

# Investigating Earth Systems Correlation to New Hampshire

## Earth Science Proficiency Standards: End of Grade Six (Elementary)

<p><b>Correlation Key:</b>  <b>"X" = Coverage</b>                  Secondary concept of the activity or problem. Students gain a basic understanding or introduction of the concept.</p> <p><b>"XX" = In-depth Coverage</b>                  Primary concept that is the focus of the activity or problem. Students gain thorough understanding of the concept. Coverage in Student Edition and/or Teacher Edition supports the development of the concept.</p>	<b>Climate and Weather</b>	<b>Our Dynamic Planet</b>	<b>Energy Resources</b>	<b>Fossils</b>	<b>Materials and Minerals</b>	<b>Oceans</b>	<b>Rocks and Landforms</b>	<b>Soil</b>
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### Science as Inquiry

#### 1a. Curriculum Standard: Students will demonstrate an increasing understanding of how the scientific enterprise operates.

•Solve problems using a variety of strategies	XX	XX	XX	XX	XX	XX	XX	XX
•Pose questions for scientific investigations and make predictions about the outcomes	XX	XX	XX	XX	XX	XX	XX	XX
•Design and conduct a scientific investigation exploring the relationship between two variables	XX	XX	XX	XX	XX	XX	XX	XX
•Use appropriate tools and techniques to gather, organize, and interpret data	XX	XX	XX	XX	XX	XX	XX	XX
•Compare and estimate very large/very small numbers	X	XX	XX	XX	XX	X	X	X
•Use appropriate measurement units	XX	XX	XX	XX	XX	XX	XX	XX
•Read bar graphs, line graphs, circle graphs, and tables	XX	XX	XX	XX	XX	XX	XX	XX
•Construct explanations, including the development of simple models, for observations made	XX	XX	XX	XX	XX	XX	XX	XX
•Work in small teams to investigate problems, but form own conclusions	XX	XX	XX	XX	XX	XX	XX	XX
•Discuss the relationship between evidence and explanations	XX	XX	XX	XX	XX	XX	XX	XX
•Recognize and analyze alternative explanations and procedures	XX	XX	XX	XX	XX	XX	XX	XX
•Communicate scientific procedures and explanations	XX	XX	XX	XX	XX	XX	XX	XX
•Make hypotheses and design simple experiments to test hypotheses made	XX	XX	XX	XX	XX	XX	XX	XX
•Recognize the variables in a situation and the importance of controlling them when conducting a scientific investigation	XX	XX	XX	XX	XX	XX	XX	XX
•Seek information for comparing past and present scientific ideas and theories	X	XX	X	XX	X	X	X	X

### Science, Technology, and Society

#### 2a. Curriculum Standard: Students will demonstrate an increasing ability to use measuring instruments to gather accurate and/or precise information.

•Use an assortment of measuring instruments, with a variety of scales, such as rulers, thermometers, graduated cylinders, balances, and timers	XX	XX	XX	XX	XX	XX	XX	X
•Describe and practice appropriate techniques for using simple measuring devices	XX	XX	XX	XX	XX	XX	XX	X
•Use technology to explore events in nature, e.g., telescopes, microscopes, computer probes	X	X			X	XX	XX	XX

#### 2b. Curriculum Standard: Students will demonstrate an increasing ability to use technology to observe nature.

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•Explore nature with simple scientific tools, e.g., magnifying glasses, levers, pulleys, batteries and bulbs	XX	XX	XX	XX	XX	XX	XX	XX
•Use technology to capture information on film, tape, etc.					XX			

**2c. Curriculum Standard: Students will demonstrate an increasing ability to analyze, synthesize, and communicate scientific information using technology.**

•Record data using appropriate units	XX	XX	XX	XX	XX	XX	XX	XX
•Use a calculator to determine other important quantitative values from data, using proper units, e.g., speed, density, area, volume, etc.	X	X	X	X	X	X	X	XX
•Compile and display classroom data on a computer	X	X	X	X	X	X	X	X
•Use technology to share data with classmates or other groups of students	X	X	X	X	X	X	X	X

**2d. Curriculum Standard: Students will demonstrate an increasing ability to understand how technology is used to synthesize new products.**

•Construct simple projects from readily available materials found at home	X	X	X	X	X	X	X	X
•Choose appropriate common materials for mechanical construction of simple models	X	X	X	X	X	X	X	X
•Make safe electrical connections with various electrical components								
•Assemble and/or take apart a device to identify how it works, e.g., simple motor, doorbell, telephone, ice cream maker					X			
•Create and/or reassemble technological models and identify how they work					X			
•Compare and contrast old and new technology, e.g., antique and modern ice cream makers by making ice cream in each					XX			

**2e. Curriculum Standard: Students will demonstrate an increasing ability to understand that science and technology can affect individuals, and that individuals in turn can affect technology.**

•Describe and defend decisions that they have made involving themselves and their environment	XX	XX	XX	XX	XX	XX	XX	XX
•Identify and gather information needed to make a decision on a science- and/or technology-related issue	XX	XX	XX	XX	XX	XX	XX	XX
•Describe the possible consequences of various alternative decisions to a science- and/or technology-related issue	XX	XX	XX	XX	XX	XX	XX	XX

**2f. Curriculum Standard: Students will demonstrate an increasing ability to understand that progress in science and technology is controlled by societal attitudes and beliefs.**

•Demonstrate that knowledge makes it possible to make informed decisions	XX	XX	XX	XX	XX	XX	XX	XX
•Cite examples which show how society can affect the direction taken by science and technology	X	X	XX	X	XX	X	X	X
•Describe how science and technology affect career choices and the kinds of work people do	X	X	X	X	X	X	X	X

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## Earth/Space Science

**4a. Curriculum Standard: Students will demonstrate an increasing ability to understand that the Earth is a unique member of our solar system, located in a galaxy, within the universe.**

•Compare and contrast important features of the Earth, Sun and Moon								
•Observe and describe the motion of the Sun, Moon, and stars from the perspective of the Earth								
•Explain how the brightness of a star as seen from Earth is related to its size, color, and distance from the Earth								
•Use a telescope to magnify the appearance of some distant objects in the sky								
•Explain how the Earth's relationship to the Sun causes night, day, and the seasons								
•State the type of information which can be gathered by the use of scientific instruments such as telescopes, satellites, etc.								
•Cite evidence that the Earth is very old		XX		XX		X		

**4b. Curriculum Standard: Students will demonstrate an increasing ability to understand that the Earth is a complex planet with five interacting systems, which consists of the lithosphere, air (atmosphere), water (hydrosphere), ice (cryosphere), and life (biosphere).**

•Analyze rocks to obtain evidence of weathering and erosion		X		X	X		XX	X
•Identify common geographic features of New Hampshire landscapes, e.g., mountains, lakes		X		X	X		XX	X
•Describe basic facts about major features of the Earth's surface and natural changes in the features, e.g., volcanoes, earthquakes, glaciers		XX	X	X	X		XX	X
•Identify/give examples of geological processes that have shaped New Hampshire's landscape over long periods of time, e.g., volcanoes, glaciers, weathering		XX		X		X	XX	X
•Observe, describe and record weather conditions such as clouds, temperature, air pressure, and precipitation	XX							
•Identify events in nature that have repeating patterns or cycles, e.g., weather patterns, water cycle, rock cycle	XX	XX		X	X	XX	XX	X
•Identify common rocks and minerals using their physical properties		X	X		XX		XX	X
•Construct models that demonstrate the effects of water, ice, wind, and waves on the Earth's land surfaces, e.g., stream tables, wave tanks	X	XX	XX	X	X	XX	XX	XX
•Compare and contrast the various types of common clouds	XX							
•Relate observed weather conditions to different climates and seasonal changes	XX							

**4c. Curriculum Standard: Students will demonstrate an increasing ability to understand that the Earth contains a variety of renewable and non-renewable resources.**

•Identify Earth resources used in their life			XX		XX			XX
•Explain how some of the Earth's resources are processed to make them useful			XX		XX			

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•List some ways that the Earth's water supply can be conserved						X		
•Identify/explain some effects human activities have on the atmosphere, e.g., smog, industrial wastes	X		XX		X			

## Unifying Themes and Concepts

**6a. Curriculum Standard: Students will demonstrate an increasing ability to recognize parts of any object or system, and understand how the parts interrelate in the operation of an object or system.**

•Identify and describe the essential parts of any object or system	XX	XX	XX	XX	XX	XX	XX	XX
•Relate structure and function of parts of any object in a system to the system as a whole	XX	XX	XX	XX	XX	XX	XX	XX
•Describe the interrelationships among the parts of an object or system	XX	XX	XX	XX	XX	XX	XX	XX

**6b. Curriculum Standard: Students will demonstrate their understanding of the meaning of stability and change and will be able to identify and explain change in terms of cause and effect.**

•Identify and describe several ways in which things may change	XX	XX	XX	XX	XX	XX	XX	XX
•Identify and describe several types of change	XX	XX	XX	XX	XX	XX	XX	XX
•Identify and describe how change can be prevented or enhanced	X	XX	XX	X	XX	X	X	XX
•Distinguish between important and unimportant changes in given situations	X	X	X	X	X	X	X	X

**6c. Curriculum Standard: Students will understand the meaning of models, their appropriate use and limitations, and how models can help them in understanding the natural world.**

•Define and describe various physical models and their uses, e.g., cell model, model cars	XX	XX	XX	XX	XX	XX	XX	XX
•Use graphs, geometric figures, number and time lines, and other devices to represent events and processes in the natural world	XX	XX	XX	XX	XX	XX	XX	XX
•Construct one or more physical models representative of objects or processes in the natural world, and explain how the elements of the model are representative of the real object, e.g., solar system, dinosaurs, telephone	XX	XX	XX	XX	XX	XX	XX	XX
•Recognize that a model is a representation of an object or process and is not identical to the object or process	XX	XX	XX	XX	XX	XX	XX	XX

**6d. Curriculum Standard: Students will increasingly quantify their interactions with phenomena in the natural world, use these results to understand differences of scale in objects and systems, and determine how changes in scale affect various properties of those objects and systems.**

•Measure properties of objects, to a reasonable degree of accuracy, using standard scientific instruments such as a ruler, balance, clock, and thermometer	XX	XX	XX	XX	XX	XX	XX	X
•Calculate derived measurements of objects, such as area, volume, and density from direct measurements made in the laboratory	X	X	X	X	X	X	X	X
•Estimate the smallest and largest limits, or the range in size, of certain objects in quantitative terms	X	X	X	XX	X	X	X	XX

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<p>•Determine that increases in linear dimensions (length), have a large effect on area and volume</p>		<p>X</p>	<p>X</p>	<p>XX</p>	<p>X</p>		<p>X</p>	<p>X</p>

<b>Water as a Resource</b>
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