

**MACMILLAN/McGRAW-HILL SCIENCE: A CLOSER LOOK**

**Grade 3**

**TO**

**ALASKA SCIENCE PERFORMANCE STANDARDS**

**And**

**GRADE LEVEL EXPECTATIONS**

**Grade 3**

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Alaska Science Performance Standards and Grade Level Expectations Grade 3	Correlation of the Macmillan/McGraw-Hill Science Program to Alaska Science Performance Standards and Grade Level Expectations for Grade 3	
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3] SA1.2 observing and describing their world to answer simple questions.  <i>Continued on next page...</i>	<u>Be a Scientist</u> Focus on Skills: Observe	   12





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<b>The student will demonstrate an understanding of the attitudes and approaches to scientific inquiry by:</b>		
[3] SA2.1 answering, "how do you know?" questions with reasonable answers.	<u>Be a Scientist</u> Focus on Skills: Interpret Data	13
	<u>Unit A: Life Science - Living Things</u> Chapter 1: A Look at Living Things Explore Activities: How do living and nonliving things differ?	21
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<b>The student demonstrates an understanding that interactions with the environment provide an opportunity for understanding scientific concepts by:</b>		
3] SA3.1 observing local conditions that determine which plants and/or animals survive. (L)	<u>Unit A: Life Science - Living Things</u> Chapter 1: A Look at Living Things The Big Idea: How do living things get what they need to live and grow? What do living things need? What are living things made of? Lesson Review What are plants? How do roots and stems help plants? Why are leaves important? Lesson Review Be a Scientist/Inquiry Investigation: What do plants need to survive? Explore Activities: How do an animal's structures help it meet its need? How do animals get what they need? How do animals stay safe? Lesson Review Chapter 1 Review  Chapter 2: Living Things Grow and Change Explore Activities: What does a seed need to grow? How do plants grow? Focus on Skills/Inquiry Skill: Form a Hypothesis	18 24, 25 26 27 32, 33 34, 35 36, 37 39 40-41 43 46, 47 48 49 64, 65  69 70, 71 78, 79
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<b>Science Performance Standards (Grade Level Expectations) Grade 3</b>		
<b>B1— Concepts of Physical Science</b>		
<b>SB</b> Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world. <b>SB1</b> Students develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior. <b>SB2</b> 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. <b>SB3</b> 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. <b>SB4</b> Students develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects.		
<b>The student demonstrates an understanding of the structure and properties of matter by:</b>		
[3] SB1.1 classifying matter according to physical properties (i.e., color, size, shape, weight, texture, flexibility).	<u>Unit E: Physical Science - Matter</u> Unit Literature: The Good Ship Popsicle Stick  Chapter 9: Observing Matter Vocabulary Activities Lesson 1: Properties of Matter Explore Activities: How do you describe objects? What is matter? What are some properties of matter? What is matter made of? Lesson Review Lesson 2: Measuring Matter Explore Activities: How can you measure length? How is matter measured?	358-359    360D 362 363 364, 365 366, 367, 368 369 372 373 374, 375
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<b>The student demonstrates an understanding of how energy can be transformed, transferred, and conserved by:</b>		
[3] SB2.1 classifying materials as insulators or conductors (i.e., fur, metal, wood, plastic) and identifying their applications.	<u>Unit E: Physical Science - Matter</u> Chapter 9: Observing Matter Conducting Heat, Quick Lab: Classify Matter  <u>Unit F: Physical Science - Forces and Energy</u> Chapter 12: Forms of Energy How can you control the flow of heat? Focus on Skills/Inquiry Skill: Experiment What are conductors and insulators?, Quick Lab	367   484 486-487 516
<b>The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by:</b>		
[3] SB3.1 recognizing that temperature changes cause changes in phases of substances (e.g., ice changing to liquid, water changing to water vapor, and vice versa).	<u>Unit E: Physical Science - Matter</u> Chapter 10: Changes in Matter Explore Activities: What happens when ice is heated?	397

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<b>The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by:</b>		
[3] SB4.2 recognizing that objects can be moved without being touched (e.g., using magnets, falling objects, static electricity).	<u>Unit E: Physical Science - Matter</u> Chapter 9: Observing Matter Magnetism, Explore the Main Idea How are mass and weight different?  <u>Unit F: Physical Science - Forces and Energy</u> Chapter 11: Forces and Motion What are types of forces?, Magnetism Gravity, Quick Lab: Observe Gravity Be a Scientist/Inquiry Investigation: How does distance affect the pull of a magnet on metal objects?  Science Handbook: Measure Force/Weight	367 378    446 447 450-451  R6

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<b>Science Performance Standards (Grade Level Expectations) Grade 3</b> <b>C1—Concepts of Life Science</b>		
<p><b>SC</b> Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.</p> <p><b>SC1</b> 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.</p> <p><b>SC2</b> Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.</p> <p><b>SC3</b> 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.</p>		
<b>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:</b>		
[3] SC1.1 sorting Alaskan plants and/or animals using physical characteristics (e.g., leaves, beaks) (L)	Opportunities to address: <u>Unit A: Life Science - Living Things</u> Chapter 1: A Look at Living Things What are plants? How do roots and stems help plants? Why are leaves important? How can you classify plants? Lesson Review, Math Link Explore Activities: How do an animal's structures help it meet its need? What are animals? How do animals get what they need? How do animals stay safe? Lesson Review, Formative Assessment How can you classify animals?, Differentiated Instruction  Chapter 2: Living Things Grow and Change How do plants grow? How do plants make seeds? How do plants grow without seeds?	32-33 34-35 36-37 38 39 43 44-45 46-47 48 49 54-55  70-71 72-73 76
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[3] SC1.2 describing how some traits (e.g., claws, teeth, camouflage) of living organisms have helped them survive as a species.	<u>Unit A: Life Science - Living Things</u> Chapter 1: A Look at Living Things Reading in Science: Eating Away At Pollution Explore Activities: How are plants alike? What are plants? How do roots and stems help plants? Why are leaves important? How can you classify plants? Lesson Review Lesson 3: Animal and Their Parts Explore Activities: How do an animal's structures help it meet its needs? What are animals? How do animals get what they need? How do animals stay safe? Lesson Review Focus on Skills/Inquiry Skill: Classify	28-29 31 32, 33 34, 35 36, 37 38 39 42 43 44, 45 46, 47 48 49 50-51
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<b>The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by:</b>		
[3] SC2.1 sorting animals and plants into groups based on appearance and behaviors.	<u>Unit A: Life Science - Living Things</u> Chapter 1: A Look at Living Things How can you classify plants? Focus on Skills/Inquiry Skill: Classify Lesson 4: Classifying Animals Explore: How can you classify animals?, Alternative Explore: How can animals be grouped? How can you classify animals?, Differentiated Instruction What are some invertebrates?, ELL Support: Categorize Information What are some vertebrates?, Science Background, Differentiated Instruction What are mammals? Lesson Review, Formative Assessment Chapter 1 Review: Skills and Concepts 13. Classify, Performance Assessment: It's Alive!  Chapter 2: Living Things Grow and Change What is the life cycle of some plants? How do plants grow without seeds?, Homework Activity Lesson Review, Writing Link	38 50-51 52 53  54-55 56-57 58-59 60 61 65  74-75 76 77

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[3] SC2.2 observing and comparing external features of plants and of animals that may help them grow, survive, and reproduce.	<u>Unit A: Life Science - Living Things</u> Chapter 1: A Look at Living Things Reading in Science: Eating Away At Pollution Explore Activities: How are plants alike? What are plants? How do roots and stems help plants? Why are leaves important? How can you classify plants? Lesson Review Lesson 3: Animal and Their Parts Explore Activities: How do an animal's structures help it meet its needs? What are animals? How do animals get what they need? How do animals stay safe? Lesson Review Focus on Skills/Inquiry Skill: Classify Explore Activities: How can you classify animals? How can you classify animals? What are some invertebrates? What are some vertebrates? What are mammals? Lesson Review Writing in Science: Desert Birds Chapter 1 Review  Chapter 2: Living Things Grow and Change How do plants grow? How do plants make seeds? What is the life cycle of some plants? How do plants grow without seeds? Lesson Review	28-29 31 32, 33 34, 35 36, 37 38 39 42 43 44, 45 46, 47 48 49 50-51 53 54, 55 56, 57 58, 59 60 61 62 64, 65  70 72, 73 74, 75 76 77
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[3] SC3.2 organizing a simple food chain of familiar plants and animals. (L)	<u>Unit B: Life Science – Ecosystems</u> Chapter 3: Living Things in Ecosystems What is a food chain? What is a food web? Focus on Skills/Inquiry Skill: Communicate (...making a food-chain diagram)	110-111 112 116-117
<b>Science Performance Standards (Grade Level Expectations) Grade 3</b> <b>D1—Concepts of Earth Science</b>		
<p><b>SD</b> Students develop an understanding of the concepts, processes, theories, models, evidence, and systems of earth and space sciences.</p> <p><b>SD1</b> Students develop an understanding of Earth's geochemical cycles.</p> <p><b>SD2</b> Students develop an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth.</p> <p><b>SD3</b> 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.</p> <p><b>SD4</b> Students develop an understanding of the theories regarding the <b>evolution</b> of the universe.</p>		
<b>The student demonstrates an understanding of geochemical cycles by:</b>		
[3] SD1.1 recognizing that most rocks are composed of combinations of different substances.	<u>Unit C: Earth Science - Earth and Its Resources</u> Chapter 5: Earth Changes Explore Activities: How can rocks change in moving water? What is weathering?  Chapter 6: Using Earth's Resources Lesson 1: Minerals and Rocks Explore Activities: How do a mineral's color and mark compare? What are minerals? What are rocks What are sedimentary and metamorphic rocks? How do we use minerals and rocks?	213 214, 215  226 227 228, 229 230, 231 232, 233 234
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[3] SD1.2 describing the water cycle to show that water circulates through the crust, oceans, and atmosphere of Earth.	<u>Unit D: Earth Science - Weather and Space</u> Chapter 7: Changes in Weather Lesson 2: The Water Cycle Explore Activities: How do raindrops form? What are clouds? How do clouds form? What is the water cycle? What are some kinds of severe weather? Lesson Review	288 289 290, 291 292, 293 294, 295 296, 297 299
<b>The student demonstrates an understanding of the forces that shape Earth by:</b>		
[3] SD2.1 identifying and comparing a variety of Earth's land features (i.e., rivers, deltas, lakes, glaciers, mountains, valleys, and islands).	<u>Unit C: Earth Science - Earth and Its Resources</u> Unit Literature: One Cool Adventure  Chapter 5: Earth Changes The Big Idea: What can cause Earth's features to change? Lesson 1: Earth's Features Explore Activities: Does land or water cover more of Earth's surface? What covers Earth's surface? What are some of Earth's land and water features? What land features are in the oceans? Lesson Review Focus on Skills/Inquiry Skill: Make a Model	186-187  188 190 191 192, 193 194, 195 196, 197 199 200-201
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<i>Continued from previous page...</i>	What are earthquakes? What are volcanoes? What are landslides and floods? Lesson Review Reading in Science: Slide on the Shore Lesson 3: Weathering and Erosion What is weathering? What is erosion? How can people change the land? Lesson Review Math in Science: Estimate a Glacier's Change Chapter 5 Review  <u>Science Yellow Pages</u> Earth Science - Chapter 5: Earth Changes	204, 205 206, 207 208 209 210-211 212 214, 215 216, 217 218 219 221 222, 223  TR48
<b>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:</b>		
[3] SD3.1 using recorded weather patterns (e.g., temperature, cloud cover, or precipitation) to make reasonable predictions. (L)	<u>Unit D: Earth Science - Weather and Space</u> Chapter 7: Changes in Weather The Big Idea: How does the weather where you live change throughout the year?, Differentiated Instruction Assessment: How do we predict weather? Lesson 1: Weather Explore Activities: How can you tell air is around you? What is weather?, Science Background How do we predict weather? Lesson Review, 3. Predict Chapter 7 Review, Skills and Concepts 11. Predict	276  278B 278 279 280-281 282 283 313

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<b>The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by:</b>		
3] SD4.1 recognizing that objects appear smaller the farther away they are.	<u>Unit D: Earth Science - Weather and Space</u> Chapter 8: Planets, Moons, and Stars What is our solar system? How can we view the planets?, Homework Activity Alternative Explore: Why are some stars brighter than others? What are stars? Reading in Science: Meet Orsola De Marco	338-339 342 347 348-349 352-353
[3] SD4.2 recognizing that objects have properties, locations, and movements that can be observed and described.	<u>Unit D: Earth Science - Weather and Space</u> Chapter 8: Planets, Moons, and Stars Lesson 1: The Sun and Earth Explore Activities: How do shadows change throughout the day? Why is there day and night? Why are there seasons? What is the Sun like? Lesson Review Lesson 2: The Moon and Earth Explore Activities: How does the Moon's shape seem to change? What are the phases of the Moon? The Moon's Orbit Why does the Moon's shape seem to change? What is it like on the Moon? Lesson Review Be a Scientist/Inquiry Investigation: Why does the Moon's shape appear to change? Lesson 3: The Planets Explore Activities: How do the planets move through space? What is our solar system? What are the inner and outer planets? How can we view the planets?	316 317 318, 319 320, 321 322 323 326 327 328, 329 330 331 332 333 334-335 336 337 338, 339 340, 341 342
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<i>Continued from previous page...</i>	Lesson Review Focus on Skills/Inquiry Skill: Observe Lesson 4: The Stars Explore Activities: Why do we see stars at night? What are stars? Why do we see different stars during different seasons? Lesson Review Reading in Science: Meet Orsola De Marco Chapter 8 Review  <u>Unit E: Physical Science - Matter</u> Chapter 9: Observing Matter Reading in Science: Meet Neil deGrasse Tyson  <u>Science Yellow Pages</u> Earth Science - Chapter 8: Planets, Moons, and Stars	343 344, 345 346 347 348, 349 350 351 352-353 354, 355           370-371           TR54, TR55
[3] SD4.3 recognizing and using appropriate instruments of magnification (e.g., binoculars and telescopes). (L)	<u>Unit D: Earth Science - Weather and Space</u> Chapter 8: Planets, Moons, and Stars How can we view the planets?, Develop Vocabulary Lesson Review, Visual Summary Chapter 8 Review, Vocabulary 4. Skills and Concepts: 13. Observe	342 343 354 355





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<i>Continued from previous page...</i>	<u>Unit F: Physical Science - Forces and Energy</u> Chapter 11: Forces and Motion What is work? Lesson 4: Using Simple Machines What are machines? What are levers? What are inclined planes? How do machines work together? Lesson Review Writing in Science: A Very Useful Machine Math in Science: Using Number Patterns Chapter 11 Review  Chapter 12: Forms of Energy Writing in Science: Other Energy Sources  <u>Science Yellow Pages</u> Earth Science - Chapter 6: Earth's Resources	455 462 464, 465 466, 467 468, 469 470 471 472 473 475  518  TR50, TR51
<b>The student demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society by:</b>		
[3] SE3.1 listing the positive and negative effects of a single technological development in the local community (e.g., fish trap, fish wheel, four-wheeler, computer). (L)	Opportunities to address: <u>Unit C: Earth Science - Earth and Its Resources</u> Chapter 6: Using Earth's Resources Lesson 4: Air and Water Resources, Look and Wonder, Warm Up Explore Activities: How is Earth's water made clean? How do we use air and water? How do people get water?, Differentiated Instruction What can happen to air and water resources? How can you conserve resources? Lesson Review, Formative Assessment	258 259 260-261 262-263 264-265 266 267

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<b>Science Performance Standards (Grade Level Expectations) Grades 3-5</b> <b>F1—Cultural, Social, Personal Perspectives, and Science</b>		
<p><b>SF</b> Students develop an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives.</p> <p><b>SF1</b> Students develop an understanding of the interrelationships among individuals, cultures, societies, science, and technology.</p> <p><b>SF2</b> 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.</p> <p><b>SF3</b> Students develop an understanding of the importance of recording and validating cultural knowledge.</p>		
<b>The student demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives by:</b>		
[3] SF1.1-SF3.1 exploring local or traditional stories that explain a natural event. (L) Cross referenced with SA3.1	<u>Unit D: Earth Science - Weather and Space</u> Chapter 8: Planets, Moons, and Stars Constellations Critical Thinking Writing Link: Write a Report	349 350 351
<b>Science Performance Standards (Grade Level Expectations) Grade 3</b> <b>G1—History and Nature of Science</b>		
<p><b>SG</b> Students develop an understanding of the history and nature of science.</p> <p><b>SG1</b> Students develop an understanding that historical perspectives of scientific explanations demonstrate that scientific knowledge changes over time, building on prior knowledge.</p> <p><b>SG2</b> 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.</p> <p><b>SG3</b> 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).</p> <p><b>SG4</b> Students develop an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base.</p>		
<b>The student demonstrates an understanding of the bases of the advancement of scientific knowledge by:</b>		
[3] SG2.1 comparing the results of multiple observations of a single local event. (L)	<u>Unit D: Earth Science - Weather and Space</u> Chapter 8: Planets, Moons, and Stars Assessment: Why does the Moon's shape seem to change? Lesson 2: The Moon and Earth, Look and Wonder Explore: How does the Moon's shape seem to change?, Alternative Explore: How does the Moon change in a month?	326B 326 327
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<i>Continued from previous page...</i>	What are the phases of the Moon?, Differentiated Instruction Fast Track: Use the Visuals, The Moon's Orbit Why does the Moon's shape seem to change? Lesson Review, Visual Summary, Formative Assessment Be a Scientist/Inquiry Investigation: Why does the Moon's shape appear to change? Focus on Skills/Inquiry Skill: Observe	328-329 330 331 333 334-335 344-345
<b>The student demonstrates an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base by:</b>		
[3] SG4.1 asking questions about the natural world.	<u>Be a Scientist</u> Explore Activities: What do you know about animals that live in Madagascar?  <u>Unit A: Life Science - Living Things</u> Chapter 1: A Look at Living Things Explore Activities: How do living and nonliving things differ? Explore Activities: How are plants alike? Be a Scientist/Inquiry Investigation: What do plants need to survive? Explore Activities: How do an animal's structures help it meet its needs? Explore Activities: How can you classify animals?  Chapter 2: Living Things Grow and Change Explore Activities: What does a seed need to grow? Explore Activities: How does a caterpillar grow and change? Explore Activities: Which traits are passed on from parents to their young?  <u>Unit B: Life Science - Ecosystems</u> Chapter 3: Living Things in Ecosystems Explore Activities: What kind of food do owls need? Explore Activities: Can ocean animals live and grow in fresh water? Explore Activities: Does fat help animals survive in cold environments?	3    21 31 40-41 43 53  69 81 91  107 119 133
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<i>Continued from previous page...</i>	Be a Scientist/Inquiry Investigation: How does camouflage help some animals stay safe?	144-145
	Chapter 4: Changes in Ecosystems	
	Explore Activities: How can worms change their environment?	151
	Explore Activities: How can a flood affect plants?	161
	Explore Activities: How do fossils tell us about the past?	173
	<u>Unit C: Earth Science - Earth and Its Resources</u>	
	Chapter 5: Earth Changes	
	Explore Activities: Does land or water cover more of Earth's surface?	191
	Explore Activities: How does sudden movement change the land?	203
	Explore Activities: How can rocks change in moving water?	213
	Chapter 6: Using Earth's Resources	
	Explore Activities: How do a mineral's color and mark compare?	227
	Explore Activities: What makes up soil?	239
	Explore Activities: How do some fossils form?	249
	Explore Activities: How is Earth's water made clean?	259
	Be a Scientist/Inquiry Investigation: What things pollute the air?	268-269
	<u>Unit D: Earth Science - Weather and Space</u>	
	Chapter 7: Changes in Weather	
	Explore Activities: How can you tell air is around you?	279
	Explore Activities: How do raindrops form?	289
	Explore Activities: How do temperature and precipitation patterns compare?	303
	Chapter 8: Planets, Moons, and Stars	
	Explore Activities: How do shadows change throughout the day?	317
	Explore Activities: How does the Moon's shape seem to change?	327
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<i>Continued from previous page...</i>	Be a Scientist/Inquiry Investigation: Why does the Moon's shape appear to change?	334-335
	Explore Activities: How do the planets move through space? Explore Activities: Why do we see stars at night?	337 347
<i>Continued on next page...</i>	<u>Unit E: Physical Science - Matter</u> Chapter 9: Observing Matter Explore Activities: How do you describe objects? Explore Activities: How can you measure length? Explore Activities: How are solids different from liquids?	363 373 383
	Chapter 10: Changes in Matter Explore Activities: What happens when ice is heated? Explore Activities: How can you change matter? Explore Activities: How can matter change? Be a Scientist/Inquiry Investigation: How can physical and chemical changes affect matter?	397 407 417 422-423
<i>Continued on next page...</i>	<u>Unit F: Physical Science - Forces and Energy</u> Chapter 11: Forces and Motion Explore Activities: How can you describe an object's position? Explore Activities: How can pushes affect the way objects move? Be a Scientist/Inquiry Investigation: How does distance affect the pull of a magnet on metal objects? Explore Activities: What is work? Explore Activities: How can a simple machine help you lift objects?	433 443 450-451 453 463
	Chapter 12: Forms of Energy Explore Activities: What happens to air when it is heated? Explore Activities: How can you make sounds?	479 489

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