

Fourth Grade Science Content Standards and Objectives

Standard 1:	Nature of Science	
SC.S.4.1	Students will <ul style="list-style-type: none"> • demonstrate an understanding of the history and nature of science as a human endeavor encompassing the contributions of diverse cultures, scientists, and careers. • demonstrate the abilities and understanding necessary to do scientific inquiry. demonstrate the ability to think and act as scientists by engaging in active inquiries and investigations, while incorporating hands-on activities.	
Objectives	Students will	PLT Activity and Page
SC.O.4.1.01	explain how new discoveries lead to changes in scientific knowledge.	#7 Habitat Pen Pals p. 37 #20 Environmental Exchange Box p. 92
SC.O.4.1.02	study the lives and discoveries of scientists of different cultures and backgrounds.	#90 Native Ways p.389
SC.O.4.1.03	explore science careers in West Virginia.	#34 Who Works in this Forest? p.144

<p>SC.O.4.1.04</p>	<p>demonstrate curiosity, initiative and creativity by developing questions that lead to investigations; designing simple experiments; and trusting observations of discoveries when trying new tasks and skills.</p>	<p>#6 Picture This! p. 34 #21 Adopt A Tree p. 97 #22 Trees as Habitats p.102 #23 The Fallen Log p.105 #24 Nature’s Recyclers p.108 #25 Birds and Worms p.111 #27 Every Tree for Itself p.117 #28 Air Plants p.120 #39 Energy Sleuths p.167 #40 Then and Now p.174 #41 How Plants Grow p.179 #42 Sunlight and Shades of Green p.182 #43 Have Seeds, Will Travel p.185 #45 Web of Life p.194 #47 Are Vacant Lots Vacant? p.200 #48 Field, Forest, and Stream p.203 #51 Make Your Own Paper p.224 #53 On the Move p.232 #55 Planning the Ideal Community p.239 #63 Tree Factory p.269 #64 Looking at Leaves p.273 #66 Germinating Giants p.279 #68 Name That Tree p.288 #70 Soil Stories p.297 #77 Trees in Trouble p.332 #81 Living with Fire p.350</p>
<p>SC.O.4.1.05</p>	<p>recognize that developing solutions to problems requires persistence, flexibility, open-mindedness, and alertness for the unexpected.</p>	<p>#36 Pollution Search p.153 #39 Energy Sleuths p.167 #69 Forest for the Trees p.291 #87 Earth Manners p.378</p>

SC.O.4.1.06	support statements with facts found through research from various sources, including technology.	#39 Energy Sleuths p.167 #40 Then and Now p.174 #45 Web of Life p.194 #76 Tree Cookies p.327 #81 Living with Fire p.350 #88 Life on the Edge p.382 #90 Native Ways p.389
SC.O.4.1.07	use scientific instruments, technology and everyday materials to investigate the natural world.	#9 Planet Diversity p. 45 #21 Adopt A Tree p. 97 #22 Trees as Habitats p.102 #23 The Fallen Log p.105 #24 Nature's Recyclers p.108 #27 Every Tree for Itself p.117 #28 Air Plants p.120 #39 Energy Sleuths p.167 #41 How Plants Grow p.179 #42 Sunlight and Shades of Green p.182 #43 Have Seeds, Will Travel p.185 #47 Are Vacant Lots Vacant? p.200 #48 Field, Forest, and Stream p.203 #63 Tree Factory p.269 #70 Soil Stories p.297 #77 Trees in Trouble p.332 #81 Living with Fire p.350
SC.O.4.1.08	demonstrate safe and proper techniques for handling, manipulating and caring for science materials.	#24 Nature's Recyclers p.108 #41 How Plants Grow p.179 #70 Soil Stories p.297 #77 Trees in Trouble p.332 #78 Signs of Fall p.337 #81 Living with Fire p.350

SC.O.4.1.09	construct a hypothesis when provided a problem.	#41 How Plants Grow p.179 #42 Sunlight and Shades of Green p.182 #43 Have Seeds, Will Travel p.185 #77 Trees in Trouble p.332
SC.O.4.1.10	establish variables and controls in an experiment; test variables through experimentation.	#4 Sounds Around p. 26 #24 Nature's Recyclers p.108 #41 How Plants Grow p.179 #42 Sunlight and Shades of Green p.182 #48 Field, Forest, and Stream p.203 #77 Trees in Trouble p.332 #78 Signs of Fall p.337 #81 Living with Fire p.350
SC.O.4.1.11	interpret data presented in a table, graph, or diagram and use it to answer questions and make decisions.	#4 Sounds Around p. 26 #6 Picture This! p. 34 #10 Charting Diversity p. 50 #24 Nature's Recyclers p.108 #27 Every Tree for Itself p.117 #36 Pollution Search p.153 #39 Energy Sleuths p.167 #41 How Plants Grow p.179 #48 Field, Forest, and Stream p.203 #70 Soil Stories p.297

SC.O.4.1.12	draw and support conclusions, make predictions and inferences based on patterns of evidence (e.g., weather maps, variation of plants, or frequency and pitch of sound).	#4 Sounds Around p. 26 #6 Picture This! p. 34 #22 Trees as Habitats p.102 #23 The Fallen Log p.105 #24 Nature's Recyclers p.108 #27 Every Tree for Itself p.117 #39 Energy Sleuths p.167 #41 How Plants Grow p.179 #42 Sunlight and Shades of Green p.182 #48 Field, Forest, and Stream p.203 #66 Germinating Giants p.279 #68 Name That Tree p.288 #69 Forest for the Trees p.291 #76 Tree Cookies p.327
SC.O.4.1.13	apply mathematical skills and use metric units in measurements and calculations.	#21 Adopt A Tree p. 97 #22 Trees as Habitats p.102 #27 Every Tree for Itself p.117 #28 Air Plants p.120 #38 Every Drop Counts p.163 #39 Energy Sleuths p.167 #41 How Plants Grow p.179 #42 Sunlight and Shades of Green p.182 #47 Are Vacant Lots Vacant? p.200 #48 Field, Forest, and Stream p.203 #53 On the Move p.232 #66 Germinating Giants p.279 #67 How Big is Your Tree? p.284 #73 Waste Watchers p.314
Standard 2:		

SC.S.4.2	<p>Students will demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories, and models as delineated in the objectives.</p> <p>demonstrate an understanding of the interrelationships among physics, chemistry, biology and the earth and space sciences.</p> <p>apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.</p>	
Objectives	Students will	PLT Activity and Page
SC.0.4.2.01	describe the different characteristics of plants and animals, which help them to survive in different niches and environments.	<p>#2 Get in Touch with Trees p. 20</p> <p>#3 Peppermint Beetle p. 23</p> <p>#7 Habitat Pen Pals p. 37</p> <p>#8 The Forest Of S.T. Shrew p. 40</p> <p>#9 Planet Diversity p. 45</p> <p>#10 Charting Diversity p. 50</p> <p>#11 Can It Be Real? p. 54</p> <p>#16 Pass The Plants, Please p. 77</p> <p>#20 Environmental Exchange Box p. 92</p> <p>#21 Adopt A Tree p. 97</p> <p>#22 Trees as Habitats p.102</p> <p>#23 The Fallen Log p.105</p> <p>#25 Birds and Worms p.111</p> <p>#27 Every Tree for Itself p.117</p> <p>#30 Three Cheers for Trees p.130</p> <p>#45 Web of Life p.194</p> <p>#61 The Closer You Look p.263</p> <p>#63 Tree Factory p.269</p> <p>#65 Bursting Buds p.277</p>
SC.0.4.2.02	associate the behaviors of living organisms to external and internal influences (e.g., hunger, climate, or seasons).	<p>#7 Habitat Pen Pals p. 37</p> <p>#21 Adopt A Tree p. 97</p> <p>#22 Trees as Habitats p.102</p> <p>#24 Nature's Recyclers p.108</p> <p>#27 Every Tree for Itself p.117</p> <p>#42 Sunlight and Shades of Green p.182</p> <p>#45 Web of Life p.194</p> <p>#69 Forest for the Trees p.291</p> <p>#88 Life on the Edge p.382</p>

SC.0.4.2.03	identify and classify variations in structures of living things including their systems and explain their functions (e.g., skeletons, teeth, plant needles, or leaves).	#10 Charting Diversity p. 50 #21 Adopt A Tree p. 97 #22 Trees as Habitats p.102 #27 Every Tree for Itself p.117 #62 To Be a Tree p.265 #65 Bursting Buds p.277 #76 Tree Cookies p.327
SC.0.4.2.04	compare and sequence changes in cycles in relation to plant and animal life.	#7 Habitat Pen Pals p. 37 #21 Adopt A Tree p. 97 #22 Trees as Habitats p.102 #23 The Fallen Log p.105 #27 Every Tree for Itself p.117 #28 Air Plants p.120 #42 Sunlight and Shades of Green p.182 #69 Forest for the Trees p.291 #76 Tree Cookies p.327 #79 Tree Lifecycle p.341 #80 Nothing Succeeds Like Succession p.345
SC.0.4.2.05	give examples how plants and animals closely resemble their parents and that some characteristics are inherited from the parents and others result from interaction with the environment.	
SC.0.4.2.06	identify human uses of plants and animals (e.g., food sources, or medicines).	#13 We All Need Trees p. 65 #14 Renewable or Not? p. 69 #15 A Few Of My Favorite Things p. 75 #24 Nature's Recyclers p.108 #69 Forest for the Trees p.291 #75 Tipi Talk p.320
SC.0.4.2.07	describe the effects of altering environmental barriers on the migration of animals.	#49 Tropical Treehouse p.207

SC.0.4.2.08	construct and explain models of habitats, food chains, and food webs.	#7 Habitat Pen Pals #22 Trees as Habitats #45 Web of Life	p. 37 p.102 p.194
SC.0.4.2.09	investigate how properties can be used to identify substances.		
SC.0.4.2.10	design an experiment to investigate the dissolving of solids and analyze the results.		
SC.0.4.2.11	examine simple chemical changes (e.g., tarnishing, rusting, or burning).		
SC.0.4.2.12	explain that materials including air take up space and are made of parts that are too small to be seen without magnification.		
SC.0.4.2.13	differentiate changes in states of matter due to heat loss or gain.		
SC.0.4.2.14	investigate variables that affect the rate of evaporation of a liquid.		
SC.0.4.2.15	compare and classify liquids based on density.		
SC.0.4.2.16	identify different forms of energy and describe energy transformations that occur between them (e.g., electrical to heat, or radiant to chemical).	#39 Energy Sleuths	p.167
SC.0.4.2.17	examine types and properties of waves (e.g., transverse, longitudinal, frequency, or wavelengths).		
SC.0.4.2.18	investigate static electricity and conductors/nonconductors of electricity.		
SC.0.4.2.19	construct simple electrical circuits.		
SC.0.4.2.20	describe and explain the relationship between a compass and a magnetic field.		
SC.0.4.2.21	relate motion of an object to its frame of reference.		
SC.0.4.2.22	predict and investigate the motion of an object if the applied force is changed.		
SC.0.4.2.23	explore that sounds are produced by vibrating objects and columns of air and form conclusions about the relationship between frequency and pitch of sound.		
SC.0.4.2.24	investigate the change in the length, tension, or thickness of the vibrating object on the frequency of vibration (e.g., string, wire, or rubber band).		
SC.0.4.2.25	examine the geologic time scale.		
SC.0.4.2.26	locate and identify patterns of stars and their change in location throughout the year.		
SC.0.4.2.27	compare and explain the relative time differences to erode materials.		
SC.0.4.2.28	investigate the cause and effects of volcanoes, earthquakes and landslides.		
SC.0.4.2.29	interpret a weather chart or map and predict outcomes.		

SC.0.4.2.30	identify the sun as a star.	
SC.0.4.2.31	explain the effects of alignment of earth, moon and sun on the earth.	
SC.0.4.2.32	describe and explain the planets orbital paths.	
SC.0.4.2.33	differentiate between types of rock and describe the rock cycle.	
SC.0.4.2.34	compare ocean water and fresh water.	
SC.0.4.2.35	investigate soil types and soil composition.	
Standard 3:	Application of Science	
SC.S.4.3	<p>Students will</p> <p>identify how the parts of a system interact.</p> <p>recognize and use models as representations of real things.</p> <p>observe and identify patterns of change, consistency or regularity within the environment.</p> <p>demonstrate the ability to utilize technology to gather and organize data to communicate designs, results and conclusions.</p> <p>identify that a solution to a problem often creates new problems.</p> <p>demonstrate the ability to listen to, be tolerant of, and evaluate the impact of different points of view on health, population, resources and environmental practices while working in collaborative groups.</p>	
Objectives	Students will	PLT Activity and Page
SC.0.4.3.01	identify that systems are made of parts that interact with one another.	<p>#7 Habitat Pen Pals p. 37</p> <p>#16 Pass The Plants, Please p. 77</p> <p>#22 Trees as Habitats p.102</p> <p>#28 Air Plants p.120</p> <p>#30 Three Cheers for Trees p.130</p> <p>#42 Sunlight and Shades of Green p.182</p> <p>#43 Have Seeds, Will Travel p.185</p> <p>#44 Water Wonders p.188</p> <p>#45 Web of Life p.194</p> <p>#47 Are Vacant Lots Vacant? p.200</p> <p>#62 To Be a Tree p.265</p> <p>#65 Bursting Buds p.277</p> <p>#76 Tree Cookies p.327</p> <p>#79 Tree Lifecycle p.341</p> <p>#82 Resource-Go-Round p.355</p>

SC.0.4.3.02	create models as representations of real things.	#6 Picture This! p. 34 #44 Water Wonders p.188 #53 On the Move p.232 #62 To Be a Tree p.265 #75 Tipi Talk p.320 #81 Living with Fire p.350
SC.0.4.3.03	observe that changes occur gradually, repetitively, or randomly within the environment and question causes of change.	#4 Sounds Around p. 26 #14 Renewable or Not? p. 69 #24 Nature's Recyclers p.108 #28 Air Plants p.120 #32 A Forest of Many Uses p.135 #36 Pollution Search p.153 #40 Then and Now p.174 #42 Sunlight and Shades of Green p.182 #43 Have Seeds, Will Travel p.185 #44 Water Wonders p.188 #45 Web of Life p.194 #47 Are Vacant Lots Vacant? p.200 #48 Field, Forest, and Stream p.203 #69 Forest for the Trees p.291 #79 Tree Lifecycle p.341 #80 Nothing Succeeds Like Succession p.345 #89 Trees for Many Reasons p.387
SC.0.4.3.04	given a set of objects, group or order the objects according to an established scheme.	#2 Get in Touch with Trees p. 20 #3 Peppermint Beetle p. 23 #6 Picture This! p. 34 #10 Charting Diversity p. 50 #16 Pass The Plants, Please p. 77 #28 Air Plants p.120

<p>SC.0.4.3.05</p>	<p>given a set of events, objects, shapes, designs, or numbers, find patterns of constancy or regularity.</p>	<p>#2 Get in Touch with Trees p. 20 #3 Peppermint Beetle p. 23 #28 Air Plants p.120 #43 Have Seeds, Will Travel p.185 #44 Water Wonders p.188 #79 Tree Lifecycle p.341</p>
<p>SC.0.4.3.06</p>	<p>identify and explain a simple problem or task to be completed; identify a specific solution; and list task requirements.</p>	<p>#2 Get in Touch with Trees p. 203. #3 Peppermint Beetle p. 23 #4 Sounds Around p. 26 #6 Picture This! p. 34 #7 Habitat Pen Pals p. 37 #13 We All Need Trees p. 65 #14 Renewable or Not? p. 69 #15 A Few Of My Favorite Things p. 75 #25 Birds and Worms p.111 #28 Air Plants p.120 #39 Energy Sleuths p.167 #42 Sunlight and Shades of Green p.182 #43 Have Seeds, Will Travel p.185 #44 Water Wonders p.188 #47 Are Vacant Lots Vacant? p.200 #48 Field, Forest, and Stream p.203 #51 Make Your Own Paper p.224 #53 On the Move p.232 #62 To Be a Tree p.265 #73 Waste Watchers p.314</p>
<p>SC.0.4.3.07</p>	<p>use an appropriate engineering design to solve a problem or complete a task.</p>	<p>#15 A Few Of My Favorite Things p. 75 #53 On the Move p.232</p>
<p>SC.0.4.3.08</p>	<p>recognize that a solution to one scientific problem often creates new problems (e.g., recycling, pollution, conservation, waste disposal, or need for technology).</p>	<p>#15 A Few Of My Favorite Things p. 75 #36 Pollution Search p.153 #38 Every Drop Counts p.163 #82 Resource-Go-Round p.355</p>

SC.0.4.3.09	listen to and be tolerant of different viewpoints by engaging in collaborative activities and modifying ideas when new and valid information is presented from a variety of resources.	#5 Poet-Tree p. 31 #6 Picture This! p. 34 #8 The Forest Of S.T. Shrew p. 40 #9 Planet Diversity p. 45 #10 Charting Diversity p. 50 #11 Can It Be Real? p. 54 #13 We All Need Trees p. 65 #14 Renewable or Not? p. 69 #31 Plant a Tree p.132 #40 Then and Now p.174 #44 Water Wonders p.188 #48 Field, Forest, and Stream p.203 #53 On the Move p.232
SC.0.4.3.10	describe the positive and negative consequences of the application of technology on personal health and the environment.	#4 Sounds Around p. 26
SC.0.4.3.11	develop respect and responsibility for the environment by engaging in conservation practices.	#4 Sounds Around p. 26 #13 We All Need Trees p. 65 #14 Renewable or Not? p. 69 #15 A Few Of My Favorite Things p. 75 #31 Plant a Tree p.132 #38 Every Drop Counts p.163 #69 Forest for the Trees p.291 #73 Waste Watchers p.314 #81 Living with Fire p.350 #82 Resource-Go-Round p.355 #87 Earth Manners p.378 #89 Trees for Many Reasons p.387