

NORTH CAROLINA STANDARD COURSE OF STUDY
Crosswalk
Grade 5 Science

The purpose of this document is to provide a general comparison of the 2009 Grade 5 Science Standard Course of Study and the 2023 Grade 5 Science Standard Course of Study. It provides initial insight into similarities and differences between these two sets of standards. This document is not intended to answer all questions about the nuances of the new 2023 standards versus the previous 2009 standards..

Grade 5 Science Standards

Note: The 2023 Grade 5 standards and objectives are not intended to be the curriculum, nor do they indicate the whole of a curriculum which will be written by a local public-school unit (PSU) or school. The standards for this course have been developed to serve as the framework which will guide each PSU in the development of the curriculum for Grade 5.

Matter and its Interactions		
2023 Standards/Objectives	2009 Essential Standards/Clarifying Objectives	Notes
<i>PS.5.1 Understand the interactions of matter and energy and the changes that occur.</i>	<i>5.P.2 Understand the interactions of matter and energy and the changes that occur.</i>	
	<i>5.P.3 Explain how the properties of some materials change as a result of heating and cooling.</i>	
PS 5.1.1 Carry out investigations to compare the weight of objects before and after an interaction.	5.P.2.2 Compare the weight of an object to the sum of the weight of its parts before and after an interaction.	
PS. 5.1.2 Carry out investigations to explain whether the mixing of two or more substances results in new substances.	5.P.2.3 Summarize properties of original materials, and the new material(s) formed, to demonstrate that a change has occurred.	
PS 5.1.3 Carry out investigations to compare how heating and cooling affect some materials and how this relates to their purpose and practical applications.	5.P.3.2 Explain how heating and cooling affect some materials and how this relates to their purpose and practical applications.	

Motion and Stability- Forces and Interactions		
2023 Standards/Objectives	2009 Essential Standards/Clarifying Objectives	Notes
<i>PS.5.2 Understand force, motion, and the relationship between them.</i>	<i>5.P.1 Understand force, motion and the relationship between them.</i>	
PS.5.2.1 Carry out investigations to explain how factors such as gravity, friction, and change in mass affect the motion of objects.	5.P.1.1 Explain how factors such as gravity, friction, and change in mass affect the motion of objects. 5.P.1.4 Predict the effect of a given force or a change in mass on the motion of an object.	
PS.5.2.2 Use mathematics and computational thinking to infer the motion of an object (including position, direction, and speed).	5.P.1.2 Infer the motion of objects in terms of how far they travel in a certain amount of time and the direction in which they travel. 5.P.1.3 Illustrate the motion of an object using a graph to show a change in position over a period of time.	

From Molecules to Organisms		
2023 Standards/Objectives	2009 Essential Standards/Clarifying Objectives	Notes
<i>LS.5.1 Understand how structures and systems of the human body perform functions necessary for life.</i>	<i>5.L.1 Understand how structures and systems of organisms (to include the human body) perform functions necessary for life.</i>	
LS.5.1.1 Use models to recognize the organizational structure of humans as a multicellular organism (cell, tissue, organ, system, organism).		New
LS.5.1.2 Use models to compare the major systems of the human body (digestive, respiratory, circulatory, muscular, skeletal, nervous) as it relates to their functions necessary for life.	5.L.1.2 Compare the major systems of the human body (digestive, respiratory, circulatory, muscular, skeletal, and cardiovascular) in terms of their functions necessary for life.	

Ecosystems- Interactions, Energy, and Dynamics		
2023 Standards/Objectives	2009 Essential Standards/Clarifying Objectives	Notes
<i>LS.5.2 Understand the interdependence of plants and animals within their ecosystem.</i>	<i>5.L.2 Understand the interdependence of plants and animals with their ecosystem.</i>	
LS.5.2.1 Engage in argument from evidence to compare the characteristics of several common ecosystems (including estuaries and salt marshes, oceans, lakes and ponds, rivers and streams, forests, and grasslands) in terms of their ability to support a variety of populations.	5.L.2.1 Compare the characteristics of several common ecosystems, including estuaries and salt marshes, oceans, lakes and ponds, forests, and grasslands.	
LS.5.2.2 Use models to classify organisms within an ecosystem according to the function they serve: producers, consumers, or decomposers.	5.L.2.2 Classify the organisms within an ecosystem according to the function they serve: producers, consumers, or decomposers (biotic factors).	
LS.5.2.3 Use models to infer the effects that may result from the interconnected relationships of plants and animals to their ecosystem.	5.L.2.3 Infer the effects that may result from the interconnected relationship of plants and animals to their ecosystem.	

Heredity- Inheritance and Variation of Traits		
2023 Standards/Objectives	2009 Essential Standards/Clarifying Objectives	Notes
<i>LS.5.3 Understand some characteristics of an organism are inherited and other characteristics are acquired.</i>	<i>5.L.3 Understand why organisms differ from or are similar to their parents based on the characteristics of the organism.</i>	

LS.5.3.1 Ask questions to compare instincts and learned behaviors.	5.L.3.1 Explain why organisms differ from or are similar to their parents based on the characteristics of the organism.	
	5.L.3.2 Give examples of likenesses that are inherited and some that are not.	
LS.5.3.2 Ask questions to compare inherited and acquired traits.	5.L.3.1 Explain why organisms differ from or are similar to their parents based on the characteristics of the organism.	
	5.L.3.2 Give examples of likenesses that are inherited and some that are not.	

Earth's Systems		
2023 Standards/Objectives	2009 Essential Standards/Clarifying Objectives	Notes
<i>ESS.5.1 Understand how Earth systems (hydrosphere and atmosphere) impact patterns of weather and climate.</i>	<i>5.E.1 Understand weather patterns and phenomena, making connections to the weather in a particular place and time.</i>	
	<i>5.P.2 Understand the interactions of matter and energy and the changes that occur.</i>	
ESS.5.1.1 Analyze and interpret data to compare daily and seasonal changes in weather conditions (including wind speed and direction, precipitation, and temperature) and patterns.	5.E.1.1 Compare daily and seasonal changes in weather conditions (including wind speed and direction, precipitation, and temperature) and patterns.	
ESS.5.1.2 Analyze and interpret weather data to explain current and upcoming weather conditions (including severe weather such as hurricanes and tornadoes) in a given location.	5.E.1.2 Predict upcoming weather events from weather data collected through observation and measurements.	
ESS.5.1.3 Construct an explanation to summarize the ocean's influences on weather and climate in North Carolina.	5.E.1.3 Explain how global patterns such as the jet stream and water currents influence local weather in measurable terms such as temperature, wind direction and speed, and precipitation.	<ul style="list-style-type: none"> • Jet stream moved to middle school • Gulf stream is only water current addressed.

ESS.5.1.4 Use models to explain how the sun’s energy drives the processes of the water cycle (including evaporation, transpiration, condensation, precipitation).	5.P.2.1 Explain how the sun’s energy impacts the processes of the water cycle (including evaporation, transpiration, condensation, precipitation and runoff).	
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Not Addressed

5.P.3.1 Explain the effects of the transfer of heat (either by direct contact or at a distance) that occurs between objects at different temperatures (conduction, convection or radiation). (moved to middle school)

5.L.1.1 Explain why some organisms are capable of surviving as a single cell while others require many cells that are specialized to survive. (moved to middle school)