

North Carolina Essential Standards Draft 3.0 Occupational Course of Study—Applied Science

The North Carolina Science Essential Standards maintain the respect for local control of each Local Education Authority (LEA) to design the specific curricular and instructional strategies that best deliver the content to their students. Nonetheless, engaging students in inquiry-based instruction is a critical way of developing conceptual understanding of the science content that is vital for success in the twenty-first century. The process of scientific inquiry, experimentation and technological design should not be taught nor tested in isolation of the core concepts drawn from physical science, earth science and life science. A seamless integration of science content, scientific inquiry, experimentation and technological design will reinforce in students the notion that "what" is known is inextricably tied to "how" it is known. A well-planned science curriculum provides opportunities for inquiry, experimentation and technological design. Teachers, when teaching science, should provide opportunities for students to engage in "hands-on/minds-on" activities which are exemplars of scientific inquiry, experimentation and technological design.

Forces and Motion

	Essential Standard	Clarifying Objectives	
OA1.1	Understand force and motion.	OA1.1.1	Compare weight and mass.
		OA1.1.2	Classify types of force (gravity, friction, magnetism).
		OA1.1.3	Describe the effects of force (gravity, friction, magnetism) on an object's weight and motion.

Energy

	Essential Standard	Clarifying Objectives	
OA2.1	Understand energy and its conservation.	OA2.1.1	Identify forms of energy (solar, nuclear, wind, chemical).
		OA2.1.2	Explain the effects of various forms of energy on the environment.
		OA2.1.3	Identify ways that consumers can conserve energy.

Electricity and Magnetism

	Essential Standard	Clarifying Objectives	
OA3.1	Understand electricity and magnetism	OA3.1.1	Interpret a compass.
		OA3.1.2	Explain how magnetic poles behave.
		OA3.1.3	Understand safety procedures related to static electricity.
		OA3.1.4	Understand safety procedures related to household electricity.

Matter

	Essential Standard	Clarifying Objectives	
OA4.1	Understand properties of matter (color, shape, volume, density, texture).	OA4.1.1	Distinguish between the three states of matter (solid, liquid, gas).
		OA4.1.2	Classify common materials according to their properties (color, shape, volume, density, texture).

Chemicals

	Essential Standard	Clarifying Objectives	
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	Essential Standard	Clarifying Objectives	
OA5.1	Identify the uses and dangers of common chemicals.	OA5.1.1	Identify uses of common chemicals.
		OA5.1.2	Identify dangers related to common household chemicals (chlorine bleach, antifreeze, chemicals for lawn and garden, insecticides, rodent poison, de-icing salt).

The Environment

	Essential Standard	Clarifying Objectives	
OA6.1	Understand how humans can have positive and negative effects on the environment.	OA6.1.1	Explain how humans can have a positive impact on natural resources.
		OA6.1.2	Explain the effects of pollution on the earth, air and waterways and what can be done at the individual, family and community level to reduce pollution.

Body Systems

	Essential Standard	Clarifying Objectives	
OA7.1	Understand the human body's basic needs and control systems.	OA7.1.1	Explain the primary functions of the major systems of the human body and the major organs within these systems.
		OA7.1.2	Identify normal or desirable ranges for common health indicators (temperature, blood pressure, weight, cholesterol and blood glucose levels).
		OA7.1.3	Classify health problems and symptoms in terms of whether they require or do not require medical attention.
		OA7.1.4	Identify appropriate sources of medical care for identified problems/symptoms.
		OA7.1.5	Understand basic first aid techniques.