

North Carolina 4-H School Enrichment Programs

North Carolina Science Standard Course of Study

Program Description: The goal of the North Carolina Standard Course of Study (NCSCS) for Science, and the 4-H Science School Enrichment Program is to achieve scientific literacy. North Carolina students can achieve scientific literacy through an instructional program based on the science component of the Standard Course of Study for Science and 4-H’s experiential programs.

4-H CURRICULUM	GRADE	COMPETENCY GOAL	OBJECTIVES
Bug Out	2 nd	Goal 1: The learner will conduct investigations and build an understanding of animal life cycles.	1.01 Describe the life cycle of an animal including: birth, developing into an adult, reproduction, aging and death 1.02 Observation that insects need food, air, and space to grow 1.03 Observe the different stages of an insect life cycle 1.04 Compare and contrast life cycles of other animals such as mealworms, ladybugs, crickets, guppies or frogs
Embryology	2 nd	Goal 1: The learner will conduct investigations and build an understanding of animal life cycles.	1.01 Describe the life cycle of an animal including: birth, developing into an adult, reproduction, aging and death

<p>Soil Solutions</p>	<p>3rd</p>	<p>Goal 1: The learner will conduct investigations and build an understanding of plant growth and adaptations</p> <p>Goal 2: The learner will conduct investigations to build understanding of soil properties</p>	<p>1.01 Observe and measure how the qualities of nutrients, light, and water in the environment affect plant growth</p> <p>1.02 Observe and describe how environmental conditions determine how well plants survive and grow in a particular environment</p> <p>1.03 Investigate and describe how plants pass through distinct stages in their life cycle including growth, survival, and reproduction</p> <p>1.04 Explain why the number of seeds a plant produces depends on variables such as light, water, nutrients, and pollination</p> <p>1.05 Observe and discuss how bees pollinate flowers</p> <p>1.06 Observe, describe, and record properties of germinating seeds</p> <p>2.01 Observe and describe the properties of soil color, texture, and capacity to hold water</p> <p>2.02 Investigate and observe that different soils absorb water at different rates</p> <p>2.03 Determine the ability of soil to support the growth of many plants, including those important to our food supply</p> <p>2.04 Identify the basic components of soil: sand, clay, and humus</p> <p>2.05 Determine how composting can be used to recycle discarded plant and animal material</p> <p>2.06 Determine the relationship between heat and decaying plant matter in a compost pile</p>
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Creepy Crawlies	4 th	Goal 1: The learner will conduct investigations to build an understanding of animal behavior and adaptation	1.01 Observe and describe how all living things affect the life of a particular animal including: other animals, plants, weather, climate 1.02 Record and observe how animals of the same kind differ in some of their characteristics and discuss possible advantages of the variation 1.03 Observe and discuss how behaviors and body structure help animals survive in a particular habitat 1.04 Explain and discuss how humans and other animals can adapt their behavior to live in changing habitats 1.05 Recognize that humans can better understand themselves by learning about other animals
Electricity	4 th	Goal 3: The learner will make observations and conduct investigations to build an understanding of magnetism and electricity	3.01 Observe and investigate the pull of magnets on all materials made of iron and the pushes and pulls on other magnets 3.02 Describe and demonstrate how magnets can be used to generate electricity 3.03 Design and test electrical circuit as a closed pathway including an energy source, energy conductor, and energy receiver 3.04 Explain how magnetism is related to electricity 3.05 Describe and explain the parts of a light bulb 3.06 Describe and identify materials that are conductors and nonconductors of electricity 3.07 Observe and investigate that series and parallel circuits have different characteristics 3.08 Observe and investigate the ability of electrical circuits to produce light, heat, sound, and magnetic effects 3.09 Recognize lightning as an electrical discharge and show proper safety behavior when lightning occurs

Eco-Wonders	5 th	Goal 1: The learner will conduct investigations to build an understanding of the interdependence of plants and animals	<p>1.01 Describe and compare several common ecosystems (communities of organisms) and their interactions with the environment</p> <p>1.02 Identify and analyze the functions of organisms within the population of the ecosystem: producer, consumer, and decomposer</p> <p>1.03 Explain why an ecosystem can support a variety of organisms</p> <p>1.04 Discuss and determine the role of light, temperature, and soil composition in an ecosystems capacity to support life</p> <p>1.05 Explain and evaluate some ways that humans effect ecosystems: habitat reduction due to development, pollution, increased nutrients</p> <p>1.06 Determine how materials are recycled in nature</p>
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Down To Earth	6 th	Goal 4: The learner will investigate the cycling of matter	<p>4.01 Describe the flow of energy and matter in natural systems</p> <p>4.02 Energy flows through ecosystems in one direction, from the sun to the producers, consumers, and decomposers</p> <p>4.03 Matter is transferred from one organism to another and between organisms and their environment</p> <p>4.04 Water, nitrogen, carbon dioxide, and oxygen are substances cycled between the living and non-living environments</p> <p>4.05 Evaluate the significant role of decomposers</p> <p>4.06 Examine the evidence that green plants make food</p> <p>4.07 Photosynthesis is a process carried on by green plants and other organisms containing chlorophyll</p> <p>4.08 During photosynthesis, light energy is converted into stored energy, which the plant, in turn, uses to carry out its life processes</p> <p>4.09 Evaluate the significance of photosynthesis to other organisms</p> <p>4.10 The major source of atmospheric oxygen is photosynthesis</p> <p>4.11 Carbon dioxide is removed from the atmosphere and oxygen is released during photosynthesis</p> <p>4.12 Green plants are producers of food that is used directly or indirectly by consumers</p> <p>4.13 Evaluate designed systems for ability to enable growth of certain plants and animals</p>
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Prepared by
Mitzi Downing, Extension Assistant Professor & Specialist
4-H Youth Development and Family & Consumer Sciences Department

