



# Fifth Grade Science Curriculum Standards Matrix

The unifying concepts within each set of essential standards provide a context for teaching both *science content* and *scientific-process skills*. The Essential Standards for fifth grade science were written to include content from each of the three branches of science: Life (L), Earth (E), and Physical (P).

As fifth graders progress through grade levels, their strategies for finding solutions to questions improve as they gain experience *conducting simple investigations and working collaboratively in small groups*. Instructional scaffolding strengthens their capability of asking questions and making predictions that can be tested. Fifth graders must be encouraged to make careful observations and measure things with increasing accuracy. During investigations, these students *need opportunities* to use more advanced tools such as calculators, computers, graduated cylinders, scales and meter sticks to gather data and extend their senses. They need *hands-on experiences* in keeping accurate records --and running enough trials to be confident of their results to test a prediction. Fifth graders must engage in *scientific activities* that explore recognition of patterns in data as well as use data to create reasonable explanations of results of an experiment or investigation. Projects should include the use of scientific language, drawings, models, charts and graphs to communicate such results and explanations.

Fifth graders must always use appropriate safety procedures, including listening skills, when conducting simple investigations. Engaging students in *inquiry based instruction* is an in-depth way of developing conceptual understanding of the science content that is vital for success in the twenty first century. A seamless integration of science content, scientific inquiry, experimentation and technological design will reinforce students' perception of "*what is known*" is inextricably tied to "*how it is known*". Well planned science lessons provide opportunities for students to engage in "hands on/minds on" activities that are exemplars of scientific inquiry, experimentation and technological design. Science journals should be used to track students' comprehension & daily use of scientific vocabulary.

Prioritization of Standards	Unifying Concepts: Weight Distributions for Grade 5 Science	
The NC Department of Public Instruction invited teachers to collaborate and develop recommendations for a prioritization of the standards indicating the relative importance of each standard, the <u>anticipated instructional time</u> , and the appropriateness of the standard for a multiple-choice item format. Subsequently, curriculum and test development staff from the NC Department of Public Instruction met to review the results from the teacher panels and to develop <u>weight distributions</u> across the domains for each grade level. See chart.	Forces and Motion	13–15%
	Matter: Properties and Change	12–14%
	Energy: Conservation and Transfer	11–13%
	Earth Systems, Structures, and Processes	15–17%
	Structures and Functions of Living Organisms	14–16%
	Ecosystems	14–16%
	Evolution and Genetics	13–15%
	Total	100%

**The mastery of all grade level standards is an expectation by the end of the academic school year.  
Teachers will have to continue to keep skills sharp throughout each grading period.**



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Science Topic	North Carolina Standard	Resources
<b>First Six Weeks (Check-In 1)</b>		
<i>Factors Affecting Motion</i>	<b>5.P.1.1</b> Explain how factors such as gravity, friction, and change in mass affect the motion of objects.	
<i>Speed and Velocity</i>	<b>5.P.1.2</b> 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.	
<i>Motion Graphs</i>	<b>5.P.1.3</b> Illustrate the motion of an object using a graph to show a change in position over a period of time	
<i>Speed and Velocity</i>	<b>5.P.1.4</b> Predict the effect of a given force or a change in mass on the motion of an object.	
<i>Water Cycle</i>	<b>5.P.2.1</b> Explain how the sun's energy impacts the processes of the water cycle (including evaporation, transpiration, condensation, precipitation and runoff).	
<i>Comparing Weight of Object</i>	<b>5.P.2.2</b> Compare the weight of an object to the sum of the weight of its parts before and after an interaction	
<b>Second Six Weeks (Check-in 1 Continued)</b>		
<i>Summarize Properties</i>	<b>5.P.2.3</b> Summarize properties of original materials, and the new material(s) formed, to demonstrate that a change has occurred	
<i>Heat Transfer</i>	<b>5.P.3.1</b> 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)	
<i>Effects on Materials (Heat Transfer)</i>	<b>5.P.3.2</b> Explain how heating and cooling affect some materials and how this relates to their purpose and practical applications.	
<b>Check – In 1 Benchmark</b>		
<b>Second Six Weeks Continued (Check-In 2)</b>		
<i>Daily and Seasonal Weather Patterns</i>	<b>5.E.1.1</b> Compare daily and seasonal changes in weather conditions (including wind speed and direction, precipitation, and temperature) and patterns.	
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<i>Predicting Weather</i>	<b>5.E.1.2</b> Predict upcoming weather events from weather data collected through observation and measurements	
<b>Third Six Weeks</b>		
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<i>Global Weather Patterns</i>	<b>5.E.1.3</b> 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.	
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<b>Check-In 2 Benchmark</b>		
<b>Third Six Weeks Continued – Check –In 3</b>		
<i>Genetics - explain</i>	<b>5.L.3.1</b> Explain why organisms differ from or are similar to their parents based on the characteristics of the organism.	
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<b>Fourth Six Weeks</b>		
<i>Genetics - examples</i>	<b>5.L.3.2</b> Give examples of likenesses that are inherited and some that are not.	
<i>Unicellular and Multicellular Organisms</i>	<b>5.L.1.1</b> Explain why some organisms are capable of surviving as a single cell while others require many cells that are specialized to survive	
<i>Human Body Systems</i>	<b>5.L.1.2</b> Compare the major systems of the human body (digestive, respiratory, circulatory, muscular, skeletal, and cardiovascular) in terms of their functions necessary for life	
<i>Classify Organisms</i>	<b>5.L.2.2</b> Classify the organisms within an ecosystem according to the function they serve: producers, consumers, or decomposers (biotic factors).	
<i>Interconnected Relationships</i>	<b>5.L.2.3</b> Infer the effects that may result from the interconnected relationship of plants and animals to their ecosystem.	



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<i>Compare Ecosystems</i>	<b>5.L.2.1</b> Compare the characteristics of several common ecosystems, including estuaries and salt marshes, oceans, lakes and ponds, forests, and grasslands.	
<b>Check – In 3 Assessment Benchmark</b>		
<b>Fifth and Sixth Six Weeks</b>		
	<b>(Review and Reteach Standards) for EOG</b>	
	Physical (P) – 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2	
	Earth (E) – 1.1, 1.2, 1.3	
	Life (L) – 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2	
<b>End of Grade Assessment</b>		