Science Standards of Learning for Virginia Public Schools

Correlation with National Science Standards

Key

P = Pre-activity **C = Core activity**
E = Extension activity **S = Supplemental activity**

Science Standard	Strands	*Finding Common Ground* Modules	SOL Correlations
Unifying Concepts and Processes	◦ Systems, order, and organization ◦ Evidence, models, and explanation ◦ Change, constancy, and measurement ◦ Evolution and equilibrium ◦ Form and function	All Modules	**5.1** Scientific Investigation, Reasoning, and Logic **6.1, 6.2** Scientific Investigation, Reasoning, and Logic **LS.1** Investigation Skills and the Nature of Science **PS.1** Investigation Skills and the Nature of Science
Science as Inquiry	◦ Abilities necessary to do scientific inquiry ◦ Understandings about scientific inquiry	All Modules	
Physical Science	◦ Properties and changes of properties in matter ◦ Motions and forces ◦ Transfer of Energy	(P) Tree Basics Mini-Lesson (5.3, 5.4, 5.7, 6.2 6.5, 6.6, LS.6, PS.2, PS.5, PS.6) MODULE 1: IN MY OWN BACKYARD (C) Backyard Biology (5.3, 5.7, 6.5, 6.6, LS.6, PS.2, PS.5, PS.6) MODULE 2: THE TEMPERATE FOREST BIOME (C) What Is the Temperate Forest? (C) A Walk in the Forest (online interactive) (5.3, 5.4, 5.7, 6.2, LS.6, PS.2, PS.5, PS.6) (E) Forest Field Study (5.3, 5.4, 5.7, 6.2, 6.5, 6.6, LS.6) (E) Making a Climograph (5.7, 6.6)	**5.3 Force, Motion, and Energy** (optical tools) **5.4 Matter** (compounds) **5.7 Earth Patterns, Cycles, and Change** (weather and seasonal changes; the water cycle; weathering and erosion; human impact) **6.2 Force, Motion, and Energy** (role of Sun; renewable and nonrenewable resources; energy transformations) **6.3 Force, Motion, and Energy** (energy sources) **6.5 Matter** (water resources) **6.6 Matter** (Earth's atmosphere; natural and human-induced changes to air quality) **LS.6 Photosynthesis** **PS.2** (nature of matter) **PS.5** (changes in matter) **PS.6** (energy transfer and transformation)

		MODULE 3: BIODIVERSITY AND INTERDEPENDENCE (S) A Walk in the Forest (online interactive) (5.3, 5.7, 6.2, LS.6, PS.2, PS.5, PS.6)	
Life Science	◦ Structure and function in living systems ◦ Reproduction and heredity ◦ Regulation and behavior ◦ Population and ecosystems ◦ Diversity and adaptations of organisms	(P) Tree Basics Mini-Lesson (5.5, LS.3, LS.4, LS.5, LS.6, LS.7, LS.9, LS.10) MODULE 1: IN MY OWN BACKYARD (C) Backyard Biology (E) Local Species and Habitat Registry (5.5, LS.4, LS.5, LS.7, LS.9, LS.10, LS.11, LS.12) MODULE 2: THE TEMPERATE FOREST BIOME (C) What Is the Temperate Forest? (C) A Walk in the Forest (E) Forest Field Study (5.5, 6.7, LS.4, LS.6, LS.7, LS.8, LS.9, LS.10, LS.11, LS.12) MODULE 3: BIODIVERSITY AND INTERDEPENDENCE (C) Temperate Forest Ecology: Flora and Fauna (United States and China) (S) Rotting Log Researchers & Decaying Leaf Detectives (E) Broken Webs (5.5, LS.3, LS.4, LS.5, LS.7, LS.8, LS.9, LS.10, LS.11, LS.12, LS.14) MODULE 4: SMITHSONIAN'S NATIONAL ZOO RESEARCH (C) Design a Panda Habitat (E) The Zoo and You (5.5, LS.4, LS.5, LS.8, LS.10, LS.11, LS.12, LS.13, LS.14) MODULE 5: PEOPLE AND THE FOREST **(**C) Finding Common Ground: People, Pandas, and Conservation (E) US Habitat Conservation Connection: North American Black Bear (6.7, LS.4, LS.7, LS.8, LS.11, LS.12, LS.14)	**5.5 Living Systems** (kingdoms and classification; vascular and nonvascular plants; vertebrates and invertebrates) **6.7 Living Systems** (watersheds; water cycle, river and stream processes; water monitoring) **LS.3 Life Functions and Processes** (respiration, movement, waste removal, growth, irritability (response), and reproduction) **LS 4 Plant and Animal Needs** (life processes) **LS.5 Classification of Organisms** **LS.6 Photosynthesis** **LS.7 Interdependence in Living Systems** (abiotic and biotic factors; producers, consumers, food webs; water, carbon dioxide/oxygen, nitrogen cycles) **LS.8 Interactions Among Populations** (cooperation, competition, social hierarchy, territorial imperative; influence on behavior) **LS.9 Interactions Among Populations in a Biological Community** (relationship among producers, consumers, and decomposers in food webs; the relationship of predators and prey; competition and cooperation; symbiotic relationships; and niches) **LS.10 Adaptation to Biotic and Abiotic Factors** (differences between ecosystems and biomes; characteristics of terrestrial and freshwater ecosystems; adaptations that enable organisms to survive within a specific ecosystem) **LS.11 Dynamic Systems** (phototropism, hibernation, and dormancy; factors that increase or decrease population size;

		MODULE 6: WHAT *YOU* CAN DO! (C) Planning New Schoolyard Habitat (C) Create a Conservation Action Plan! (5.5, LS.4, LS.10, LS.12) (E) Land-Use Change and Habitats (LS.7, LS.10, LS.12)	and eutrophication, climate change, and catastrophic disturbances) **LS.12 Ecosystem Dynamics and Human Activity** (food production and harvest; change in habitat size, quality, and structure; change in species competition; population disturbances and factors that threaten and enhance species survival; and environmental issues (water supply, air quality, energy production, and waste management) **LS 13 Heredity and Genetics** (role of DNA; genetic engineering and its applications; historical contributions and significance of discoveries related to genetics) **LS.14 Organic Evolution** (mutation, adaptation, natural selection, and extinction; evidence of evolution of different species in the fossil record; and how environmental influences, as well as genetic variation, can lead to diversity of organisms)
Earth and Space Science	◦ Structure of the earth system ◦ Earth's history ◦ Earth in the solar system	UNDERSTANDING HABITAT: THE TEMPERATE FOREST BIOME (C) What Is the Temperate Forest? (C) A Walk in the Forest (5.6, 5.7, 6.8) MODULE 3: BIODIVERSITY AND INTERDEPENDENCE (C) Temperate Forest Ecology: Flora and Fauna (5.7)	**5.6 Interrelationships in Earth/Space Systems** (biological characteristics, i.e., ecosystems; geological characteristics, i.e., slope) **5.7 Earth Patterns, Cycles, and Change** (fossil evidence; weathering and erosion and human impact) **6.8 Interrelationships in Earth/Space Systems** (Earth's axial tilt and seasons)
Science and Technology	◦ Abilities of technological design ◦ Understandings about science and technology	MODULE 1: IN MY OWN BACKYARD (E) Local Species and Habitat Registry (1, 3, 4) MODULE 2: THE TEMPERATE FOREST BIOME (C) What Is the Temperate Forest? (C) A Walk in the Forest (E) Making a Climograph (E) Forest Field Study	1. Technology is oriented toward the instruction and learning of science concepts, skills, and processes. 2. Technology is used regularly as an integral and ongoing part in the delivery and assessment of instruction. 3. Technology assists in improving every student's functional literacy. This includes

		(1, 2, 3, 4) MODULE 3: BIODIVERSITY AND INTERDEPENDENCE (C) Temperate Forest Ecology: Flora and Fauna (S) A Walk in the Forest (1, 2, 3, 4) MODULE 4: SMITHSONIAN NATIONAL ZOO RESEARCH (C) Design a Panda Habitat (E) The Zoo and You (1, 2, 3, 4) MODULE 5: PEOPLE AND THE FOREST (P) People and Forests (C) Finding Common Ground (E) US Habitat Conservation Connection: North American Black Bear (1, 2, 3, 4) MODULE 6: WHAT *YOU* CAN DO! (C) Create a Conservation Action Plan (E) Get the Word Out! (Eco E-cards) (1, 2, 3, 4)	improved communication through reading/information retrieval from the Internet (the use of telecommunications), writing (word processing), organization and analysis of data (databases, spreadsheets, and graphics programs), selling one's idea (presentation software), and resource management (project management software). 4. Instructional strategies of curriculum integrate current and emerging technologies (computers, interactive adventure Web games and virtual field studies via the Internet, use of virtual scientific tools, manipulation and analysis of GIS maps, interactive CD-ROMs, online telecommunication, Forest Plotter and statistics software and appropriate hardware)
Science in Personal and Social Perspectives	◦ Personal health ◦ Populations, resources, and environments ◦ Natural hazards ◦ Risks and benefits ◦ Science and technology in society	MODULE 1: IN MY OWN BACKYARD **(**C) Backyard Biology (E) Local Species and Habitat Registry (6.9, LS.12) MODULE 2: THE TEMPERATE FOREST BIOME (C) A Walk in the Forest (6.3, 6.9, LS.12) MODULE 3: BIODIVERSITY AND INTERDEPENDENCE (C) Temperate Forest Ecology: Flora and Fauna (6.2, 6.9, LS.12) MODULE 4: SMITHSONIAN NATIONAL ZOO RESEARCH (C) Design a Panda Habitat (6.9, LS.12) MODULE 5: PEOPLE AND THE	**6.2 Force, Motion, and Energy** (renewable and nonrenewable energy resources) **6.3 Force, Motion, and Energy** (solar energy) **6.9 Resources** (management of renewable and nonrenewable resources; cost/benefit tradeoffs in conservation policies) **LS.12 Ecosystem Dynamics and Human Activity**

		FOREST (P) People and Forests (C) Finding Common Ground (6.2, 6.3, 6.9, LS.12) MODULE 6: WHAT *YOU* CAN DO! (C) Create a Conservation Action Plan (6.2, 6.3, 6.9, LS.12) (E) Land-Use Change and Habitats (LS.12)	
History and Nature of Science	◦ Science as a human endeavor ◦ Nature of science ◦ History of science	MODULE 1: IN MY OWN BACKYARD (C) Backyard Biology (6.9, LS.12) MODULE 4: SMITHSONIAN NATIONAL ZOO RESEARCH (C) Design a Panda Habitat (E) The Zoo and You (6.9, LS.12) MODULE 5: PEOPLE AND THE FOREST (P) People and Forests (C) Finding Common Ground (6.9, LS.12) MODULE 6: WHAT *YOU* CAN DO! (C) Create a Conservation Action Plan (6.9, LS.12)	**6.9 Resources** (management of renewable and nonrenewable resources; cost/benefit tradeoffs in conservation policies) **LS.12 Ecosystem Dynamics and Human Activity** (food production and harvest; change in habitat size, quality, and structure; change in species competition; population disturbances and factors that threaten and enhance species survival; and environmental issues (water supply, air quality, energy production, and waste management)