MACMILLAN/McGRAW-HILL SCIENCE: A CLOSER LOOK

Grade 6

TO

ALASKA SCIENCE PERFORMANCE STANDARDS

And

GRADE LEVEL EXPECTATIONS

Grade 6

Alaska Science Performance Standards and Grade Level Expectations Grade 6	Correlation of the Macmillan/McGraw-Hill Science Program to Alaska Science Performance Standards and Grade Level Expectations for Grade 6	
	Teacher's Edition Units, Chapters, Lessons, or Activities	**Teacher's Edition Page Numbers**
Science Performance Standards (Grade Level Expectations) Grade 6 **A1—Science as Inquiry and Process**		
SA Students develop an understanding of the processes and applications of scientific inquiry. **SA1** Students develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments. **SA2** Students develop an understanding that the processes of science require integrity, logical reasoning, skepticism, openness, communication, and peer review. **SA3** Students develop an understanding that culture, local knowledge, history, and interaction with the environment contribute to the development of scientific knowledge, and that local applications provide opportunity for understanding scientific concepts and global issues.		
Grade 6		
The student demonstrates an understanding of the processes of science by:		
6] SA1.1 asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring and communicating. *	<u>Be a Scientist</u> Explore Activities: What do you know about stars? <u>Unit A: Life Science - Diversity of Life</u> Chapter 1: Classifying Living Things Explore Activities: How can living things be classified? Quick Lab: Measuring Protists Focus on Skills/Inquiry Skill: Classify Explore Activities: How does light affect plants? Quick Lab: Leaves Explore Activities: What are some characteristics of animals? Quick Lab: Characteristics of Worms Explore Activities: How does the large intestine help with digestion? Quick Lab: Vein-Valve Model Be a Scientist/Inquiry Investigation: How do different-sized blood vessels compare? Explore Activities: Does a waxy coating help a plant retain moisture? Quick Lab: Modeling an Adaptation	 3 21 27 30-31 33 37 47 51 57 63 66-67 69 75

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	Explore Activities: What do cells look like?	85
	Quick Lab: Comparing Cells in Animal Tissue	89
	Focus on Skills/Inquiry Skill: Observe	92-93
	Explore Activities: How do plant and animal cells differ?	95
	Quick Lab: Diffusion and Osmosis in Action	99
	Be a Scientist/Inquiry Investigation: What is cellular respiration?	104-105
	Explore Activities: How does one cell become many?	107
	Quick Lab: Mitosis Mania	113
	Explore Activities: What temperatures encourage the growth of yeast?	121
	Quick Lab: Mold Growth	126
	<u>Unit B: Life Science - Patterns of Life</u>	
	Chapter 3: Genetics	
	Explore Activities: Which inherited traits are dominant?	139
	Quick Lab: Predicting Cat Traits	145
	Focus on Skills/Inquiry Skill: Use Numbers	148-149
	Explore Activities: What are some common inherited traits?	151
	Quick Lab: Pedigrees	155
	Explore Activities: How does a four-part code work?	161
	Quick Lab: Researching Genetically Engineered Crops	165
	Be a Scientist/Inquiry Investigation: How do scientists genetically engineer bacteria to produce insulin?	168-169
	Explore Activities: How do variations help animals survive?	171
	Quick Lab: Deep-Sea Creatures	175
	Chapter 4: Ecosystems	
	Explore Activities: How does sunlight affect life in an ecosystem?	185
	Quick Lab: Properties of Soil	187
	Focus on Skills/Inquiry Skill: Compare	194-195
Continued on next page…	Explore Activities: How can you model a food chain?	197

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	Be a Scientist/Inquiry Investigation: What factors affect the carbon cycle?	204-205
	Explore Activities: How do different biomes compare?	207
	Quick Lab: Wetlands as Water Filters	215
	Explore Activities: How do volcanic eruptions affect habitats?	221
	Quick Lab: Testing Soil pH	225
	Unit C: Earth Science - Earth and Its Resources	
	Chapter 5: Changes over Time	
	Explore Activities: How can you make a model of Earth's interior?	243
	Quick Lab: Map-Challenge Game	249
	Focus on Skills/Inquiry Skill: Communicate	252-253
	Explore Activities: Are the continents moving?	255
	Quick Lab: Earth's Sliding Plates	261
	Explore Activities: How do mountains form?	267
	Quick Lab: Making Mountains	271
	Explore Activities: How does the steepness of a slope affect stream erosion?	283
	Quick Lab: Layering Sediments	287
	Explore Activities: Which rock layer is the oldest?	297
	Quick Lab: Modeling a Fossil	301
	Be a Scientist/Inquiry Investigation: What makes chemical weathering happen?	306-307
	Chapter 6: Conserving Our Resources	
	Explore Activities: What is granite made of?	313
	Quick Lab: Play the Rock Game	321
	Focus on Skills/Inquiry Skill: Use Variables	324-325
	Explore Activities: How can you model Earth's water cycle?	327
	Quick Lab: Earth's Water	331
	Explore Activities: What are objects made from?	339
Continued on next page…	Quick Lab: Fuel Supply	343

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	Quick Lab: The Power of Water	355
	Be a Scientist/Inquiry Investigation: What are some of the characteristics of volcanic rocks?	358-359
	<u>Unit D: Earth Science - Weather and Space</u>	
	Chapter 7: Weather and Climate	
	Explore Activities: How can you observe air pressure?	369
	Quick Lab: Analyze Temperature Differences	373
	Focus on Skills/Inquiry Skill: Interpret Data	378-379
	Explore Activities: How can you make a model of fog?	381
	Quick Lab: Comparing Currents	391
	Be a Scientist/Inquiry Investigation: What can change a river?	394-395
	Explore Activities: Does temperature affect the movement of air?	397
	Quick Lab: Weather Prediction	401
	Explore Activities: What can weather patterns tell us?	407
	Quick Lab: Comparing Climates	409
	Chapter 8: Astronomy	
	Explore Activities: How do we learn about the planets?	421
	Quick Lab: Rotation and Revolution	427
	Focus on Skills/Inquiry Skill: Communicate	430-431
	Explore Activities: What causes the Moon to change appearance?	433
	Quick Lab: Modeling Eclipses	439
	Be a Scientist/Inquiry Investigation: How can you model the solar system?	442-443
	Explore Activities: How can you tell a planet from a star?	445
	Quick Lab: Planet Sizes	449
	Explore Activities: How does a star's distance from Earth affect its brightness?	457
	Quick Lab: How Parallax Works	459
	Explore Activities: How are galaxies classified?	469
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	Chapter 9: Classifying Matter	
	Explore Activities: What is the density of water?	487
	Quick Lab: Density in Action	491
	Focus on Skills/Inquiry Skill: Measure	494-495
	Explore Activities: Can you always cut a substance in half?	497
	Quick Lab: Classifying Elements	503
	Explore Activities: Does temperature affect the rate at which water evaporates?	511
	Quick Lab: Molecular Movement	515
	Explore Activities: Can marker ink be separated?	523
	Quick Lab: Make a Saturated Solution	529
	Be a Scientist/Inquiry Investigation: How can you separate a mixture?	534-535
	Chapter 10: Chemistry	
	Explore Activities: What happens when metal rusts?	541
	Quick Lab: Rate of Reaction	545
	Focus on Skills/Inquiry Skill: Form a Hypothesis	548-549
	Explore Activities: What are acids and bases?	551
	Quick Lab: Neutralization	555
	Be a Scientist/Inquiry Investigation: Can differences in salt levels affect water's physical properties?	558-559
	Explore Activities: Can you recognize differences in carbon-compound concentration?	561
	Quick Lab: Looking for Lipids	565
	Explore Activities: How can you model radioactive decay?	571
	Quick Lab: Domino Chain Reactions	575
	Unit F: Physical Science - Forces and Energy	
	Chapter 11: Exploring Forces	
Continued on next page…	Explore Activities: How can you tell how fast things move?	589

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	Focus on Skills/Inquiry Skill: Predict	602-603
	Explore Activities: What affects acceleration?	605
	Quick Lab: Free Fall	609
	Be a Scientist/Inquiry Investigation: How does inertia apply to passengers in a moving vehicle?	612-613
	Explore Activities: What is work?	615
	Quick Lab: Potential Energy and Distance Traveled	619
	Explore Activities: How is a ramp a simple machine?	627
	Quick Lab: Make an Inclined Plane into a Screw	635
	Chapter 12: Exploring Energy	
	Explore Activities: How do waves affect motion?	645
	Quick Lab: String Telephone	651
	Focus on Skills/Inquiry Skill: Experiment	656-657
	Explore Activities: How does light move away from its source?	659
	Quick Lab: Investigating Light	665
	Explore Activities: What makes up white light?	671
	Quick Lab: Colors from Light	673
	Explore Activities: How can you measure heat flow?	681
	Quick Lab: Heat from Friction	683
	Explore Activities: What happens to charged objects that are brought together?	693
	Quick Lab: Make Your Own Compass	705
	Be a Scientist/Inquiry Investigation: How can you make an electromagnet stronger?	708-709
6] SA1.2 collaborating to design and conduct simple repeatable investigations. (L)	<u>Be a Scientist</u>	
	Form a Hypothesis: What do scientists do?	5
	Focus on Skills: Form a Hypothesis	12
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	Chapter 10: Chemistry	
	Focus on Skills/Inquiry Skill: Form a Hypothesis	548-549
	Unit F: Physical Science - Forces and Energy	
	Chapter 11: Exploring Forces	
	Be a Scientist/Inquiry Investigation: How does inertia apply to passengers in a moving vehicle?	613
	Chapter 12: Exploring Energy	
	Quick Lab: Heat from Friction	683
	Be a Scientist/Inquiry Investigation: How can you make an electromagnet stronger?	709
The student demonstrates an understanding of the attitudes and approaches to scientific inquiry by:		
6] SA2.1 identifying and differentiating fact from opinion.	Unit A: Life Science - Diversity of Life	
	Quick Check: Fact and Opinion	143
	Quick Check: Fact and Opinion	145
	Quick Check: Fact and Opinion	146
	Reading in Science: Meet Joel Cracraft	178-179
	Write About It: Fact and Opinion	179
	Unit B: Life Science - Patterns of Life	
	Quick Check: Fact and Opinion	166
	Unit D: Earth Science - Weather and Space	
	Quick Check: Fact and Opinion	371
	Quick Check: Fact and Opinion	375
	Quick Check: Fact and Opinion	376
	Lesson Review: Think, Talk, and Write, 3 Fact and Opinion	377

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The student demonstrates an understanding that interactions with the environment provide an opportunity for understanding scientific concepts by:		
6] SA3.1 gathering data to build a knowledge base that contributes to the development of questions about the local environment (e.g., moose browsing, trail usage, river erosion). (L)	Unit B: Life Science - Patterns of Life Chapter 4: Ecosystems What makes up an ecosystem? Differentiated Instruction: Leveled Activities Types of Limiting Factors Differentiated Instruction: Leveled Activities Chapter 6: Conserving Our Resources How do people affect the environment? ELL Support: Paraphrase Develop Vocabulary (pollution, smog, acid rain) How do people affect the land? Homework Activity: The Source of Our Stuff Lesson Review Formative Assessment: Approaching	 186-187 187 223 223 344-345 344 345 346 346 347 347
Science Performance Standards (Grade Level Expectations) Grade 6 B1—Concepts of Physical Science		
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world. **SB1** Students develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior. **SB2** Students develop an understanding that energy appears in different forms, can be transformed from one form to another, can be transferred or moved from one place or system to another, may be unavailable for use, and is ultimately conserved. **SB3** Students develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems. **SB4** Students develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects.		
The student demonstrates understanding of the structure and properties of matter by:		
6] SB1.1 using models to represent matter as it changes from one state to another. *Continued on next page…*	Unit E: Physical Science - Matter Chapter 9: Classifying Matter Vocabulary Activities: Help students differentiate the three states of matter and identify examples of each in their daily lives.	 484D

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Continued from previous page…	Lesson 3: Solids, Liquids, and Gases	
	How does heat affect the state of matter?	512-513
	Read a Diagram: Changes of State	513
	Formative Assessment: Approaching, On-Level, Challenge	519
The student demonstrates an understanding of how energy can be transformed, transferred, and conserved by:		
[6] SB2.1 recognizing that energy can exist in many forms (i.e., heat, light, chemical, electrical, mechanical).	Unit F: Physical Science - Forces and Energy	
	Chapter 12: Exploring Energy	
	Lesson 1: Waves and Sound	644-654
	Lesson Review	655
	Lesson 2: Properties of Light	658-666
	Lesson Review	667
	Lesson 3: Light Waves and Color	670-676
	Lesson Review	677
	Lesson 4: Heat	680-688
	Lesson Review	689
	Lesson 5: Electricity and Magnetism	692-706
	Lesson Review	707
	Be a Scientist: Structured, Guided, Open Inquiry	708-709
	Chapter 12 Review	710-711
The student demonstrates understanding of the interactions between matter and energy and the effects of these interactions on systems by:		
[6] SB3.1 recognizing that most substances can exist as a solid, liquid, or gas depending on temperature.	Unit E: Physical Science - Matter	
	Chapter 9: Classifying Matter	
	Visual Literacy: How does heat affect the state of matter?	510A
	Lesson 3: Solids, Liquids, and Gases	
	Look and Wonder	510
	Explore: Does temperature affect the rate at which water evaporates?	511
	How does heat affect the state of matter?	512-513
	What is a melting point?	514-515
	Quick Lab: Molecular Movement	515

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The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by:		
6] SB4.2 stating that every object exerts gravitational force on every other object.	Unit D: Earth Science - Weather and Space Focus on Skills: Communicate Integrate Writing: Write a Lab Report Activity Lab Book: Communicate Chapter 8: Astronomy Planets and Orbits	 430-431 430 431 446
6] SB4.3 making waves move through a variety of media. (L)	Unit F: Physical Science - Forces and Energy Chapter 12: Exploring Energy Lesson 1: Waves and Sound What are waves? Differentiated Instruction: Leveled Activities How can you measure waves? Differentiated Instruction: Leveled Questions How does sound travel? Quick Lab: String Telephone Lesson Review	 646-647 647 648-649 649 650-651 651 655
Science Performance Standards (Grade Level Expectations) Grade 6 C1—Concepts of Life Science		
SC Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science. **SC1** Students develop an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection, and biological evolution. **SC2** Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms. **SC3** Students develop an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy.		
The student demonstrates an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution by:		

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[6] SC1.1 recognizing sexual and asexual reproduction.	Unit A: Life Science - Diversity of Life	
	Chapter 1: Classifying Living Things	
	Lesson 2: Plants	
	Assessment: What are some plant life cycles?	32B
	How do plants reproduce?	38-39
	Develop Vocabulary	38
	Differentiated Instruction: Leveled Questions	39
	What are some plant life cycles?	40-41
	Lesson Review	43
	Chapter 2: Cells	
	Lesson 3: Cell Division	
	What is meiosis?	112-113
	Quick Lab: Mitosis Mania	113
	Differentiated Instruction: Leveled Questions	113
	How do organisms reproduce?	114-115
	ELL Support: Explain/Discuss	114
	Differentiated Instruction: Leveled Questions	115
	Lesson Review	117
	Formative Assessment	117
	Lesson 4: Microorganisms	
	How do microorganisms reproduce?	124-125
	Differentiated Instruction: Leveled Questions	124
	ELL Support: Extend Vocabulary	125
	What is bread mold?	126
	Quick Lab: Mold Growth	126
	Homework Activity: Microorganisms	126
	Lesson Review	127
	Formative Assessment	127

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[6] SC1.2 recognizing that species survive by adapting to changes in their environment.	<u>Unit A: Life Science - Diversity of Life</u> Chapter 1: Classifying Living Things Vocabulary Activities: Help students understand the differences between physical and behavioral adaptations. Reading in Science: Meet Richard Pearson, Write About It - Classify Lesson 5: Plant and Animal Adaptations Reading and Writing: Plant and Animal Adaptations Visual Literacy: How are animals adapted to their surroundings? Activity Lab Book: Does a waxy coating help a plant retain moisture? Assessment: What are some adaptive behaviors of animals? Look and Wonder Explore: does a waxy coating help a plant retain moisture? Alternative Explore: How do plants control water loss? What are adaptations? Differentiated Instruction: Leveled Questions How are animals adapted to their surroundings? Differentiated Instruction: Leveled Activities ELL Support: Discuss/Explain What are some adaptive behaviors of animals? Quick Lab: Modeling an Adaptation Differentiated Instruction: Leveled Questions Why do animals migrate? Homework Activity: How Living Things Adapt Lesson Review Formative Assessment: Approaching, On-Level, Challenge Writing in Science: Life in the Deep Integrate Writing: Local Plant and Tree Report <u>Unit E: Physical Science - Matter</u> Reading in Science: Meet Adriana Aquino	 18D 44-45 68A 68A 68B 68B 68 69 69 70-71 71 72-73 72 73 74-75 75 75 76 76 77 77 78-79 78 520-521

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The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:		
[6] SC2.1 using a dichotomous key to classify animals and plants into groups using external or internal features.	Unit A: Life Science - Diversity of Life	
	Lesson 1: Classifying Plants and Animals	
	Reading and Writing: Classifying Plants and Animals; Classifying Living Things	20A
	Visual Literacy: How are organisms classified?	20A
	Activity Lab Book: How can living things be classified?	20B
	Assessment: What are some other kingdoms?	20B
	Explore: How can living things be classified?	21
	What are living things?	22-23
	Differentiated Instruction: Leveled Activities	23
	How are organisms classified?	24-25
	Homework Activity: Kingdoms	24
	Differentiated Instruction: Leveled Questions	25
	What are some other kingdoms?	26-27
	Differentiated Instruction: Leveled Activities	26
	Quick Lab: Measuring Protists	27
	ELL Support: Explain	27
	What are bacteria and viruses?	28
	Lesson Review	29
	Formative Assessment: Approaching, On-Level, Challenge	29
	Focus on Skills: Classify	30-31
	Lesson 3: Animals	
	Visual Literacy: What are invertebrates?	46A
	What are vertebrates?	48-49
	Differentiated Instruction: Leveled Questions	49
	What are invertebrates?	50-51
	Differentiated Instruction: Leveled Activities	50
	Quick Lab: Characteristics of Worms	51
	ELL Support: Clarify/Ask Questions	51
Continued on next page…	What are arthopods?	52

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Continued from previous page…	Homework Activity: Write About Animals	52
	Lesson Review	53
	Formative Assessment: Approaching, On-Level, Challenge	53
6] SC2.2 identifying basic behaviors (e.g., migration, communication, hibernation) used by organisms to meet the requirements of life.	<u>Unit A: Life Science - Diversity of Life</u>	
	Chapter 1: Classifying Living Things	
	Science Leveled Reader: *Animal Migration*	19
	Reading in Science: Meet Richard Pearson, Write About It - Classify	44-45
	Lesson 5: Plant and Animal Adaptations	
	Seasonal Adaptations	75
	Differentiated Instruction: Leveled Questions	75
	Why do animals migrate?	76
	Homework Activity: How Living Things Adapt	76
	<u>Unit D: Earth Science - Weather and Space</u>	
	Time for Kids: Monarch Butterflies at Risk	364-365
	ELL Support: Ask Questions	364
[6] SC2.3 describing the levels of organization within a human body (i.e., cells, tissues, organs, systems).	<u>Unit A: Life Science - Diversity of Life</u>	
	Chapter 1: Classifying Living Things	
	Lesson 4: Animal Systems	
	Reading and Writing: Animal Systems	56A
	Visual Literacy: What are digestion and excretion	56A
	Activity Lab Book: How does the large intestine help with digestion?	56B
	Assessment: What is respiration?	56B
	Explore: How does the large intestine help with digestion?	57
	What are digestion and excretion?	58-59
	Differentiated Instruction: Leveled Questions	59
	What is respiration?	60-61
	Differentiated Instruction: Leveled Activities	60
Continued on next page…	ELL Support: Compare and Contrast	61

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Continued from previous page…	What is circulation?	62-63
	Quick Lab: Vein-Valve Model	63
	Differentiated Instruction: Leveled Questions	63
	What are support and movement?	64
	Homework Activity: Systems	64
	Lesson Review	65
	Formative Assessment: Approaching, On-Level, Challenge	65
	Chapter 2: Cells	
	Lesson 1 Cell Theory	
	Science Leveled Reader: *Discovering the Secrets of Cells*	83
	Reading and Writing: Cell Theory	84A
	Visual Literacy: How are cells organized?	84A
	Cells and Organisms	87
	How are cells organized?	88-89
	Differentiated Instruction: Leveled Questions	88
	Quick Lab: Comparing Cells in Animal Tissue	89
	ELL Support: Ask Questions	89
	Lesson Review	91
	Health Link: Organ Systems	91
	Formative Assessment: Approaching, On-Level, Challenge	91
	Science Handbook: Human Body Systems	R10-R20
	Organization of the Human Body	R10
	The Skeletal and Muscular Systems	R11
	The Circulatory and Respiratory Systems	R12
	The Digestive and Excretory Systems	R13
	The Immune System	R14
	The Nervous System	R16
	The Senses	R18-R19
	The Endocrine System	R20

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The student demonstrates an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy by:		
[6] SC3.1 recognizing that organisms can cause physical and chemical changes (e.g., digestion, growth, respiration, photosynthesis) to matter and recognizing the importance of energy transfer in these changes.	Unit A: Life Science - Diversity of Life Chapter 1: Classifying Living Things Lesson 2: Plants How do leaves function? Differentiated Instruction: Leveled Questions Quick Lab: Leaves ELL Support: Vocabulary How do plants store food? Formative Assessment: Challenge Lesson 4: Animal Systems Reading and Writing: Animal Systems Visual Literacy: What are digestion and excretion Activity Lab Book: How does the large intestine help with digestion? Assessment: What is respiration? Explore: How does the large intestine help with digestion? What are digestion and excretion? Differentiated Instruction: Leveled Questions What is respiration? Differentiated Instruction: Leveled Activities ELL Support: Compare and Contrast Science Handbook: Human Body Systems Organization of the Human Body The Skeletal and Muscular Systems The Circulatory and Respiratory Systems The Digestive and Excretory Systems	 36-37 36 37 37 42 43 56A 56A 56B 56B 57 58-59 59 60-61 60 61 R10-R20 R10 R11 R12 R13

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6] SC3.2 organizing a food web using familiar plants and animals.	Unit B: Life Science - Patterns of Life	
	Chapter 4: Ecosystems	
	Science Leveled Reader: *Tracing he Food Web*	183
	Lesson 2: Food Chains, Webs, and Pyramids	
	Reading and Writing: Food Chains, Webs, and Pyramids	196A
	Assessment: What are food webs?	196B
	What are food webs?	200-201
	Read a Diagram: Land Food Web	200
	Quick Lab: Water Food Web	201
	ELL Support: Vocabulary	201
	Homework Activity: Food Webs in a Coral Reef	202
	Lesson Review	203
	Formative Assessment: On-Level, Challenge	203
Science Performance Standards (Grade Level Expectations) Grade 6 D1—Concepts of Earth Science		
SD Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences. **SD1** Students develop an understanding of Earth's geochemical cycles. **SD2** Students develop an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth. **SD3** Students develop an understanding of the cyclical changes controlled by energy from the sun and by Earth's position and motion in our solar system. **SD4** Students develop an understanding of the theories regarding the **evolution** of the universe.		
The student demonstrates an understanding of geochemical cycles by:		
[6] SD1.1 exploring the rock cycle and its relationship to igneous, metamorphic, and sedimentary rocks. (L)	Unit C: Earth Science - Earth and Its Resources	
	Chapter 6: Conserving Our Resources	
	Lesson 1: Minerals and Rocks	
	How do rocks differ?	318-319
	Differentiated Instruction: Leveled Questions	318
	What is the rock cycle?	322
	Develop Vocabulary: Rock Cycle	322
	Homework Activity: Rocks at Home	322

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	Teacher's Edition Units, Chapters, Lessons, or Activities	**Teacher's Edition Page Numbers**
Continued from previous page…	Lesson Review Formative Assessment: Approaching, On-Level, Challenge	323 323
6] SD1.2 identifying the physical properties of water within the stages of the water cycle.	<u>Unit B: Life Science - Patterns of Life</u> The Water Cycle Differentiated Instruction: Leveled Questions Lesson Review <u>Unit C: Earth Science - Earth and Its Resources</u> Chapter 6: Conserving Our Resources Activity Lab Book: How can you model Earth's water cycle? Assessment: Where do we find water? Explore: How can you model Earth's water cycle? Alternative Explore: How does water move and change? Where do we find water? Read a Diagram: Solar Energy and the Water Cycle Differentiated Instruction: Leveled Activities Quick Lab: Earth's Water Lesson Review	 188 189 193 326B 326B 327 327 330-331 330 330 331 335
The student demonstrates an understanding of the forces that shape Earth by:		
[6] SD2.1 describing the formation and composition (i.e., sand, silt, clay, organics) of soils.	<u>Unit C: Earth Science - Earth and Its Resources</u> Chapter 5: Changes over Time Lesson 4: Forces That Shape Earth How is soil formed Develop Vocabulary (soil, humus) ELL Support: Extend Vocabulary Differentiated Instruction: Leveled Activities Why is soil important? Homework Activity: Explore Your Soil Lesson Review/Formative Assessment: Approaching, On-Level, Challenge	 290-291 290 290 291 292 292 293

Alaska Science Performance Standards and Grade Level Expectations Grade 6	Correlation of the Macmillan/McGraw-Hill Science Program to Alaska Science Performance Standards and Grade Level Expectations for Grade 6	
	Teacher's Edition Units, Chapters, Lessons, or Activities	**Teacher's Edition Page Numbers**
6] SD2.2 identifying and describing its layers (i.e., crust, mantle, core).	Unit C: Earth Science - Earth and Its Resources Chapter 5: Changes over Time Lesson 1: Features of Earth Activity Lab Book: How can you make a model of Earth's interior? Explore: How can you make a model of Earth's interior? Alternative Explore: What does the inside of Earth look like? What is a model of Earth? Develop Vocabulary (crust, mantle, lithosphere, core) Lesson Review	 242B 243 243 250 250 251
[6] SD2.3 describing how the surface can change rapidly as a result of geological activities (i.e., earthquakes, tsunamis, volcanoes, floods, landslides, avalanches).	Unit B: Life Science - Patterns of Life Focus on Skills: Compare before and after the flood/landslides Integrate Reading: Compare Landscapes Unit C: Earth Science - Earth and Its Resources Literature: Understanding Earthquakes ELL Support: Act Out Differentiated Instruction: Leveled Activities Chapter 5: Changes over Time Science Leveled Readers: *Changes at Earth's Surface, Tsunami, The Ring of Fire* Lesson 2: Earth's Moving Continents What happens at plate boundaries? ELL Support: Use Sentence Frames Quick Lab: Earth's Sliding Plates Differentiated Instruction: Leveled Questions Lesson 4: Forces That Shape Earth What are earthquakes? Differentiated Instruction: Leveled Activities	 194-195 194 238-239 238 239 241 260-261 260 261 261 270-271 270

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	Teacher's Edition Units, Chapters, Lessons, or Activities	**Teacher's Edition Page Numbers**
Continued from previous page…	Quick Lab: Making Mountains	271
	ELL Support: Simplify Vocabulary/Read Aloud	271
	How destructive is an earthquake	274-275
	Differentiated Instruction: Leveled Activities	274
	Differentiated Instruction: Leveled Questions	275
	How do volcanoes form?	276-277
	Differentiated Instruction: Leveled Activities	276
	ELL Support: Read Aloud/Discuss	277
	What are other volcanic landforms?	278
	Homework Activity: Map the Disturbances	278
	Lesson Review	279
	Formative Assessment: Approaching, On-Level, Challenge	279
	Chapter 6: Conserving Our Resources	
	What are droughts and floods?	334
	Chapter 7: Weather and Climate	
	What are hurricanes?	390-391
	ELL Support: Explain/Play Games	390
	Differentiated Instruction: Leveled Questions	391
	Homework Activity: Research a Storm	392
	Lesson Review	393
The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by:		
[6] SD3.1 connecting the water cycle to weather phenomena.	<u>Unit C: Earth Science - Earth and Its Resources</u>	
	Chapter 6: Conserving Our Resources	
	Activity Lab Book: How can you model Earth's water cycle?	326B
	Assessment: Where do we find water?	326B
	Explore: How can you model Earth's water cycle?	327
	Alternative Explore: How does water move and change?	327
Continued on next page…	Where do we find water?	330-331

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	Teacher's Edition Units, Chapters, Lessons, or Activities	**Teacher's Edition Page Numbers**
Continued from previous page…	Read a Diagram: Solar Energy and the Water Cycle	330
	Differentiated Instruction: Leveled Activities	330
	Quick Lab: Earth's Water	331
	Lesson Review	335
	Unit D: Earth Science - Weather and Space	
	Chapter 7: Weather and Climate	
	Lesson 2: Precipitation and Clouds	
	Reading and Writing: Precipitation and Clouds	380A
	How does the water cycle affect weather?	382-383
	Differentiated Instruction: Leveled Activities	383
	What are the different types of precipitation?	386-387
	Differentiated Instruction: Leveled Activities	386
	ELL Support: Prepare Group Presentations	387
	Lesson Review	393
	Formative Assessment: Approaching, On-Level, Challenge	393
6] SD3.2 identifying that energy transfer is affected by surface conditions (e.g., snow cover, asphalt, vegetation) and that this affects weather.	Unit D: Earth Science - Weather and Space	
	Chapter 7: Weather and Climate	
	Lesson 2: Precipitation and Clouds	
	How does the water cycle affect weather?	382-383
	Differentiated Instruction: Leveled Activities	383
	What are the different types of precipitation?	386-387
	Differentiated Instruction: Leveled Activities	386
	ELL Support: Prepare Group Presentations	387
	Lesson Review	393
	Formative Assessment: Approaching, On-Level, Challenge	393

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	Teacher's Edition Units, Chapters, Lessons, or Activities	Teacher's Edition Page Numbers
The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by:		
[6] SD4.1 contrasting characteristics of planets and stars. (i.e., light reflecting, light emitting, orbiting, orbited, composition.)	Unit D: Earth Science - Weather and Space	
	Chapter 8: Astronomy	
	Vocabulary Activities: Help students describe the planets and other objects in our solar system.	418D
	Lesson 1: The Earth-Sun System	
	Changes in Sunlight	427
	Be a Scientist: How can you model the solar system?	442-443
	Lesson 3: The Solar System	
	Activity Lab Book: How can you tell a planet from a star?	444B
	Explore: How can you tell a planet from a star?	445
	What is the solar system?	446-447
	Differentiated Instruction: Leveled Activities	447
	What is the inner solar system?	448-449
	Differentiated Instruction: Leveled Questions	448
	ELL Support: Graphics	449
	What are the other planets?	450-451
	ELL Support: Rephrase	450
	Differentiated Instruction: Leveled Activities	451
	What are other objects in our solar system?	452
	Lesson Review	453
	Lesson 4: Stars	
	Reading and Writing: Stars	456A
	Visual Literacy: What are some properties of stars?	456A
	What are stars?	459
	ELL Support: Make Simple Statements	459
	What are some properties of stars?	460-461
	Differentiated Instruction: Leveled Activities	460
	Lesson Review	465

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	Teacher's Edition Units, Chapters, Lessons, or Activities	**Teacher's Edition Page Numbers**
[6] SD4.2 defining a light year.	Unit D: Earth Science - Weather and Space Chapter 8: Astronomy Be a Scientist: How can you model the solar system? Integrate Reading: Measuring Distances in Space Finding the Distance to a Star Develop Vocabulary (light year) Differentiated Instruction: Leveled Questions	 442-443 442 459 459 459
Science Performance Standards (Grade Level Expectations) Grade 6 E1—Science and Technology		
SE Students develop an understanding of the relationships among science, technology, and society. **SE1** Students develop an understanding of how scientific knowledge and technology are used in making decisions about issues, innovations, and responses to problems and everyday events. **SE2** Students develop an understanding that solving problems involves different ways of thinking, perspectives, and curiosity that lead to the exploration of multiple paths that are analyzed using scientific, technological, and social merits. **SE3** Students develop an understanding of how scientific discoveries and technological innovations affect and are affected by our lives and cultures**.**		
The student demonstrates understanding of how to integrate scientific knowledge and technology to address problems by:		
6] SE1.1 recognizing that technology cannot always provide successful solutions for problems or fulfill every human need. *Continued on next page…*	Unit A: Life Science - Diversity of Life Science Leveled Readers: *Foods that Feed the World* Science, Technology, and Society: Meet Richard Pearson Writing in Science: Growing Hybrid Plants Time For Kids: Trouble on the Table ELL Support: Read Aloud Differentiated Instruction: Leveled Activities Unit B: Life Science - Patterns of Life Writing in Science: The Dangers of Antibiotics Quick Lab: Researching Genetically Engineered Crops What are genetically engineered crops? Writing Link: Persuasive Writing	 19 44-45 118 134-135 134 135 158 165 166 167

Alaska Science Performance Standards and Grade Level Expectations Grade 6	Correlation of the Macmillan/McGraw-Hill Science Program to Alaska Science Performance Standards and Grade Level Expectations for Grade 6	
	Teacher's Edition Units, Chapters, Lessons, or Activities	**Teacher's Edition Page Numbers**
Continued from previous page…	Integrate Reading: The Controversy of Genetic Engineering	168
	Health Link: Effects of Insecticides	203
	<u>Unit C: Earth Science - Earth and Its Resources</u>	
	Homework Activity: Making Water Clean	334
	Activity: Explain air-quality report	345
	<u>Unit D: Earth Science - Weather and Space</u>	
	Interpreting Weather Maps	401
	How is technology used to study weather?	402
	Science, Technology, and Society: Wildfire Alert	404-405
The student demonstrates an understanding that solving problems involves different ways of thinking by:		
[6] SE2.1 identifying and designing a solution to a problem.	<u>Unit C: Earth Science - Earth and Its Resources</u>	
	Writing in Science: Clean Up Our Watershed	337
	Formative Assessment: On-Level (Create pamphlet describing actions farmers can take to help protect their land)	347
	Problem and Solution: What are some ways in which farmers try to protect and conserve soil?	353
	Problem and Solution: How can people reduce their dependence on fossil fuels?	355
	Problem and Solution: How does recycling help solve the problem of pollution in the environment?	356
	<u>Unit E: Physical Science - Matter</u>	568-569
	Science, Technology, and Society: Biofuels, Write About It – Problem and Solution	
	<u>Unit F: Physical Science - Forces and Energy</u>	
	ELL Support: Relate to Personal Experience to conserve energy or resources	625
	Homework Activity: Home Energy Audit	707

Alaska Science Performance Standards and Grade Level Expectations Grade 6	Correlation of the Macmillan/McGraw-Hill Science Program to Alaska Science Performance Standards and Grade Level Expectations for Grade 6	
	Teacher's Edition Units, Chapters, Lessons, or Activities	Teacher's Edition Page Numbers
[6] SE2.2 comparing the student's work to the work of peers in order to identify multiple paths that can be used to investigate a question or problem. (L)	Be a Scientist	
	Explore Activities: What do you know about stars?	3
	Unit A: Life Science - Diversity of Life	
	Chapter 1: Classifying Living Things	
	Explore Activities: How can living things be classified?	21
	Quick Lab: Measuring Protists	27
	Focus on Skills/Inquiry Skill: Classify	30-31
	Explore Activities: How does light affect plants?	33
	Quick Lab: Leaves	37
	Explore Activities: What are some characteristics of animals?	47
	Quick Lab: Characteristics of Worms	51
	Explore Activities: How does the large intestine help with digestion?	57
	Quick Lab: Vein-Valve Model	63
	Be a Scientist/Inquiry Investigation: How do different-sized blood vessels compare?	66-67
	Explore Activities: Does a waxy coating help a plant retain moisture?	69
	Quick Lab: Modeling an Adaptation	75
	Chapter 2: Cells	
	Explore Activities: What do cells look like?	85
	Quick Lab: Comparing Cells in Animal Tissue	89
	Focus on Skills/Inquiry Skill: Observe	92-93
	Explore Activities: How do plant and animal cells differ?	95
	Quick Lab: Diffusion and Osmosis in Action	99
	Be a Scientist/Inquiry Investigation: What is cellular respiration?	104-105
	Explore Activities: How does one cell become many?	107
	Quick Lab: Mitosis Mania	113
	Explore Activities: What temperatures encourage the growth of yeast?	121
	Quick Lab: Mold Growth	126

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	Teacher's Edition Units, Chapters, Lessons, or Activities	**Teacher's Edition Page Numbers**
Continued from previous page…	Unit B: Life Science - Patterns of Life	
	Chapter 3: Genetics	
	Explore Activities: Which inherited traits are dominant?	139
	Quick Lab: Predicting Cat Traits	145
	Focus on Skills/Inquiry Skill: Use Numbers	148-149
	Explore Activities: What are some common inherited traits?	151
	Quick Lab: Pedigrees	155
	Explore Activities: How does a four-part code work?	161
	Quick Lab: Researching Genetically Engineered Crops	165
	Be a Scientist/Inquiry Investigation: How do scientists genetically engineer bacteria to produce insulin?	168-169
	Explore Activities: How do variations help animals survive?	171
	Quick Lab: Deep-Sea Creatures	175
	Chapter 4: Ecosystems	
	Explore Activities: How does sunlight affect life in an ecosystem?	185
	Quick Lab: Properties of Soil	187
	Focus on Skills/Inquiry Skill: Compare	194-195
	Explore Activities: How can you model a food chain?	197
	Quick Lab: Water Food Web	201
	Be a Scientist/Inquiry Investigation: What factors affect the carbon cycle?	204-205
	Explore Activities: How do different biomes compare?	207
	Quick Lab: Wetlands as Water Filters	215
	Explore Activities: How do volcanic eruptions affect habitats?	221
	Quick Lab: Testing Soil pH	225
	Unit C: Earth Science - Earth and Its Resources	
	Chapter 5: Changes over Time	
	Explore Activities: How can you make a model of Earth's interior?	243
	Quick Lab: Map-Challenge Game	249
Continued on next page…	Focus on Skills/Inquiry Skill: Communicate	252-253

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	Teacher's Edition Units, Chapters, Lessons, or Activities	Teacher's Edition Page Numbers
Continued from previous page…	Explore Activities: Are the continents moving?	255
	Quick Lab: Earth's Sliding Plates	261
	Explore Activities: How do mountains form?	267
	Quick Lab: Making Mountains	271
	Explore Activities: How does the steepness of a slope affect stream erosion?	283
	Quick Lab: Layering Sediments	287
	Explore Activities: Which rock layer is the oldest?	297
	Quick Lab: Modeling a Fossil	301
	Be a Scientist/Inquiry Investigation: What makes chemical weathering happen?	306-307
	Chapter 6: Conserving Our Resources	
	Explore Activities: What is granite made of?	313
	Quick Lab: Play the Rock Game	321
	Focus on Skills/Inquiry Skill: Use Variables	324-325
	Explore Activities: How can you model Earth's water cycle?	327
	Quick Lab: Earth's Water	331
	Explore Activities: What are objects made from?	339
	Quick Lab: Fuel Supply	343
	Explore Activities: Do some light bulbs waste less energy than others?	351
	Quick Lab: The Power of Water	355
	Be a Scientist/Inquiry Investigation: What are some of the characteristics of volcanic rocks?	358-359
	<u>Unit D: Earth Science - Weather and Space</u>	
	Chapter 7: Weather and Climate	
	Explore Activities: How can you observe air pressure?	369
	Quick Lab: Analyze Temperature Differences	373
	Focus on Skills/Inquiry Skill: Interpret Data	378-379
	Explore Activities: How can you make a model of fog?	381
Continued on next page…	Quick Lab: Comparing Currents	391

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	Teacher's Edition Units, Chapters, Lessons, or Activities	**Teacher's Edition Page Numbers**
Continued from previous page…	Be a Scientist/Inquiry Investigation: What can change a river?	394-395
	Explore Activities: Does temperature affect the movement of air?	397
	Quick Lab: Weather Prediction	401
	Explore Activities: What can weather patterns tell us?	407
	Quick Lab: Comparing Climates	409
	Chapter 8: Astronomy	
	Explore Activities: How do we learn about the planets?	421
	Quick Lab: Rotation and Revolution	427
	Focus on Skills/Inquiry Skill: Communicate	430-431
	Explore Activities: What causes the Moon to change appearance?	433
	Quick Lab: Modeling Eclipses	439
	Be a Scientist/Inquiry Investigation: How can you model the solar system?	442-443
	Explore Activities: How can you tell a planet from a star?	445
	Quick Lab: Planet Sizes	449
	Explore Activities: How does a star's distance from Earth affect its brightness?	457
	Quick Lab: How Parallax Works	459
	Explore Activities: How are galaxies classified?	469
	Quick Lab: A Changing Universe	471
	Unit E: Physical Science - Matter	
	Chapter 9: Classifying Matter	
	Explore Activities: What is the density of water?	487
	Quick Lab: Density in Action	491
	Focus on Skills/Inquiry Skill: Measure	494-495
	Explore Activities: Can you always cut a substance in half?	497
	Quick Lab: Classifying Elements	503
	Explore Activities: Does temperature affect the rate at which water evaporates?	511
	Quick Lab: Molecular Movement	515
Continued on next page…	Explore Activities: Can marker ink be separated?	523

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	Teacher's Edition Units, Chapters, Lessons, or Activities	Teacher's Edition Page Numbers
Continued from previous page…	Quick Lab: Make a Saturated Solution	529
	Be a Scientist/Inquiry Investigation: How can you separate a mixture?	534-535
	Chapter 10: Chemistry	
	Explore Activities: What happens when metal rusts?	541
	Quick Lab: Rate of Reaction	545
	Focus on Skills/Inquiry Skill: Form a Hypothesis	548-549
	Explore Activities: What are acids and bases?	551
	Quick Lab: Neutralization	555
	Be a Scientist/Inquiry Investigation: Can differences in salt levels affect water's physical properties?	558-559
	Explore Activities: Can you recognize differences in carbon-compound concentration?	561
	Quick Lab: Looking for Lipids	565
	Explore Activities: How can you model radioactive decay?	571
	Quick Lab: Domino Chain Reactions	575
	Unit F: Physical Science - Forces and Energy	
	Chapter 11: Exploring Forces	
	Explore Activities: How can you tell how fast things move?	589
	Quick Lab: Investigating Inertia	600
	Focus on Skills/Inquiry Skill: Predict	602-603
	Explore Activities: What affects acceleration?	605
	Quick Lab: Free Fall	609
	Be a Scientist/Inquiry Investigation: How does inertia apply to passengers in a moving vehicle?	612-613
	Explore Activities: What is work?	615
	Quick Lab: Potential Energy and Distance Traveled	619
	Explore Activities: How is a ramp a simple machine?	627
	Quick Lab: Make an Inclined Plane into a Screw	635
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	Teacher's Edition Units, Chapters, Lessons, or Activities	**Teacher's Edition Page Numbers**
Continued from previous page…	Chapter 12: Exploring Energy	
	Explore Activities: How do waves affect motion?	645
	Quick Lab: String Telephone	651
	Focus on Skills/Inquiry Skill: Experiment	656-657
	Explore Activities: How does light move away from its source?	659
	Quick Lab: Investigating Light	665
	Explore Activities: What makes up white light?	671
	Quick Lab: Colors from Light	673
	Explore Activities: How can you measure heat flow?	681
	Quick Lab: Heat from Friction	683
	Explore Activities: What happens to charged objects that are brought together?	693
	Quick Lab: Make Your Own Compass	705
	Be a Scientist/Inquiry Investigation: How can you make an electromagnet stronger?	708-709
The student demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society by:		
[6] SE3.1 describing the various effects of an innovation on a global level.	<u>Unit A: Life Science - Diversity of Life</u>	
	Science Leveled Readers: *Foods that Feed the World*	19
	Writing in Science: Growing Hybrid Plants	118
	<u>Unit B: Life Science - Patterns of Life</u>	
	What are genetically engineered crops?	166
	Homework Activity: Human Genome Project	166
	Health Link: Effects of Insecticides	203
	<u>Unit C: Earth Science - Earth and Its Resources</u>	
	Science Leveled Readers: *Greenhouse Effect, Do Fossil Fuels Have a Future, Power for our Future*	311
	<u>Unit D: Earth Science - Weather and Space</u>	
	Time for Kids: Monarch Butterflies at Risk	364-365

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	Teacher's Edition Units, Chapters, Lessons, or Activities	**Teacher's Edition Page Numbers**
Science Performance Standards (Grade Level Expectations) Grade 6 F1—Cultural, Social, Personal Perspectives, and Science		
SF Students develop an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives. **SF1** Students develop an understanding of the interrelationships among individuals, cultures, societies, science, and technology. **SF2** Students develop an understanding that some individuals, cultures, and societies use other beliefs and methods in addition to scientific methods to describe and understand the world. **SF3** Students develop an understanding of the importance of recording and validating cultural knowledge.		
The student demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives by:		
[6] SF1.1-SF3.1 telling a local or traditional story that explains a natural event (e.g., animal adaptation, weather, rapid changes to Earth's surface) and relating it to a scientific explanation. * (L) Cross referenced with SA3.1	Opportunities to address: <u>Unit D: Earth Science - Weather and Space</u> Writing Link: Writing a Story Social Studies Link: Evaluate a Model – Research how the Chinese of ancient times explained a solar eclipse. Art Link: Model the Solar System: Make an exhibit of an early model of the solar system Integrate Writing: Historical Fiction Write About It: Fictional Narrative, Write a science-fiction story about traveling to M82.	 413 441 453 466 467
Science Performance Standards (Grade Level Expectations) Grade 6 G1—History and Nature of Science		
SG Students develop an understanding of the history and nature of science. **SG1** Students develop an understanding that historical perspectives of scientific explanations demonstrate that scientific knowledge changes over time, building on prior knowledge. **SG2** Students develop an understanding that the advancement of scientific knowledge embraces innovation and requires empirical evidence, repeatable investigations, logical arguments, and critical review in striving for the best possible explanations of the natural world. **SG3** Students develop an understanding that scientific knowledge is ongoing and subject to change as new evidence becomes available through experimental and/or observational confirmation(s). **SG4** Students develop an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base.		

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	Teacher's Edition Units, Chapters, Lessons, or Activities	Teacher's Edition Page Numbers
The student demonstrates an understanding of the bases of the advancement of scientific knowledge by:		
6] SG2.1 recognizing differences in results of repeated experiments.	<u>Be a Scientist</u> Form a Hypothesis: What do scientists do? Focus on Skills: Form a Hypothesis <u>Unit E: Physical Science - Matter</u> Chapter 10: Chemistry Focus on Skills/Inquiry Skill: Form a Hypothesis <u>Unit F: Physical Science - Forces and Energy</u> Chapter 11: Exploring Forces Be a Scientist/Inquiry Investigation: How does inertia apply to passengers in a moving vehicle? Chapter 12: Exploring Energy Quick Lab: Heat from Friction Be a Scientist/Inquiry Investigation: How can you make an electromagnet stronger?	 5 12 548-549 613 683 709