

Key: C = Classroom Lesson Plan,

W = Kids' Zone Web Activity,

H = Hard Bargain Farm Class

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Grade	Science Domain	Topic	Broad Concept	Indicators	Classified Information (W)	Cow In and Out (W)	Ecosystem and Food Web Mural (C)	Farm Life Exploration (H)	Habitat Hike (H)	Let's Take a Dip (C, W)	Plant Identification (W)	Take Out the Trash (C, W)	The Water Cycle (W)	Ways of a Watershed (W)	Where's the Corn (C)		
Grade 3	Scientific Thinking and Inquiry		3.1. Broad Concept: Scientific progress is made by asking relevant questions and conducting careful investigations. As a basis for understanding this concept, and to address the content in this grade, students should develop their own questions and perform investigations.	3.1.1	Recognize and explain that when a scientific investigation is repeated, carefully and under the same conditions, a similar (but not necessarily identical) result is expected.					X							
				3.1.2	Participate in different types of guided scientific investigations (related to content in this grade), such as observing objects and events and collecting specimens for analysis, including longer-term investigations that take place over several days, weeks, or months.				X	X	X		X				
				3.1.3	Keep and report records of investigations and observations using tools, such as journals, charts, graphs, and computers.					X	X		X			X	
				3.1.4	Discuss the results of investigations and consider the explanations of others.					X	X		X				
				3.1.5	Demonstrate the ability to work cooperatively while respecting the ideas of others and communicating one's own conclusions about findings.					X	X		X				
				3.1.10	Ask, "How do you know?" in appropriate situations, and attempt reasonable answers when others ask the same question.				X	X	X		X				X
				3.1.11	Explain that one way to make sense of something is to think of how it compares to something more familiar (e.g., vibrations of an object in air such as a tuning fork, a plucked string of a string instrument, human vocal cords).	X				X		X					
Science and Technology			3.2. Broad Concept: Although each of these human enterprises of science and technology has a character and history of its own, each is dependent on and reinforces the other.	3.2.1	1. Define technology as the application of human ingenuity and skill to the solution of practical problems (e.g., typewriter, computer).			X				X			X		
				3.2.2	2. Identify and demonstrate how an invention can be used in different ways, such as a radio or a cell phone that can be used to receive both information and entertainment.			X									

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Grade 3	Life Science	3.5. Broad Concept: Plants and animals can be classified according to the physical characteristics that they share.	3.5.1	Demonstrate that a great variety of living things can be sorted into groups in many ways using various properties, such as how they look, where they live, and how they act, in order to decide which things belong to which group.	X		X	X	X	X	X				X		
			3.5.2	Explain that characteristics used for classification depend on the purpose of the grouping.	X		X				X	X					
		3.6. Broad Concept: Plants and animals have predictable life cycles.	3.6.1	Recognize that plants and animals go through predictable life cycles that include birth, growth, development, reproduction, and death.			X	X	X								
			3.6.2	Describe the life cycle of some living things, such as the frog and butterfly, including how they go through striking changes of body shape and function as they go through metamorphosis.				X	X								
			3.6.3	Compare and contrast how life cycles vary for different living things.				X	X								
		3.7. Broad Concept: Humans have a variety of mechanisms to stay healthy.	3.7.1	Explain that people need water, food, air, waste removal, and a particular range of temperatures, just as other animals do, although different animals can tolerate very different ranges of temperature and other features of their surroundings.			X	X	X	X							
			3.7.4	Recognize that food provides energy as well as materials for growth, maintenance, and repair of body parts.			X	X	X	X							X
			3.7.5	Recognize that vitamins and minerals are substances required by the body in small amounts to synthesize essential substances and carry out essential processes.													

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Grade 4	Scientific Thinking and Inquiry		4.1. Broad Concept: Scientific progress is made by asking relevant questions and conducting careful investigations. As a basis for understanding this concept, and to address the content in this grade, students should develop their own questions and perform investigations.	4.1.1	Recognize and describe how results of similar scientific investigations may turn out differently due to inconsistencies in methods, materials, or observations, or the limitations of the tools used.					X		X				
				4.1.3	Use numerical data to describe and compare objects and events.					X		X				
				4.1.5	Support statements with ideas and data found in print and electronic media, identify and evaluate the sources used, and expect others to do the same.			X			X		X			
				4.1.6	Identify better reasons for believing something rather than citing comments such as, "Everybody knows that," "I just know," or "Because they say," and discount such reasons when given by others.			X		X						
	Earth Science		4.3. Broad Concept: Waves, wind, water, and ice shape and reshape the Earth's land surface.	4.3.1	Explain how waves, wind, water, and glacial ice shape and reshape Earth's land surface by eroding rock and soil in some areas and depositing them in other areas.					X						
				4.3.2	Explain how the surface of the Earth changes over various time scales due to processes, such as erosion and weathering, landslides, volcanic eruptions, earthquakes, and mountain building.					X						
				4.4.7	Explain how soil is made partly from rock weathered by water and wind, and partly from decomposition of plant and animal remains, and that it contains many living organisms.				X	X						
				4.4.8	Describe the different properties of soil, including its color, texture (size of particles), and ability to retain water and support the growth of plants.											

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Grade 4	Life Science		4.7. Broad Concept: All organisms need energy and matter to live and grow.	4.7.1	Explain that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.		X	X	X	X	X							
				4.7.2	Observe and recognize that some source of energy is needed for all organisms to stay alive and grow.		X	X	X	X	X						X	
				4.7.3	Describe how energy derived from the sun is used by green plants to produce chemical energy in the form of sugars (photosynthesis), and this energy is transferred along a food chain from producers (plants) to consumers to decomposers.		X	X	X	X								X
				4.7.5	Describe the structures in plants (leaves, roots, flowers, stem, bark, wood) that are responsible for food production, support, water transport, growth, and protection.				X	X		X						
				4.7.6	Describe the many beneficial attributes of plants, including trees, in improving and sustaining an urban environment.						X		X					
				4.7.7	Explain how in all environments, organisms grow, die, and decay, as new organisms are produced by the older ones.			X	X	X								
				4.7.9	Explain how dead plants and animals are the food source for many microorganisms.		X	X	X	X	X							
				4.7.10	Investigate the Chesapeake Bay watershed and wetlands and describe how they support a wide variety of plant and animal life that interact with other living and non-living things			X	X	X	X	X		X	X			
			4.8.1	Describe that human beings have body systems very similar to those of other animals, especially other mammals (warm-blooded vertebrate animals that have, in the female, milk-secreting organs for feeding the young).						X								

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Grade 5	Science and Technology	1. Scientific Thinking	5.1 Students should be encouraged to think scientifically: as a basis for developing this set of skills, and to address the content in this grade, students should perform investigations.	5.1.1 Evaluate the validity of claims based on the amount and quality of the evidence cited.						X		X						
				5.1.2 Explain that predictions can be based on what is known about the past, assuming that conditions are similar.							X		X					
				5.1.3 Realize and explain why predictions may be more accurate if they are based on large collections of similar events for statistical accuracy.								X		X			X	
	Science and Technology	2. Inquiry		5.2. Science is based on Inquiry: as a basis for understanding the concepts of Scientific Inquiry Students should be encouraged to develop their own questions in a Scientific context. Students should be able to :	5.2.1. Recognize and describe how results of similar scientific investigations may turn out differently because of inconsistencies in methods, materials, and observations, or because of limitations of the precision of the instruments used.						X		X					
					5.2.4 Read and follow step-by-step instructions when learning new investigations.	X	X	X			X	X	X	X	X	X	X	
					5.2.5 Identify the controlled variable and at least one independent variable in a scientific investigation, when appropriate.								X		X			
					5.2.6 Explain the distortion inherent in using only a portion of the data collected to describe the whole. Understand that it is sometimes acceptable to discard data.								X		X			

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Earth And Space Science	6. Water Cycle	5.6. Students will be introduced to the movement of Water through the Water Cycle and develop an understanding of the physical properties of Water: Students should be able to :	5.6.1	Describe that when liquid water evaporates, it turns into a gas (vapor) mixed into the air, and can condense and reappear as a liquid when cooled or as a solid (ice) if cooled below the freezing point of water.									X				
			5.6.2	Explain how water moves in air masses from one place to another in the form of clouds, fog, or as invisible water vapor, and falls to the Earth as rain, hail, sleet, or snow.					X					X	X		
			5.6.3	Describe that clouds are made of tiny droplets of water or ice crystals.											X		
			5.6.4	Explain that water on Earth cycles through different forms and in different locations (e.g., underground water and vapor in the atmosphere).						X					X	X	
	11. Inheritance	5.11. Students will be introduced to concepts of Inheritance in living organisms and learn about the importance of reliable inheritance mechanism in organisms. Students should be able to:	5.11.2	List some characteristics of plants and animals that are fully inherited (e.g., form of flower, shape of leaves) and others that are affected by the climate or environmental conditions (e.g., browning of leaves from too much sun, language spoken).				X	X								

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Grade 5	Life Science	12. Adaptation and Survival	5.12. Students will learn about Adaptation and Survival and its importance to the continuity of life. Students should be able to :	5.12.1 Explain that in any particular environment, some kinds of plants and animals survive well, some do not survive as well, and some cannot survive at all.	X		X	X	X	X	X					
				5.12.2 Identify organisms that are not native to the Washington, DC, area and how they undergo changes to increase their chance of survival in the area.			X	X	X		X					
				5.12.3 Explain how organisms can cause changes in their environment to ensure survival, and these changes may affect the ecosystem (the living and nonliving components of the environment).						X						
				5.12.4 Explain that organisms fit enough to survive in a particular environment will typically produce offspring fit enough to survive and reproduce in that particular environment. Over time, these inherited characteristics are carried as the predominant forms (e.g., adaptations such as shape of beak, length of neck, shape of teeth).	X		X	X	X	X						
				5.12.5 Explain how changes in an organism's habitat are sometimes beneficial and sometimes harmful, and how changes in the environment (drought, cold) have caused some plants and animals to die, migrate, or become extinct.	X		X		X	X						
				5.12.6 Explain that many plants and animals can survive harsh environments because of seasonal behaviors (e.g., in winter, some trees shed leaves, some animals hibernate).				X	X							
				5.12.7 Recognize that some animal behaviors are instinctive (e.g., turtles burying their eggs, human infants crying when hungry) and others learned (e.g., a wolf's hunting skills, humans' ability to build fires for warmth).				X	X							
				5.12.8 Describe well-defined plant behaviors, such as the way seedlings' stems grow toward light and their roots grow downward in response to gravity.				X	X		X					

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Grade 6	Scientific Thinking and Inquiry		6.1 Broad Concept: Scientific progress is made by asking relevant questions and conducting careful investigations. As a basis for understanding this concept, and to address the content in this grade, students should develop their own questions and perform investigations.	6.1.1	Give examples of different ways scientists investigate natural phenomena, and identify processes all scientists use, such as collection of relevant evidence, the use of reasoning, the development and testing of hypotheses, and the use and construction of theory to make sense of the evidence.	X			X	X		X						
				6.1.8	Record and organize information in simple tables and graphs, and identify relationships they reveal. Use tables and graphs as examples of evidence for explanations when writing essays or writing about lab work, fieldwork, etc. Read simple tables and graphs produced by others, and describe in words what they show.						X		X					
	Resources		6.6. Broad Concept: Sources of materials differ in amounts, distribution, usefulness, and the time required for formation.	6.6.1	Recognize that fresh water is a resource that can be depleted or polluted, making it unavailable or unsuitable for humans.					X					X			
				6.6.3	Recognize that the Earth's resources for humans, such as fresh water, air, arable soil, and trees, are finite.				X	X				X	X			
				6.6.6	Explain that recycling, reuse, and the development of substitutes can reduce the rate of depletion of many minerals.						X			X				
				6.6.7	Describe that most rainwater that falls in Washington, DC, will eventually drain into the Chesapeake Bay.					X					X	X		
				6.6.8	Explain the important role of the water cycle within a watershed.					X					X	X		