



Introduction to Physical Science

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STANDARDS		PAGE REFERENCES
GRADE 6		
Standard 1: Nature of Science		
Students gather evidence to differentiate between predictions, observations, and inferences. Students read, give, and execute technical instructions.		
Goal 1.1: Understand Systems, Order, and Organization		
Objective(s): By the end of Grade 6, the student will be able to:		
6.S.1.1.1 Analyze different systems. (618.01.a)	Student Edition: 8-9, 122, 357-358, 384-385, 389-395, 417-423, 445-446, 448-449 <i>Design Your Own LAB</i> 330-331, 424-425 <i>Integrate Health</i> 9 <i>MiniLAB</i> 8 <i>National Geographic</i> 382, 447, 623 Teacher Wraparound Edition: AIL 424; CD 122; D 357; QD 8; R 11; SJ 8; TFYI 357	

STANDARDS		PAGE REFERENCES
Goal 1.2: Understand Concepts and Processes of Evidence, Models, and Explanation		
Objective(s): By the end of Grade 6, the student will be able to:		
6.S.1.2.1	Explain how observations and data are used as evidence on which to base scientific explanations and predictions. (618.02.a)	Student Edition: 12-17 <i>Integrate Career</i> 13 <i>LAB</i> 149 <i>LaunchLAB</i> 5 <i>MiniLAB</i> 14, 23 <i>Science Skill Handbook</i> 670, 674-678 Teacher Wraparound Edition: D 15; IL 17; IM 15; LD 14; TFYI 16
6.S.1.2.2	Use observations to make inferences. (618.02.b)	Student Edition: 16 <i>Design Your Own LAB</i> 60-61, 150-151, 424-425, 444, 480-481, 540-541 <i>LAB</i> 32-33, 231, 270-271, 329, 411, 534, 603, 604-605 <i>MiniLAB</i> 23 <i>Science Skill Handbook</i> 678 <i>Use the Internet LAB</i> 362-363 Teacher Wraparound Edition: DI 16
6.S.1.2.3	Use models to explain or demonstrate a concept. (618.02.c)	Student Edition: 21-23, 25-26 <i>Design Your Own LAB</i> 124-125, 300-301, 330-331 <i>LAB</i> 31, 604-605 <i>LaunchLAB</i> 161, 249 <i>MiniLAB</i> 173, 291, 254 <i>Model and Invent LAB</i> 180-181 <i>National Geographic</i> 24 Teacher Wraparound Edition: A 24; CC 22; D 22; DI 24; QD 23; TPK 21; UA 22; VL 25

STANDARDS		PAGE REFERENCES
Goal 1.3: Understand Constancy, Change, and Measurement		
Objective(s): By the end of Grade 6, the student will be able to:		
6.S.1.3.1	Analyze changes that occur in and among systems. (618.03.b)	<p>Student Edition: 119-120, 122-123, 145-148, 201-206, 356-361, 379-385, 438-443 <i>Design Your Own LAB</i> 124-125, 208-209 <i>LAB</i> 149, 207, 444 <i>MiniLAB</i> 119, 204, 381, 441 <i>Use the Internet LAB</i> 362-363</p> <p>Teacher Wraparound Edition: A 202, 358; D 202, 357; DI 201; IL 203; LD 205, 380, 442</p>
6.S.1.3.2	Measure in both U.S. Customary and International System of Measurement (metric system) units with an emphasis on the metric system. (618.03.c)	<p>Student Edition: 42-45, 47-49, 50-54 <i>Design Your Own LAB</i> 60-61 <i>LAB</i> 55 <i>Math Skill Handbook</i> 707 <i>MiniLAB</i> 44, 52 <i>National Geographic</i> 46 <i>Science Skill Handbook</i> 675-676</p> <p>Teacher Wraparound Edition: A 43, 51, 53; CU 54; DI 53; IL 48; QD 47, 52; VL 51</p>
Goal 1.4: Understand the Theory that Evolution is a Process that Relates to the Gradual Changes in the Universe and of Equilibrium as a Physical State		
No objectives at this grade level.		
Goal 1.5: Understand Concepts of Form and Function		
Objective(s): By the end of Grade 6, the student will be able to:		
6.S.1.5.1	Analyze how the shape or form of an object or system is frequently related to its use and/or function. (618.05.a)	<p>Student Edition: 356-360, 417-420, 567-571 <i>Design Your Own LAB</i> 300-301, 424-425 <i>Integrate Life Science</i> 361 <i>LAB</i> 572-573, 632-633 <i>MiniLAB</i> 422, 568 <i>National Geographic</i> 421 <i>Science and Society</i> 426</p> <p>Teacher Wraparound Edition: CD 419; D 357, 569; DI 359, 418; IL 418; LD 420; MM 570; VL 360</p>

STANDARDS		PAGE REFERENCES
Goal 1.6: Understand Scientific Inquiry and Develop Critical Thinking Skills		
Objective(s): By the end of Grade 6, the student will be able to:		
6.S.1.6.1	Write and analyze questions that can be answered by conducting scientific experiments. (619.02.a)	Student Edition: 6-7, 13 <i>Applying Science</i> 89, 111, 229, 266 <i>Design Your Own LAB</i> 208-209, 450-451 <i>LAB</i> 31, 32-33, 55, 92-93, 207, 386 <i>LaunchLAB</i> 5 Teacher Wraparound Edition: R 20; TPK 6; VL 13
6.S.1.6.2	Conduct scientific investigations using a control and variables. Repeat same experiment using alternate variables. (619.02.b)	Student Edition: 18 <i>Design Your Own LAB</i> 208-209, 450-451, 480-481, 510-511, 540-541 <i>LAB</i> 32-33, 604-605 <i>Science Skill Handbook</i> 674 Teacher Wraparound Edition: CU 20; IM 18; QD 18
6.S.1.6.3	Select and use appropriate tools and techniques to gather and display data. (619.02.c)	Student Edition: 42-45, 47-49, 56-59 <i>Design Your Own LAB</i> 60-61, 208-209, 330-331 <i>LAB</i> 32, 55, 444 <i>Math Skill Handbook</i> 710-711 <i>MiniLAB</i> 44, 52, 285, 440 <i>National Geographic</i> 46 <i>Science Skill Handbook</i> 678 <i>Technology Skill Handbook</i> 695-696
6.S.1.6.4	Use evidence to analyze data in order to develop descriptions, explanations, predictions, and models. (619.2.d)	Student Edition: 14-17 <i>Design Your Own LAB</i> 180-181, 450-451 <i>LAB</i> 86, 149, 207, 240-241, 261, 411, 534, 572-573, 604, 620, 632-633 <i>Science Skill Handbook</i> 677-678 Teacher Wraparound Edition: AIL 604; LD 14

STANDARDS		PAGE REFERENCES
6.S.1.6.5	Test a hypothesis based on observations. (619.02.e)	Student Edition: 14 <i>Design Your Own LAB</i> 150-151, 208-209, 300-301, 330-331, 540-541 <i>LAB</i> 424-425 <i>MiniLAB</i> 14 <i>Science Skill Handbook</i> 673-674 Teacher Wraparound Edition: IM 15
6.S.1.6.6	Communicate scientific procedures and explanations. (619.02.g)	Student Edition: 17, 56-59 <i>Communicating Your Data</i> 55, 61, 115, 181, 299, 355, 500, 511, 561, 573, 661 <i>Math Skill Handbook</i> 710-711 <i>Science Skill Handbook</i> 678 <i>Technology Skill Handbook</i> 695-696 Teacher Wraparound Edition: CYD 33, 86, 209, 411
Goal 1.7: Understand That Interpersonal Relationships Are Important in Scientific Endeavors		
No objectives at this grade level.		
Goal 1.8: Understand Technical Communication		
Objective(s): By the end of Grade 6, the student will be able to:		
6.S.1.8.1	Read, give, and execute technical instructions. (628.01a)	Student Edition: <i>Design Your Own LAB</i> 60-61, 124-125, 150-151, 208-209, 240-241, 300-301, 330-331, 410-411, 424-425, 450-451, 480-481, 540-541 <i>LAB</i> 55, 92, 115, 207, 231, 329, 355, 362-363, 411 <i>Model and Invent LAB</i> 180-181 <i>Use the Internet LAB</i> 396-397

STANDARDS		PAGE REFERENCES
Standard 2: Physical Science		
Students compare and contrast elements, compounds and mixtures. Students explore the effects of force and energy on objects.		
Goal 2.1: Understand the Structure and Function of Matter and Molecules and Their Interactions		
Objective(s): By the end of Grade 6, the student will be able to:		
6.S.2.1.1	Compare and contrast the differences among elements, compounds and mixtures. (620.01.a)	Student Edition: 80-85, 87-91 <i>Applying Science</i> 89 <i>Integrate Earth Science</i> 91 LAB 86, 92-93 <i>MiniLAB</i> 88 Teacher Wraparound Edition: A 82, 84, 90; AIL 92; CC 90; D 89; DI 89, 90; IM 81; MM 88; QD 90; TPK 87; USW 86
6.S.2.1.2	Define the properties of matter. (620.01.b)	Student Edition: 72-74, 134-138, 139-142 <i>Applying Math</i> 135 <i>Design Your Own LAB</i> 150-151 <i>LaunchLAB</i> 71, 133 <i>MiniLAB</i> 136 Teacher Wraparound Edition: A 140; D 140; IM 70F; LD 75; QD 135; TPK 134
6.S.2.1.3	Compare densities of equal volumes of a solid, a liquid, or a gas. (619.01.c)	Student Edition: 121, 136, 352-353 <i>Applying Math</i> 121 <i>Applying Science</i> 352 <i>MiniLAB</i> 136 Teacher Wraparound Edition: A 136; D 353; SJ 353
6.S.2.1.4	Describe the effect of temperature on density. (620.01.c)	Change in volume and therefore density: Student Edition: 435, 440 <i>MiniLAB</i> 441 Teacher Wraparound Edition: CC 435; D 440; DI 435

STANDARDS		PAGE REFERENCES
6.S.2.1.5	Explain the nature of physical change and how it relates to physical properties (the distance between molecules as water changes from ice to liquid water, and to water vapor). (620.01.d)	Student Edition: 108-109, 111, 143-144, 147, 190 <i>National Geographic</i> 110 Teacher Wraparound Edition: DI 144, 146; IM 144; LD 145; MM 147; TPK 143; UA 146; VL 147
Goal 2.2: Understand Concepts of Motion and Forces		
Objective(s): By the end of Grade 6, the student will be able to:		
6.S.2.2.1	Describe the effects of different forces (gravity and friction) on the movement, speed, and direction of an object. (620.03.d)	Student Edition: 310-315, 316-317, 323-324, 326-328 <i>Design Your Own LAB</i> 330-331 <i>LAB</i> 329 <i>LaunchLAB</i> 309 <i>MiniLAB</i> 314, 327 <i>National Geographic</i> 325 Teacher Wraparound Edition: A 312, 313, 319; D 318, 320; DI 314; IM 318; QD 312; USW 311; VL 311, 318
Goal 2.3: Understand the Total Energy in the Universe is Constant		
No objectives at this grade level.		
Goal 2.4: Understand the Structure of Atoms		
No objectives at this grade level.		
Goal 2.5: Understand Chemical Reactions		
No objectives at this grade level.		

STANDARDS		PAGE REFERENCES
<u>Standard 5: Personal and Social Perspectives; Technology</u>		
Students identify issues for environmental studies and understand the difference between renewable and nonrenewable resources.		
Goal 5.2: Understand the Relationship between Science and Technology		
Objective(s): By the end of Grade 6, the student will be able to:		
6.S.5.2.1	Describe how science and technology are part of our society. (625.01.a)	Student Edition: 9-11, 122, 205, 357-361, 384-385, 389-395, 417-423, 445-449, 535-539, 567-571 <i>Design Your Own LAB</i> 124-125, 300-301 <i>Integrate History</i> 205 <i>Oops! Accidents in Science</i> 574 <i>Time Science and History</i> 210, 542 <i>Time Science and Society</i> 332, 426, 662 <i>Use the Internet LAB</i> 396-397 Teacher Wraparound Edition: AIL 124; CD 122, 419
6.S.5.2.2	Describe how science and technology are interrelated. (625.01.b)	Student Edition: 11, 357-361, 384-385, 443, 445-449, 499, 535-539, 567-571 <i>Design Your Own LAB</i> 124-125, 300-301, 424-425, 450-451 <i>LAB</i> 411 <i>Use the Internet LAB</i> 396-397 Teacher Wraparound Edition: AIL 124, 396, 424; DI 446

STANDARDS		PAGE REFERENCES
GRADE 7		
Standard 1: Nature of Science		
Students carry out investigations over time using appropriate tools and equipment. Students make inferences based upon data they collect. Students accurately communicate the results of their investigations and observations. Students support or revise their conclusions by critically analyzing alternate explanations. Students carry out investigations following written lab procedures. Students follow safety protocols in carrying out investigations.		
Goal 1.1: Understand Systems, Order, and Organization		
Objective(s): By the end of Grade 7 the student will be able to:		
7.S.1.1.1	Define small systems as a part of a whole system. (633.01.a)	Student Edition: 8-9, 122, 357-358, 384-385, 389-395, 417-423, 445-446, 448-449 <i>Design Your Own LAB</i> 330-331, 424-425 <i>Integrate Health</i> 9 <i>MiniLAB</i> 8 <i>National Geographic</i> 382, 447, 623 Teacher Wraparound Edition: AIL 424; CD 122; D 357; QD 8; R 11; SJ 8; TFYI 357
7.S.1.1.2	Determine how small systems contribute to the function of the whole. (633.01.a)	Student Edition: 204-206, 356-361, 381, 383-385, 417-420, 422-423 <i>Design Your Own LAB</i> 300-301, 424-425 <i>LAB</i> 387 <i>National Geographic</i> 382, 421 <i>Use the Internet LAB</i> 362-363 Teacher Wraparound Edition: A 382; AIL 424; CD 419; D 384; DI 418; IL 418; IM 358; LD 205; TFYI 357
7.S.1.1.3	Identify the different structural levels of an organism (cells, tissues, organs, and organ systems). (633.01.b)	Student Edition: 9 Also see Glencoe's <i>Life Science</i> © 2005 Chapter 2 Section 1 Student Edition: 38-45

STANDARDS		PAGE REFERENCES
Goal 1.2: Understand Concepts and Processes of Evidence, Models, and Explanation		
Objective(s): By the end of Grade 7, the student will be able to:		
7.S.1.2.1	Describe how observations and data are evidence on which to base scientific explanations and predictions. (633.02.a)	Student Edition: 12-17 <i>Integrate Career</i> 13 <i>LAB</i> 149 <i>LaunchLAB</i> 5 <i>MiniLAB</i> 14, 23 <i>Science Skill Handbook</i> 670, 674-678 Teacher Wraparound Edition: D 15; IL 17; IM 15; LD 14; TFYI 16
7.S.1.2.2	Use observations to make defensible inferences. (633.02.b)	Student Edition: 16 <i>Design Your Own LAB</i> 60-61, 150-151, 424-425, 444, 480-481, 540-541 <i>LAB</i> 32-33, 231, 270-271, 329, 411, 534, 603, 604-605 <i>MiniLAB</i> 23 <i>Science Skill Handbook</i> 678 <i>Use the Internet LAB</i> 362-363 Teacher Wraparound Edition: DI 16
7.S.1.2.3	Use models to explain or demonstrate a concept. (633.02.c)	Student Edition: 21-23, 25-26 <i>Design Your Own LAB</i> 124-125, 300-301, 330-331 <i>LAB</i> 31, 604-605 <i>LaunchLAB</i> 161, 249 <i>MiniLAB</i> 173, 254, 291 <i>Model and Invent LAB</i> 180-181 <i>National Geographic</i> 24 Teacher Wraparound Edition: A 24; CC 22; D 22; DI 24; QD 23; TPK 21; UA 22; VL 25

STANDARDS		PAGE REFERENCES
Goal 1.3: Understand Constancy, Change, and Measurement		
Objective(s): By the end of Grade 7, the student will be able to:		
7.S.1.3.1	Identify concepts of science that have been stable over time. (633.03.a)	Student Edition: 74, 194, 295, 312, 316, 323, 351, 357, 359, 555, 597 <i>MiniLAB</i> 194 <i>National Geographic</i> 325 Teacher Wraparound Edition: DI 350; LD 75
7.S.1.3.2	Recognize changes that occur within systems. (633.03.b)	Student Edition: 8-9, 122, 357-358, 384-385, 389-395, 417-423, 445-446, 448-449 <i>Design Your Own LAB</i> 330-331, 424-425 <i>Integrate Health</i> 9 <i>MiniLAB</i> 8 <i>National Geographic</i> 382, 447, 623 Teacher Wraparound Edition: AIL 424; CD 122; D 357; QD 8; R 11; SJ 8; TFYI 357
7.S.1.3.3	Make metric measurements using appropriate tools. (633.03.c)	Student Edition: 50-54 <i>Design Your Own LAB</i> 60-61, 208-209, 450-451, 480-481 <i>LAB</i> 55, 115, 207, 355, 444 <i>Math Skill Handbook</i> 707 <i>MiniLAB</i> 52 <i>Science Skill Handbook</i> 675-676 Teacher Wraparound Edition: CU 54
Goal 1.4: Understand the Theory that Evolution is a Process that Relates to the Gradual Changes in the Universe and of Equilibrium as a Physical State		
Reference to objective 7.S.3.2.1		
Goal 1.5: Understand Concepts of Form and Function		
No objectives at this grade level.		

STANDARDS		PAGE REFERENCES
Goal 1.6: Understand Scientific Inquiry and Develop Critical Thinking Skills		
Objective(s): By the end of Grade 7, the student will be able to:		
7.S.1.6.1	Identify controls and variables used in scientific investigations. (634.01.b)	Student Edition: 18 <i>Design Your Own LAB</i> 208-209, 450-451, 480-481, 510-511, 540-541 <i>LAB</i> 32-33, 604-605 <i>Science Skill Handbook</i> 674 Teacher Wraparound Edition: CU 20; IM 18; QD 18
7.S.1.6.2	Use appropriate tools and techniques to gather and display data. (634.01c)	Student Edition: 42-45, 47-49, 56-59 <i>Design Your Own LAB</i> 60-61, 208-209, 330-331 <i>LAB</i> 32, 55, 444 <i>Math Skill Handbook</i> 710-711 <i>MiniLAB</i> 44, 52, 285, 440 <i>National Geographic</i> 46 <i>Science Skill Handbook</i> 678 <i>Technology Skill Handbook</i> 695-696
7.S.1.6.3	Evaluate data in order to form conclusions. (634.01.d)	Student Edition: 14-17, 28-29 <i>Design Your Own LAB</i> 180-181, 450-451 <i>LAB</i> 86, 149, 207, 240-241, 261, 411, 534, 572-573, 604, 620, 632-633 <i>Science Skill Handbook</i> 677-678 Teacher Wraparound Edition: AIL 604; D 29; LD 14
7.S.1.6.4	Use evidence and critical thinking to accept or reject a hypothesis. (634.01.e)	Student Edition: 14-16 <i>Design Your Own LAB</i> 124-125, 300-301, 330-331, 450-451, 480-481 <i>LAB</i> 32-33 <i>Science Skill Handbook</i> 673-674 <i>Use the Internet LAB</i> 396-397 Teacher Wraparound Edition: AIL 396; IM 15

STANDARDS		PAGE REFERENCES
7.S.1.6.5	Evaluate alternative explanations or predictions. (634.01.f)	Student Edition: <i>Communicating Your Data</i> 209 <i>Design Your Own LAB</i> 124-125, 150-151, 300-301, 330-331, 424-425, 632-633 <i>LAB</i> 32-33, 92-93 Teacher Wraparound Edition: AIL 480, 540, 604, 632
7.S.1.6.6	Communicate and defend scientific procedures and explanations. (634.01.g)	Student Edition: 17, 56-59 <i>Communicating Your Data</i> 55, 61, 115, 181, 299, 355, 500, 511, 561, 573, 661 <i>Math Skill Handbook</i> 710-711 <i>Science Skill Handbook</i> 678 <i>Technology Skill Handbook</i> 695-696 Teacher Wraparound Edition: CYD 33, 86, 209, 411
Goal 1.7: Understand That Interpersonal Relationships Are Important in Scientific Endeavors		
No objectives at this grade level.		
Goal 1.8: Understand Technical Communication		
Objective(s): By the end of Grade 7, the student will be able to:		
7.S.1.8.1	Read and evaluate technical instructions. (643.02.a)	Student Edition: <i>Design Your Own LAB</i> 60-61, 124-125, 150-151, 208-209, 240-241, 300-301, 330-331, 410-411, 424-425, 450-451, 480-481, 540-541 <i>LAB</i> 55, 92, 115, 207, 231, 329, 355, 362-363, 411 <i>Model and Invent LAB</i> 180-181 <i>Use the Internet LAB</i> 396-397
<u>Standard 2: Physical Science</u>		
No goals or objectives at this grade level.		
<u>Standard 5: Personal and Social Perspectives; Technology</u>		
Students understand that science and technology interact and impact both individuals and society.		
Goal 5.1: Understand Common Environmental Quality Issues, Both Natural and Human Induced		
No objectives at this grade level.		

STANDARDS		PAGE REFERENCES
Goal 5.2: Understand the Relationship between Science and Technology		
Objective(s): By the end of Grade 7, the student will be able to:		
7.S.5.2.1	Explain how science and technology are interrelated. (640.01.a)	<p>Student Edition: 9-11, 122, 205, 357-361, 384-385, 389-395, 417-423, 445-449, 535-539, 567-571 <i>Design Your Own LAB</i> 124-125, 300-301 <i>Integrate History</i> 205 <i>Oops! Accidents in Science</i> 574 <i>Time Science and History</i> 210, 542 <i>Time Science and Society</i> 332, 426, 662 <i>Use the Internet LAB</i> 396-397</p> <p>Teacher Wraparound Edition: AIL 124; CD 122, 419</p>
7.S.5.2.2	Explain how science advances technology. (640.01.b)	<p>Student Edition: 11, 357-361, 384-385, 443, 445-449, 499, 535-539, 567-571 <i>Design Your Own LAB</i> 124-125, 300-301, 424-425, 450-451 <i>LAB</i> 411 <i>Use the Internet LAB</i> 396-397</p> <p>Teacher Wraparound Edition: AIL 124, 396, 424; DI 446</p>
Goal 5.3: Understand the Importance of Natural Resources and the Need to Manage and Conserve Them		
Objective(s): By the end of Grade 7, the student will be able to:		
7.S.5.3.1	Identify alternative sources of energy. (641.03.a)	<p>Student Edition: 387-395 <i>Applying Science</i> 390 <i>MiniLAB</i> 391 <i>Use the Internet LAB</i> 396-397</p> <p>Teacher Wraparound Edition: A 393; AIL 396; D 391, 392, 394; MM 390, 394; QD 389; SJ 388, 393; TFYI 392; TPK 387; VL 391</p>

STANDARDS		PAGE REFERENCES
GRADE 8-9		
PHYSICAL SCIENCE		
Standard 1: Nature of Science		
Students exercise the basic tenets of scientific investigation, make accurate observations, exercise critical thinking skills, apply proper scientific instruments of investigation and measurement tools, and communicate results in problem solving. Students evaluate the validity of information by utilizing the tools of scientific thinking and investigation. Students summarize their findings by creating lab reports using technical writing including graphs, charts, and diagrams to communicate the results of investigations.		
Goal 1.1: Understand Systems, Order, and Organization		
Objective(s): By the end of Physical Science, the student will be able to:		
8-9.PS.1.1.1 Explain the scientific meaning of system, order, and organization. (648.01a)	Student Edition: 8-9 <i>MiniLAB</i> 8 Teacher Wraparound Edition: QD 8; R 11; SJ 8; UA 165	
8-9.PS.1.1.2 Apply the concepts of order and organization to a given system. (648.01a)	Student Edition: 74-79, 81, 83, 162-167, 170-175 <i>Applying Science</i> 167 <i>MiniLAB</i> 173 <i>National Geographic</i> 82, 176 Teacher Wraparound Edition: A 166; IL 77; LD 164; MM 176; UA 165	
Goal 1.2: Understand Concepts and Processes of Evidence, Models, and Explanation		
Objective(s): By the end of Physical Science, the student will be able to:		
8-9.PS.1.2.1 Use observations and data as evidence on which to base scientific explanations. (648.02a)	Student Edition: 16 <i>Design Your Own LAB</i> 60-61, 150-151, 424-425, 444, 480-481, 540-541 <i>LAB</i> 32-33, 231, 270-271, 329, 411, 534, 603, 604-605 <i>MiniLAB</i> 23 <i>Science Skill Handbook</i> 678 <i>Use the Internet LAB</i> 362-363 Teacher Wraparound Edition: DI 16	

STANDARDS	PAGE REFERENCES
8-9.PS.1.2.2 Develop models to explain concepts or systems. (648.02b)	<p>Student Edition: 21-23, 25-26 <i>Design Your Own LAB</i> 124-125, 300-301, 330-331 <i>LAB</i> 31, 604-605 <i>LaunchLAB</i> 161, 249 <i>MiniLAB</i> 173, 254, 291 <i>Model and Invent LAB</i> 180-181 <i>National Geographic</i> 24</p> <p>Teacher Wraparound Edition: A 24; CC 22; D 22; DI 24; QD 23; TPK 21; UA 22; VL 25</p>
8-9.PS.1.2.3 Develop scientific explanations based on knowledge, logic, and analysis. (648.02c)	<p>Student Edition: <i>Communicate Your Data</i> 209 <i>Design Your Own LAB</i> 124-125, 150-151, 300-301, 330-331, 424-425, 632-633 <i>LAB</i> 32-33, 92-93</p> <p>Teacher Wraparound Edition: AIL 480, 540, 604, 632</p>
<p>Goal 1.3: Understand Constancy, Change, and Measurement</p>	
<p>Objective(s): By the end of Physical Science, the student will be able to:</p>	
8-9.PS.1.3.1 Measure changes that can occur in and among systems. (648.03b)	<p>Student Edition: 50-54 <i>Design Your Own LAB</i> 60-61, 208-209, 450-451, 480-481 <i>LAB</i> 55, 115, 207, 355, 444 <i>Math Skill Handbook</i> 707 <i>MiniLAB</i> 52 <i>Science Skill Handbook</i> 675-676</p> <p>Teacher Wraparound Edition: CU 54</p>
8-9.PS.1.3.2 Analyze changes that can occur in and among systems. (648.03b)	<p>Student Edition: 119-120, 122-123, 145-148, 201-206, 356-361, 379-385, 438-443 <i>Design Your Own LAB</i> 124-125, 208-209 <i>LAB</i> 149, 207, 444 <i>MiniLAB</i> 119, 204, 381, 441 <i>Use the Internet LAB</i> 362-363</p> <p>Teacher Wraparound Edition: A 202, 358; D 202, 357; DI 201; IL 203; LD 205, 380, 442</p>

STANDARDS		PAGE REFERENCES
8-9.PS.1.3.3	Measure and calculate using the metric system. (648.03c)	Student Edition: 50-54 <i>Applying Math</i> 121, 135, 284, 290, 319, 408, 436 <i>Design Your Own LAB</i> 60-61, 208-209, 450-451, 480-481 <i>LAB</i> 55, 115, 207, 355, 444 <i>Math Skill Handbook</i> 707 <i>MiniLAB</i> 52 <i>Science Skill Handbook</i> 675-676 Teacher Wraparound Edition: CU 54
Goal 1.4: Understand the Theory that Evolution is a Process that Relates to the Gradual Changes in the Universe and of Equilibrium as a Physical State		
No objectives in Physical Science.		
Goal 1.5: Understand Concepts of Form and Function		
No objectives in Physical Science.		
Goal 1.6: Understand Scientific Inquiry and Develop Critical Thinking Skills		
Objective(s): By the end of Physical Science, the student will be able to:		
8-9.PS.1.6.1	Identify questions and concepts that guide scientific investigations. (649.01a)	Student Edition: 6-11, 12-20, 21-26, 27-29 <i>LAB</i> 31, 32-33 <i>MiniLAB</i> 8, 14, 23 Teacher Wraparound Edition: AIL 32; CU 11; D 7, 15, 29; DI 16; IL 17; IM 15; QD 18; SJ 8; TPK 6; VL 7, 13
8-9.PS.1.6.2	Utilize the components of scientific problem solving to design, conduct, and communicate results of investigations. (649.01b)	Student Edition: <i>Design Your Own LAB</i> 60-61, 124-125, 150-151, 208-209, 240-241, 300-301, 330-331, 410-411, 424-425, 450-451, 480-481, 540-541 <i>LAB</i> 55, 92, 115, 207, 231, 329, 355, 362-363, 411 <i>Model and Invent LAB</i> 180-181 <i>Use the Internet LAB</i> 396-397

STANDARDS	PAGE REFERENCES
8-9.PS.1.6.3 Use appropriate technology and mathematics to make investigations. (649.01c)	<p>Student Edition: 50-54 <i>Applying Math</i> 121, 135, 284, 290, 319, 408, 436 <i>Design Your Own LAB</i> 60-61, 208-209, 450-451, 480-481 <i>LAB</i> 55, 115, 207, 355, 444 <i>Math Skill Handbook</i> 707 <i>MiniLAB</i> 52 <i>Science Skill Handbook</i> 675-676</p> <p>Teacher Wraparound Edition: CU 54</p>
8-9.PS.1.6.4 Formulate scientific explanations and models using logic and evidence. (649.01d)	<p>Student Edition: 14-16 <i>Design Your Own LAB</i> 124-125, 300-301, 330-331, 450-451, 480-481 <i>LAB</i> 32-33 <i>Science Skill Handbook</i> 673-674 <i>Use the Internet LAB</i> 396-397</p> <p>Teacher Wraparound Edition: AIL 396; IM 15</p>
8-9.PS.1.6.5 Analyze alternative explanations and models. (649.01e)	<p>Student Edition: <i>Communicate Your Data</i> 209 <i>Design Your Own LAB</i> 124-125, 150-151, 300-301, 330-331, 424-425, 632-633 <i>LAB</i> 32-33, 92-93</p> <p>Teacher Wraparound Edition: AIL 480, 540, 604, 632</p>
8-9.PS.1.6.6 Communicate and defend a scientific argument. (649.01f)	<p>Student Edition: 17, 56-59 <i>Communicating Your Data</i> 55, 61, 115, 181, 299, 355, 500, 511, 561, 573, 661 <i>Math Skill Handbook</i> 710-711 <i>Science Skill Handbook</i> 678 <i>Technology Skill Handbook</i> 695-696</p> <p>Teacher Wraparound Edition: CYD 33, 86, 209, 411</p>
8-9.PS.1.6.7 Explain the differences among observations, hypotheses, and theories. (649.01g)	<p>Student Edition: 6-7, 12-15 <i>MiniLAB</i> 14</p> <p>Teacher Wraparound Edition: IM 15; VL 13</p>

STANDARDS		PAGE REFERENCES
Goal 1.7: Understand That Interpersonal Relationships Are Important in Scientific Endeavors		
No objectives in Physical Science.		
Goal 1.8: Understand Technical Communication		
Objective(s): By the end of Physical Science, the student will be able to:		
8-9.PS.1.8.1 Analyze technical writing, graphs, charts, and diagrams. (658.02a)	Student Edition: 27-30, 56-59, 286, 292, 467-469 <i>Applying Math</i> 65 <i>Applying Science</i> 390, 617 <i>Design Your Own LAB</i> 60-61 <i>Math Skill Handbook</i> 710-711 <i>National Geographic</i> 110, 234, 255, 421, 447, 559 Teacher Wraparound Edition: A 57, 286; CU 292; D 29, 58; LD 57; QD 58; R 59; TPK 56	
Standard 2: Physical Science		
Students explain the structure and properties of atoms, including isotopes. Students explain how chemical reactions, while requiring or releasing energy, can neither destroy nor create energy or matter. Students explain the differences between fission and fusion. Students explain the interactions of force and mass in describing motion using Newton's Laws. Students explain how energy can be transformed from one form to another while the total amount of energy remains constant. Students classify energy as potential and/or kinetic, and as energy contained in a field.		
Goal 2.1: Understand the Structure and Function of Matter and Molecules and Their Interactions		
No objectives in Physical Science.		
Goal 2.2: Understand Concepts of Motion and Forces		
Objective(s): By the end of Physical Science, the student will be able to:		
8-9.PS.2.2.1 Explain motion using Newton's Laws of Motion. (650.04b)	Student Edition: 310-315, 316-317, 323-324, 326-328 <i>Design Your Own LAB</i> 330-331 <i>LAB</i> 329 <i>LaunchLAB</i> 309 <i>MiniLAB</i> 314, 327 <i>National Geographic</i> 325 Teacher Wraparound Edition: A 312, 313, 319; D 318, 320; DI 314; IM 318; QD 312; USW 311; VL 311, 318	

STANDARDS		PAGE REFERENCES
Goal 2.3: Understand the Total Energy in the Universe is Constant		
Objective(s): By the end of Physical Science, the student will be able to:		
8-9.PS.2.3.1	Explain that energy can be transformed but cannot be created nor destroyed. (650.05a)	Student Edition: 379-381, 383-385, 445 <i>LAB</i> 386 <i>MiniLAB</i> 381 <i>National Geographic</i> 382 Teacher Wraparound Edition: D 383; IM 372F, 380; LD 380; QD 381
8-9.PS.2.3.2	Classify energy as potential and/or kinetic and as energy contained in a field. (650.05b)	Student Edition: 375-376, 380, 521-522, 587 <i>LaunchLAB</i> 373 <i>MiniLAB</i> 381, 523 Teacher Wraparound Edition: DI 587; IL 375; LD 380, 522; USW 376
Goal 2.4: Understand the Structure of Atoms		
Objective(s): By the end of Physical Science, the student will be able to:		
8-9.PS.2.4.1	Describe the properties, function, and location of protons, neutrons, and electrons. (650.01a)	Student Edition: 76-79, 83, 162-167, 170-175 <i>Applying Science</i> 167 <i>LAB</i> 179 <i>MiniLAB</i> 173 <i>Model and Invent LAB</i> 180-181 Teacher Wraparound Edition: A 76; D 77, 163; IL 77; IM 78; LD 164; MM 78; SJ 83
8-9.PS.2.4.2	Explain the processes of fission and fusion. (650.01b)	Teacher Wraparound Edition: DI 389; FF 389
8-9.PS.2.4.3	Describe the characteristics of isotopes. (650.01c)	Student Edition: 83-84 Teacher Wraparound Edition: SJ 83, 84; VL 83

STANDARDS		PAGE REFERENCES
8-9.PS.2.4.4	State the basic electrical properties of matter. (650.01d)	Student Edition: 76-79, 584-585, 587-589, 591-595 <i>Integrate Chemistry</i> 593 <i>MiniLAB</i> 592 <i>National Geographic</i> 586 Teacher Wraparound Edition: A 76, 588; D 77, 589; DI 585; LD 593; MM 78; QD 585, 587; R 590; UA 594
8-9.PS.2.4.5	Describe the relationships between magnetism and electricity.	Student Edition: 621-622, 624-631 <i>LAB</i> 632-633 <i>MiniLAB</i> 622 <i>National Geographic</i> 623 Teacher Wraparound Edition: AIL 632; IL 627; LD 626; QD 624; VL 622, 624
Goal 2.5: Understand Chemical Reactions		
Objective(s): By the end of Physical Science, the student will be able to:		
8-9.PS.2.5.1	Explain how chemical reactions may release or consume energy while the quantity of matter remains constant. (650.03a)	Student Edition: 196-199 <i>Applying Math</i> 196 <i>Design Your Own LAB</i> 208-209 Teacher Wraparound Edition: AIL 208; CC 197; D 197; SJ 196, 198; TFYI 197; USW 197; VL 198
Standard 5: Personal and Social Perspectives; Technology		
Students understand that science and technology interact and impact both society and the environment.		
Goal 5.1: Understand Common Environmental Quality Issues, Both Natural and Human Induced		
No objectives in Physical Science.		

STANDARDS		PAGE REFERENCES
Goal 5.2: Understand the Relationship between Science and Technology		
Objective(s): By the end of Physical Science, the student will be able to:		
8-9.PS.5.2.1	Explain how science advances technology. (655.01a)	Student Edition: 11, 357-361, 384-385, 443, 445-449, 499, 535-539, 567-571 <i>Design Your Own LAB</i> 124-125, 300-301, 424-425, 450-451 <i>LAB</i> 411 <i>Use the Internet LAB</i> 396-397 Teacher Wraparound Edition: AIL 124, 396, 424; DI 446
8-9.PS.5.2.2	Explain how technology advances science. (655.01a)	Student Edition: 531, 567-571, 629-631, 649-659 <i>Integrate Astronomy</i> 533 <i>National Geographic</i> 532 <i>Time Science and Society</i> 662 Teacher Wraparound Edition: D 630; SJ 656; TFYI 570
8-9.PS.5.2.3	Explain how science and technology are pursued for different purposes. (656.01b)	Student Edition: 9-11, 122, 205, 357-361, 384-385, 389-395, 417-423, 445-449, 535-539, 567-571 <i>Design Your Own LAB</i> 124-125, 300-301 <i>Integrate History</i> 205 <i>Oops! Accidents in Science</i> 574 <i>Time Science and History</i> 210, 542 <i>Time Science and Society</i> 332, 426, 662 <i>Use the Internet LAB</i> 396-397 Teacher Wraparound Edition: AIL 124; CD 122, 419
Goal 5.3: Understand the Importance of Natural Resources and the Need to Manage and Conserve Them		
No objectives in Physical Science.		