572 A 574, 575 E 575 R 576
6. define energy and compare and contrast the characteristics of light, heat, motion, magnetism, electricity, sound and mechanical waves.	SE: 588-595, 596-603, 624-630, 631-635, 654-659, 661-669 <i>Activity</i> 670-671 <i>National Geographic</i> 591, 626 <i>MiniLAB</i> 593, 602, 632, 658 <i>Problem-Solving Activity</i> 597, 657
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.).	SE: 40-43, 60-62 <i>MiniLAB</i> 42, 61 <i>Activity</i> 44 TWE: 58E E 41 A 40
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: 15, 42-43, 62, 343 <i>Science Online</i> 15
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).	Reproductive processes of various organisms are found in: SE: 62, 88, 101, 134-137, 154, 155, 200 TWE: MM 62

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4. investigate and explain the interdependent nature of biological systems in the environment and how they are affected by human interaction.	SE: 216-221, 223-227, 257-261, 263-267 <i>Activity 222, 262</i> <i>Design Your Own Experiment 234-235, 268-269</i> <i>MiniLAB 226, 260</i> TWE: R 261
5. use a basic classification scheme to identify local plants and animals.	SE: 22-26 <i>MiniLAB 25</i> <i>Activity 27, 139</i> <i>Model and Invent 108-109</i> TWE: A 26 R 26 QD 23
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: 395-396, 408-411, 417-419 <i>Science Online 394</i> <i>MiniLAB 417</i> TWE: MM 418 UA 418
2. differentiate between rocks and classify rocks by how they are formed.	SE: 385-391, 392-396 <i>MiniLAB 390</i> <i>National Geographic 388</i> <i>Activity 397</i> TWE: D 386 A 387, 393 QD 394 E 394 C 396
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.	Fossil record is discussed in: SE: 119, 390-391 <i>MiniLAB 390</i>
4. describe the water cycle, the composition and structure of the atmosphere, and the impact of oceans on large scale weather patterns.	SE: 282-289, 293, 346-350 <i>Problem-Solving Activity 286</i> <i>MiniLAB 287, 293, 349</i> <i>Science Online 347</i> TWE: D 347 QD 350
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: 492-493 <i>Science Online 493</i> TWE: R 496 IM 493 TFYI 493
6. describe the Earth, Moon, planets and other objects in space in terms of size, structure, and movement in relation to the Sun.	SE: 492-496, 498-505, 506-507 <i>MiniLAB 495, 507</i> <i>Problem-Solving Activity 503</i> <i>Activity 497</i> TWE: R 505

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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.	Science related careers are found in: <i>Career Connection</i> 237, 271, 303, 517, 613, 673 TWE: CC 237, 271, 303, 517, 613, 673
2. model collaborative problem solving and give examples of how scientific knowledge is shared, critiqued, and scrutinized by other scientists and the public.	SE: 10, 711 <i>Design Your Own Experiment</i> 28-29, 50-51, 172-173 <i>Communicating Your Data</i> 29, 51 TWE: A 11 EA 173
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>Science and Society</i> 332-333, 646-647 <i>Connections</i> 333, 647 TWE: II 333 CB 332, 646 C 333, 647
4. apply scientific knowledge and process skills to understand issues and everyday events.	SE: <i>Science and Society</i> 30-31, 52-53, 110-111, 332-333, 646-647 <i>Connections</i> 31, 333 TWE: C 31, 333 II 53, 333
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: 10, 19-21 <i>Science and Society</i> 52-53, 332-333 <i>National Geographic</i> 20 TWE: CB 52, 332
2. identify major milestones in science that have impacted science, technology and society.	SE: 19-21, 22-26, 38-39, 513 <i>National Geographic</i> 20 <i>MiniLAB</i> 25

Codes Used for TWE Pages

A	Activity	IM	Identifying Misconceptions
C	Connections	MM	Make a Model
CB	Content Background	QD	Quick Demo
CC	Career Connection	R	Reteach
CYD	Communicate Your Data	TFYI	Teacher FYI
D	Discussion	TPK	Tie to Prior Knowledge
E	Extension	UA	Use an Analogy
EA	Error Analysis	VL	Visual Learning
II	Investigate the Issue		