



This document is designed to help North Carolina educators teach the Essential Standards (Standard Course of Study). NCDPI staff are continually updating and improving these tools to better serve teachers.

Fourth Grade Science
 2009-to-2004 Standards Crosswalk

This document is a general comparison of the current 2004 Science Standard Course of Study and the new 2009 Science Essential Standards. It provides initial insight into sameness and difference between these two sets of standards. This document is not intended to answer all questions about the nuance of the new standards versus the old - in fact, we imagine you will develop questions as you do a close reading of the new standards. Please send the science section of NC DPI any thoughts, feedback, questions and ideas about additional resources that would help you start preparing to teach the Essential Standards. Email Beverly Vance at bvance@dpi.state.nc.us.

Important Note: The current 2004 SCOS will continue to be the operational standards in the 2010-11 and 2011-12 school years as resource materials are developed to support the new Science Essential Standards, professional development is conducted and assessments are designed to align to the new Science Essential Standards. We expect the new Essential Standards to be taught and assessed in schools for the first time in the 2012-13 school year. That said, we are providing Essential Standards resources now and over the next two-years so that schools and teachers can get a head start on internalizing and planning to teach the new standards.

2009 Essential Standards			2004 NC SCOS			Comments
Strand	Objective	Essential Standard	Goal	Objective	Text of objective	
Physical Science: Forces and Motion		Explain how various forces affect the motion of an object.	Magnetism and	3.01	Observe and investigate the pull of magnets on all materials made of iron and the pushes or pulls on other magnets.	
	4.P.1.1	Explain how magnets interact with all things made of iron and with other magnets to produce motion without touching them.		3.04	Explain how magnetism is related to electricity.	
	4.P.1.2	Explain how electrically charged objects push or pull on other electrically charged objects and produce motion.				

2009 Essential Standards			2004 NC SCOS			Comments
Strand	Objective	Essential Standard	Goal	Objective	Text of objective	
Physical Science: Matter: Properties and Change		Understand the composition and properties of matter before and after they undergo a change or interaction.	Co mpo	2.04	Show that different rocks have different properties.	
	4.P.2.1	Compare the physical properties of samples of matter: (strength, hardness, flexibility, ability to conduct heat, ability to conduct electricity, ability to be attracted by magnets, reactions to water and fire).	Magnetism and Electricity	3.06	Describe and identify materials that are conductors and nonconductors of electricity.	
	4.P.2.2	Explain how minerals are identified using tests for the physical properties of hardness, color, luster, cleavage, and streak.	Composition and Uses of Rocks and Minerals	2.02	Recognize that minerals have a definite chemical composition and structure, resulting in specific physical properties including: <ul style="list-style-type: none"> • Hardness • Streak color • Luster • Magnetism 	
				2.03	Explain how rocks are composed of minerals.	
4.P.2.3	Classify rocks as metamorphic, sedimentary or igneous based on their composition, how they are formed and the processes that create them.					
Physical Science: Energy:		Recognize that energy takes various forms that may be grouped based on their interaction with matter.	Magnetism and Electricity	3.02	Describe and demonstrate how magnetism can be used to generate electricity.	
	4.P.3.1	Recognize the basic forms of energy (light, sound, heat, electrical, and magnetic) as the ability to cause motion or create change.		3.03	Design and test an electric circuit as a closed pathway including an energy source, energy conductor, and an energy receiver.	
				3.08	Observe and investigate the ability of electric circuits to produce light, heat, sound, and magnetic effects.	

2009 Essential Standards			2004 NC SCOS			
Strand	Objective	Essential Standard	Goal	Objective	Text of objective	Comments
		Text of Clarifying objective				
	4.P.3.2	Recognize that light travels in a straight line until it strikes an object or travels from one medium to another, and that light can be reflected, refracted, and absorbed.				
Earth Science: Earth in the Universe	Explain the causes of day and night and phases of the moon.					
	4.E.1.1	Explain the cause of day and night based on the rotation of Earth on its axis.				
	4.E.1.2	Explain the monthly changes in the appearance of the moon, based on the moon's orbit around the Earth.				
Earth Science: Earth History	Understand the use of fossils and changes in the surface of the earth as evidence of the history of Earth and its changing life forms.					
	4.E.2.1	Compare fossils (including molds, casts, and preserved parts of plants and animals) to one another and to living organisms.				
	4.E.2.2	Infer ideas about Earth's early environments from fossils of plants and animals that lived long ago.				
	4.E.2.3	Give examples of how the surface of the earth changes due to slow processes such as erosion and weathering, and rapid processes such as landslides, volcanic eruptions, and earthquakes.				
						4.E.2.3 matches Grade 5: 2.01, 2.03 and 2.05

2009 Essential Standards			2004 NC SCOS		Comments	
Strand	Objective	Essential Standard	Goal	Objective		
Life Science: Ecosystems		Understand the effects of environmental changes, adaptations and behaviors that enable animals (including humans) to survive in changing habitats.	Animal Behavior and Adaptation	1.01	Observe and describe how all living and nonliving things affect the life of a particular animal including: <ul style="list-style-type: none"> • Other animals • Plants • Weather • Climate 	
	4.L.1.1	Give examples of changes in an organism's environment that are beneficial to it and some that are harmful.		1.03	Observe and discuss how behaviors and body structures help animals survive in a particular habitat.	
	4.L.1.2	Explain how animals meet their needs by using behaviors in response to information received from the environment.		1.04	Explain and discuss how humans and other animals can adapt their behavior to live in changing habitats.	
	4.L.1.3	Explain how humans can adapt their behavior to live in changing habitats (e.g., recycling wastes, establishing rain gardens, planting native species to prevent flooding and erosion).		1.02	Observe and record how animals of the same kind differ in some of their characteristics and discuss possible advantages and disadvantages of this variation.	
	4.L.1.4	Explain how differences among animals of the same population sometimes give individuals an advantage in surviving and reproducing in changing habitats.				
Life Science: Molecular Biology		Understand food and the benefits of vitamins, minerals and exercise.	Food Provides Energy and Materials for Growth and	4.01	Explain why organisms require energy to live and grow.	
	4.L.2.1	Classify substances as food or non-food items based on their ability to provide energy and materials for survival, growth and repair of the body.		4.02	Show how calories can be used to compare the chemical energy of different foods.	
				4.03	Discuss how foods provide both energy and nutrients for living organisms.	
	4.L.2.2	Explain the role of vitamins, minerals and exercise in maintaining a healthy body.		4.04	Identify starches and sugars as carbohydrates.	

Objective 1.05 not addressed
Objective 2.01 not addressed
Objective 2.05 not addressed
Objective 2.06 not addressed
Objective 2.07 not addressed
Objective 3.05 not addressed
Objective 3.07 not addressed
Objective 3.09 not addressed
Objective 4.05 not addressed