



Life Science

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STANDARDS	PAGE REFERENCES
<p>STATE GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.</p> <hr/> <p>A. Know and apply the concepts, principles and processes of scientific inquiry.</p>	
<p>11.A.3a Formulate hypotheses that can be tested by collecting data.</p>	<p>Student Edition: 8 <i>Lab: Design Your Own</i> 28-29, 56-57, 174-175, 200-201, 418-419, 558-559, 672-673, 702-703 Teacher Wraparound Edition: AIL 292, 530; QD 8</p>
<p>11.A.3b Conduct scientific experiments that control all but one variable.</p>	<p>Student Edition: 9 <i>Lab</i> 318-319, 787 <i>Lab: Design Your Own</i> 28-29, 292-293 Teacher Wraparound Edition: AIL 200, 292, 530, 730; AS 293</p>
<p>11.A.3c Collect and record data accurately using consistent measuring and recording techniques and media.</p>	<p>Student Edition: <i>Lab</i> 501, 603, 642-643, 787 <i>Lab: Design Your Own</i> 28-29, 174-175, 418-419 <i>Lab: Use the Internet</i> 446-447 <i>MiniLab</i> 9, 247, 572 <i>Science Skill Handbook</i> 806-809</p>

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11.A.3d Explain the existence of unexpected results in a data set.	<p>Student Edition: <i>Lab</i> 86-87, 310, 530-531 <i>Lab: Design Your Own</i> 28-29, 144-145, 174-175, 292-293, 418-419</p> <p>Teacher Wraparound Edition: EA 29, 87, 145, 175, 293, 419, 531</p>
11.A.3e Use data manipulation tools and quantitative (e.g., mean, mode, simple equations) and representational methods (e.g., simulations, image processing) to analyze measurements.	<p>Student Edition: <i>Applying Math</i> 347, 487, 623 <i>Lab</i> 133, 310, 501, 603, 642-643 <i>Lab: Design Your Own</i> 174-175 <i>Lab: Use the Internet</i> 446-447 <i>Math Skill Handbook</i> 837-839 <i>MiniLab</i> 9</p> <p>Teacher Wraparound Edition: DIF 131</p>
11.A.3f Interpret and represent results of analysis to produce findings.	<p>Student Edition: <i>Lab</i> 310, 318-319, 530-531, 787 <i>Lab: Design Your Own</i> 28-29, 200-201, 292-293, 418-419, 642-643, 702-703, 730-731 <i>Lab: Use the Internet</i> 446-447 <i>MiniLab</i> 136</p> <p>Teacher Wraparound Edition: DIF 730</p>
11.A.3g Report and display the process and results of a scientific investigation.	<p>Student Edition: <i>Lab</i> 318-319, 642-643 <i>Lab: Design Your Own</i> 174-175, 292-293, 418-419, 702-703 <i>Lab: Use the Internet</i> 446-447</p> <p>Teacher Wraparound Edition: AS 319, 447; CYD 703</p>
B. Know and apply the concepts, principles and processes of technological design.	
11.B.3a Identify an actual design problem and establish criteria for determining the success of a solution.	<p>Student Edition: <i>Lab: Model and Invent</i> 472-473, 792-793 <i>Oops! Accidents in Science</i> 504</p> <p>Teacher Wraparound Edition: AC 777; AYD 473; IN 504</p>

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11.B.3b Sketch, propose and compare design solutions to the problem considering available materials, tools, cost effectiveness and safety.	Student Edition: <i>Lab: Model and Invent</i> 472-473, 792-793 <i>Oops! Accidents in Science</i> 504 Teacher Wraparound Edition: AC 777; AYD 473; IN 504
11.B.3c Select the most appropriate design and build a prototype or simulation.	Student Edition: <i>Lab: Model and Invent</i> 472-473, 792-793 <i>Oops! Accidents in Science</i> 504 Teacher Wraparound Edition: AC 777; AYD 473; IN 504
11.B.3d Test the prototype using available materials, instruments and technology and record the data.	Student Edition: <i>Lab: Model and Invent</i> 792-793 <i>Oops! Accidents in Science</i> 504 Teacher Wraparound Edition: AC 777; IN 504
11.B.3e Evaluate the test results based on established criteria, note sources of error and recommend improvements.	Student Edition: <i>Lab: Model and Invent</i> 792-793 <i>Oops! Accidents in Science</i> 504 Teacher Wraparound Edition: AC 777; IN 504
11.B.3f Using available technology, report the relative success of the design based on the test results and criteria.	Student Edition: <i>Lab: Model and Invent</i> 792-793 <i>Oops! Accidents in Science</i> 504 Teacher Wraparound Edition: AC 777; IN 504
STATE GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.	
A. Know and apply concepts that explain how living things function, adapt and change.	
12.A.3a Explain how cells function as “building blocks” of organisms and describe the requirements for cells to live.	Student Edition: 14, 38, 45 Teacher Wraparound Edition: TC 36
12.A.3b Compare characteristics of organisms produced from a single parent with those of organisms produced by two parents.	Student Edition: 101-102, 104-105, 210, 224, 272-273 <i>MiniLab</i> 273 <i>Reading Check</i> 101 <i>Section Review</i> 102 (#2); 109 (#4); 275 (#2, #3) Teacher Wraparound Edition: IL 102; VL 17

STANDARDS	PAGE REFERENCES
<p>12.A.3c Compare and contrast how different forms and structures reflect different functions (e.g., similarities and differences among animals that fly, walk or swim; structures of plant cells and animal cells).</p>	<p>Student Edition: 39-44, 241, 252-255, 332, 337, 340, 365-367, 370, 380, 399-401, 403, 412-413, 428-432, 436-438 <i>Lab</i> 343, 379 <i>Launch Lab</i> 427 <i>MiniLab</i> 288, 381, 403, 430 Teacher Wraparound Edition: UAA 39, 243</p>
<p>B. Know and apply concepts that describe how living things interact with each other and with their environment.</p>	
<p>12.B.3a Identify and classify biotic and abiotic factors in an environment that affect population density, habitat and placement of organisms in an energy pyramid.</p>	<p>Student Edition: 686-687, 688, 690-693, 696-697, 712-717, 728-729 <i>Chapter Review</i> 734 (#9), 737 (#11) <i>Lab: Design Your Own</i> 702-703 <i>MiniLab</i> 689 Section Review 718 (#1-#3) Teacher Wraparound Edition: AS 703; DIF 691</p>
<p>12.B.3b Compare and assess features of organisms for their adaptive, competitive and survival potential (e.g., appendages, reproductive rates, camouflage, defensive structures).</p>	<p>Student Edition: 158, 242-243, 331-333, 462-463, 468-470, 698 <i>Chapter Preview</i> 152 <i>Lab</i> 162 <i>Lab: Design Your Own</i> 350-351 <i>Launch Lab</i> 153 <i>MiniLab</i> 332, 410, 438 Section Review 161 (#5) Teacher Wraparound Edition: QD 242; VL 333</p>
<p>C. Know and apply concepts that describe properties of matter and energy and the interactions between them.</p>	
<p>12.C.3a Explain interactions of energy with matter including changes of state and conservation of mass and energy.</p>	<p>Student Edition: 720-721, 726, 727 Teacher Wraparound Edition: DIF 727; TFYI 728</p>
<p>12.C.3b Model and describe the chemical and physical characteristics of matter (e.g., atoms, molecules, elements, compounds, mixtures).</p>	<p>Student Edition: 66-73 Section Review 73 (#1, #2) Standardized Test Practice 93 (#11) Teacher Wraparound Edition: DIF 67, 69; MAM 72; QD 69</p>

STANDARDS	PAGE REFERENCES
D. Know and apply concepts that describe force and motion and the principles that explain them.	
12.D.3a Explain and demonstrate how forces affect motion (e.g., action/reaction, equilibrium conditions, free-falling objects).	See Glencoe's <i>Introduction to Physical Science</i> © 2005 Student Edition: 310-312, 316-322, 323-324 <i>Design Your Own LAB</i> 330-331 <i>LAB</i> 329 <i>Launch Lab</i> 309 <i>Mini LAB</i> 327 <i>National Geographic</i> 325 <i>Science and Society</i> 332 Teacher Wraparound Edition: A 328; IM 318; LD 327; QD 312; R 322; SJ 319; VL 320
12.D.3b Explain the factors that affect the gravitational forces on objects (e.g., changes in mass, distance).	See Glencoe's <i>Introduction to Physical Science</i> © 2005 Student Edition: 317-318, 321, 348-351 Teacher Wraparound Edition: CC 317; D 320; QD 322; TPK 323
E. Know and apply concepts that describe the features and processes of the Earth and its resources.	
12.E.3a Analyze and explain large-scale dynamic forces, events and processes that affect the Earth's land, water and atmospheric systems (e.g., jetstream, hurricanes, plate tectonics).	Student Edition: 717-718 Also see Glencoe's <i>Earth Science</i> © 2005 Student Edition: 272-275, 276-278, 280-289, 300-303, 330-335, 336-343, 435-438, 439-443, 462-469, 518-523 <i>Lab</i> 279 <i>Use the Internet Lab</i> 290-291 <i>National Geographic</i> 441 Teacher Wraparound Edition: R 20

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12.E.3b Describe interactions between solid earth, oceans, atmosphere and organisms that have resulted in ongoing changes of Earth (e.g., erosion, El Nino).	Student Edition: 21, 163-164, 717, 740-741, 780-781 <i>Integrate Earth Science 21</i> <i>Lab 787</i> Teacher Wraparound Edition: DIF 781
12.E.3c Evaluate the biodegradability of renewable and nonrenewable natural resources.	Student Edition: 770-771, 789-790 <i>Lab: Design Your Own 200-201</i> Teacher Wraparound Edition: AIL 200 ; QD 785 ; TFYI 790
F. Know and apply concepts that explain the composition and structure of the universe and Earth's place in it.	
12.F.3a Simulate, analyze and explain the effects of gravitational force in the solar system (e.g., orbital shape and speed, tides, spherical shape of the planets and moons).	See Glencoe's <i>Earth Science</i> © 2005 Student Edition: 527-530, 637, 690-694, 703, 712 <i>MiniLAB 641, 699</i> <i>Science Online 663</i> <i>Lab 695</i> Teacher Wraparound Edition: A 699 ; DIS 530 ; QD 527 ; TFYI 529 ; V 693
12.F.3b Describe the organization and physical characteristics of the solar system (e.g., sun, planets, satellites, asteroids, comets).	See Glencoe's <i>Earth Science</i> © 2005 Student Edition: 660-665, 666-674, 676-679, 690-694, 696-701, 702-709, 710-713 <i>National Geographic 672</i> <i>Launch Lab 688</i> <i>Science Online 691</i> <i>MiniLAB 704</i> Teacher Wraparound Edition: ACT 708 ; CFU 713 ; DI 692 ; QD 698
12.F.3c Compare and contrast the sun as a star with other objects in the Milky Way Galaxy (e.g., nebulae, dust clouds, stars, black holes).	See Glencoe's <i>Earth Science</i> © 2005 Student Edition: 729-732, 734-739, 740-745 <i>Science Online 736</i> <i>MiniLAB 742</i> <i>Science Stats 748</i> Teacher Wraparound Edition: CFU 739 ; DIS 739 ; IM 688F ; R 739 ; TFYI 736 ; VL 737

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<p>STATE GOAL 13: Understand the relationships among science, technology and society in historical and contemporary contexts.</p> <hr/> <p>A. Know and apply the accepted practices of science.</p>	
<p>13.A.3a Identify and reduce potential hazards in science activities (e.g., ventilation, handling chemicals).</p>	<p>Student Edition: 13 <i>Lab</i> 86-87, 310, 522, 665 <i>Lab: Design Your Own</i> 28-29 <i>MiniLab</i> 194 <i>Science Skill Handbook</i> 811-813 Teacher Wraparound Edition: 19T-20T, SP 28, 86, 522, 665</p>
<p>13.A.3b Analyze historical and contemporary cases in which the work of science has been affected by both valid and biased scientific practices.</p>	<p>Student Edition: 7-10, 19, 21, 154-157, 657-658 <i>Integrate Social Studies</i> 658 <i>National Geographic</i> 20 <i>Section Review</i> 21 (#3); 161 (#1) Teacher Wraparound Edition: AC 11; IM 155; TFYI 9, 21</p>
<p>13.A.3c Explain what is similar and different about observational and experimental investigations.</p>	<p>Discuss with students that some investigations are observational whereas others utilize the scientific method.</p> <p>Student Edition: 7-10 <i>Lab</i> 384-385, 530-531, 642-643, 701, 719 <i>Lab: Design Your Own</i> 28-29, 200-201, 418-419, 558-559 Teacher Wraparound Edition: AC 11; TFYI 10</p>

STANDARDS	PAGE REFERENCES
B. Know and apply concepts that describe the interaction between science, technology and society.	
13.B.3a Identify and explain ways that scientific knowledge and economics drive technological development.	Student Edition: 47, 50, 141-143, 773-776, 789-791 <i>National Geographic</i> 48-49, 777 <i>Oops! Accidents in Science</i> 264 <i>Time: Science and Society</i> 232, 294 Teacher Wraparound Edition: CDIV 142; TFYI 142
13.B.3b Identify important contributions to science and technology that have been made by individuals and groups from various cultures.	Student Edition: 19, 21, 22-23, 47, 127, 658 <i>Oops! Accidents in Science</i> 118 <i>Time: Science and History</i> 58, 560, 586 Teacher Wraparound Edition: CC 9; CDIV 10, 12, 77, 98
13.B.3c Describe how occupations use scientific and technological knowledge and skills.	Student Edition: Integrate Career 83, 97, 137, 228, 303, 634, 717 Teacher Wraparound Edition: IC 83, 97, 137, 228, 303, 634, 717
13.B.3d Analyze the interaction of resource acquisition, technological development and ecosystem impact (e.g., diamond, coal or gold mining; deforestation).	Student Edition: 749, 772 <i>Launch Lab</i> 763 <i>MiniLab</i> 772 Teacher Wraparound Edition: AS 769, 772; DI 773, 779
13.B.3e Identify advantages and disadvantages of natural resource conservation and management programs.	Student Edition: 772, 788-791 <i>Science Online</i> 790 Teacher Wraparound Edition: CB 30; RR 30; RT 791
13.B.3f Apply classroom-developed criteria to determine the effects of policies on local science and technology issues (e.g., energy consumption, landfills, water quality).	Student Edition: <i>Applying Science</i> 790 <i>Integrate Social Studies</i> 773 Teacher Wraparound Edition: AS 791; DI 773, 782; DIF 789, 790; ISS 773; SJ 774