



Science

LEVEL RED

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STANDARDS

PAGE REFERENCES

Content Standard 1—Students design, conduct, evaluate, and communicate processes and results of scientific investigations, and demonstrate thinking skills associated with this procedural knowledge.

1. identify a question, determine relevant variables, formulate a testable hypothesis, plan and predict the outcome of an investigation, safely conduct scientific investigation, and compare and analyze data.

Student Edition:

12-18

Lab 32-33

Lab: Design Your Own 60-61, 88-89, 244-245, 488-489, 636-637

MiniLab 14

Science Skill Handbook 681-686

Teacher Wraparound Edition:

QD 18

2. select and accurately use appropriate tools including technology to make measurements (in metric units), gather, process and analyze data from scientific investigations.

Student Edition:

50-54

Lab 55, 184-185, 573

Lab: Design Your Own 60-61, 244-245, 332-333, 364-365

Launch Lab 41

MiniLab 52

Science Skill Handbook 682-685

Teacher Wraparound Edition:

DIF 52

STANDARDS	PAGE REFERENCES
3. critically review, communicate and defend results of investigations.	Student Edition: 17, 27-29 <i>Lab</i> 31, 32-33 <i>Lab: Design Your Own</i> 88-89, 332-333, 520-521, 636-637 <i>Science Skill Handbook</i> 686
4. create models to illustrate scientific concepts and use the model to predict change. (e.g., computer simulation, stream table, graphic representation)	Student Edition: 21-23, 25-26 <i>Lab</i> 298, 447, 626 <i>Lab: Design Your Own</i> 332-333 <i>Lab: Model and Invent</i> 306-307, 396-397 <i>MiniLab</i> 301, 383, 441 <i>National Geographic</i> 24 Teacher Wraparound Edition: MAM 25; QD 23; RT 26
5. identify strengths and weakness in an investigation design.	Student Edition: <i>Lab</i> 32-33 <i>Lab: Design Your Own</i> 60-61, 332-333, 488-489, 580-581 Teacher Wraparound Edition: DI 29; DIF 16; EA 333
Content Standard 2—Students demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems, and demonstrate thinking skills associated with this knowledge.	
1. classify, describe, and manipulate physical models of matter in terms of: elements, and compounds, pure substances and mixtures, atoms, and molecules.	Student Edition: 98-105, 106, 109-111, 113-117 <i>Lab</i> 118-119 <i>MiniLab</i> 114 <i>Science Online</i> 116 Teacher Wraparound Edition: AIL 118; DI 115; DIF 116; MAM 104, 114; RT 105
2. examine, describe, compare and classify objects and substances based on common physical properties and simple chemical properties.	Student Edition: 70-73, 75-77, 81-84 <i>Lab</i> 87 <i>Lab: Design Your Own</i> 88 <i>Launch Lab</i> 69 <i>MiniLab</i> 73 <i>Science Online</i> 71 Teacher Wraparound Edition: AC 77; LD 72

STANDARDS	PAGE REFERENCES
<p>3. describe energy and compare and contrast the characteristics of light, heat, motion, magnetism, electricity, sound and mechanical waves.</p>	<p>Student Edition: 162-164, 166-169, 170-177, 194-196, 201-204, 209-213, 227-230, 231-235 <i>Integrate Life Science</i> 164 <i>Lab</i> 216-217, 236 <i>Launch Lab</i> 161 <i>MiniLab</i> 212 <i>National Geographic</i> 165 Teacher Wraparound Edition: DIF 173; TFYI 163, 171</p>
<p>4. model and explain the states of matter are dependent upon the quantity of energy present in the system and describe what will change and what will remain unchanged at the particulate level when matter experiences an external force or energy change.</p>	<p>Student Edition: 73-75 <i>Section Review</i> 79 (#4) Teacher Wraparound Edition: QD 75; TFYI 73; VL 74</p>
<p>5. identify, build, describe, measure, and analyze mechanical systems (e.g., simple and complex machines) and describe the forces acting within those systems.</p>	<p>Student Edition: 130-135, 136-141, 143, 144-150 <i>Lab</i> 151 <i>MiniLab</i> 147 Teacher Wraparound Edition: AC 149; DI 146; QD 149; TTPK 144; UAA 139; VL 148</p>
<p>6. analyze data in simple scientific contexts. (e.g., density)</p>	<p>Student Edition: <i>Applying Science</i> 171 <i>Lab</i> 87, 151, 183, 184-185, 236 <i>MiniLab</i> 73, 167 <i>Science Online</i> 72 Teacher Wraparound Edition: IL 141; LD 72</p>
<p>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, and demonstrate thinking skills associated with this knowledge.</p>	
<p>1. compare the structure and function of prokaryotic cells (bacteria) and eukaryotic cells (plant, animal, etc.).</p>	<p>Student Edition: 476-481, 482-484 <i>Launch Lab</i> 475 <i>Lab</i> 482 <i>MiniLab</i> 480, 484 Teacher Wraparound Edition: AC 478; QD 477</p>

STANDARDS	PAGE REFERENCES
<p>2. explain how organisms and systems of organisms obtain and use energy resources to maintain stable conditions (e.g., photosynthesis, respiration).</p>	<p>Student Edition: 180, 480-481, 634 <i>Integrate Physics</i> 634 <i>Section Review</i> 182 (#4), 481 (#3) Teacher Wraparound Edition: LD 480</p>
<p>3. communicate the differences in the reproductive processes of a variety of plants and animals using the principles of genetic modeling (e.g., Punnet squares).</p>	<p>Student Edition: 590-595, 599-605 <i>Applying Math</i> 603 <i>Lab: Use the Internet</i> 606-607 <i>Launch Lab</i> 589 <i>MiniLab</i> 593 <i>National Geographic</i> 596 Teacher Wraparound Edition: CFU 605; DIF 593; VL 595; TTPK 599</p>
<p>4. investigate and explain the interdependent nature of both the individuals and species in the environment and explain how they are affected by human interaction.</p>	<p>Student Edition: 618-620, 625, 627-632, 646-653, 655-662 <i>Applying Science</i> 631 <i>Lab</i> 626 <i>National Geographic</i> 321 Teacher Wraparound Edition: AS 662</p>
<p>5. create and use a basic classification scheme to identify plants and animals, preferably using indigenous plants and animals.</p>	<p>Student Edition: 79, 500, 530-531 <i>Launch Lab</i> 497 <i>National Geographic</i> 78 <i>Section Review</i> 500 (#4) Teacher Wraparound Edition: QD 531</p>
<p>6. utilize correlational (e.g., population growth) and probabilistic (e.g., genetic sampling) thinking skills in simple contexts.</p>	<p>Student Edition: 602 <i>Applying Math</i> 603 <i>Applying Science</i> 631 <i>Lab: Design Your Own</i> 636-637 <i>Lab: Use the Internet</i> 606-607 <i>MiniLab</i> 601, 628 <i>Section Review</i> 605 (#5) Teacher Wraparound Edition: IL 600; QD 631</p>

STANDARDS	PAGE REFERENCES
<p>Content Standard 4—Students demonstrate knowledge of the composition, structures, processes and interactions of Earth’s systems and other objects in space, and demonstrate thinking skills associated with this knowledge.</p>	
<p>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.</p>	<p>Student Edition: 289-293, 295-297, 299-305 <i>Integrate Chemistry</i> 290 <i>Lab</i> 298 <i>Lab: Model and Invent</i> 306-307 <i>MiniLab</i> 295 <i>National Geographic</i> 294 <i>Science Online</i> 293 Teacher Wraparound Edition: AC 293; CC 289; DIF 291; IL 289; TFYI 296</p>
<p>2. differentiate between both rock types and mineral types and classify both by how they are formed and the utilization by humans. (e.g., arrowheads, cooking tools)</p>	<p>Student Edition: 256-264, 265-267, 269-271, 272-274 <i>Lab</i> 278-279 <i>MiniLab</i> 261 <i>National Geographic</i> 368 <i>Science Online</i> 262, 274 Teacher Wraparound Edition: CC 260; TTPK 272</p>
<p>3. explain scientific theories about how fossils are used as evidence of changes over time.</p>	<p>Student Edition: 271 <i>MiniLab</i> 270</p>
<p>4. describe the water cycle, the composition and structure of the atmosphere and the impact of oceans on large scale weather patterns.</p>	<p>Student Edition: 56, 342-345, 347, 361, 380-384 <i>MiniLab</i> 347 <i>National Geographic</i> 346 <i>Science Online</i> 381 Teacher Wraparound Edition: AC 346; DIF 361; SJ 344; UAA 344</p>
<p>5. describe and model the motion and tilt of earth in relation to the sun, and explain the concepts of day, night, seasons, year, and climatic changes.</p>	<p>Student Edition: 440-441, 446 <i>MiniLab</i> 441 Teacher Wraparound Edition: CC 441; IM 441; TFYI 441</p>

STANDARDS	PAGE REFERENCES
6. describe the earth, moon, planets and other objects in space in terms of size, structure, and movement in relation to the sun.	<p>Student Edition: 440-446, 450-454 <i>Applying Science</i> 453 <i>MiniLab</i> 450 <i>Section Review</i> 455 (#1, #2, #6)</p> <p>Teacher Wraparound Edition: IM 453; LD 450</p>
7. identify scientific theories about the origin and evolution of the earth and solar system.	This standard falls outside the scope of this text and can be met during teacher/class discussion.
<p>Content Standard 5—Students understand how scientific knowledge and technological developments impact today’s societies and cultures.</p>	
1. describe the specific fields of science and technology as they relate to occupations within those fields.	<p>Student Edition: 9-11 <i>Integrate Career</i> 13, 43, 45, 104, 418, 442, 485, 538, 604 <i>Unit Project</i> 127</p> <p>Teacher Wraparound Edition: AC 10; DIF 10; UP 473</p>
2. apply scientific knowledge and process skills to understand issues and everyday events.	<p>Student Edition: 646-647, 655-662, 663-667 <i>Applying Science</i> 85, 115, 392 <i>Lab: Design Your Own</i> 60-61, 88-89 <i>Lab: Use the Internet</i> 152-153 <i>Time: Science and Society</i> 490, 608</p> <p>Teacher Wraparound Edition: AC 608</p>
3. simulate collaborative problem solving and give examples of how scientific knowledge and technology are shared with other scientists and the public.	<p>Student Edition: 17 <i>Lab: Design Your Own</i> 60-61, 244-245, 488-489 <i>Science Skill Handbook</i> 686 <i>Time: Science and Society</i> 608</p> <p>Teacher Wraparound Edition: AC 19</p>
4. use scientific knowledge to investigate problems and their proposed solutions and evaluate those solutions while considering environmental impacts.	<p>Student Edition: <i>Lab: Design Your Own</i> 464-465, 520-521, 668-669 <i>Lab: Model and Invent</i> 550-551 <i>Time: Science and History</i> 334 <i>Time: Science and Society</i> 638</p> <p>Teacher Wraparound Edition: DI 638</p>

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Content Standard 6—Students understand historical developments in science and technology.	
<p>1. trace development that demonstrate scientific knowledge is subject to change as new evidence becomes available.</p>	<p>Student Edition: 7, 26, 99-100 <i>Integrate Chemistry</i> 290 <i>Oops! Accidents in Science</i> 552 <i>Time: Science and History</i> 90, 120</p> <p>Teacher Wraparound Edition: DIF 104; VL 7</p>
<p>2. identify major milestones in science that have impacted science, technology, and society.</p>	<p>Student Edition: 99-105, 138-141, 415-418, 420-422, 423-429, 476-477 <i>National Geographic</i> 108 <i>Oops! Accidents in Science</i> 552 <i>Time: Science and History</i> 90 <i>Time: Science and Society</i> 490</p> <p>Teacher Wraparound Edition: ATE 552; CC 15, 138; CDIV 18; DI 90; TFYI 108</p>
<p>3. describe and explain science as a human endeavor.</p>	<p>Student Edition: 6-7, 12-17, 27-30 <i>Oops! Accidents in Science</i> 552 <i>Time: Science and History</i> 34, 120, 582</p> <p>Teacher Wraparound Edition: CC 15; DI 34; TTPK 6; VL 13</p>