

## Old Town School Department's Science Curriculum

Topic, Unit, Theme or Process \_\_\_\_\_ Grade Level/Course 4 Page \_\_\_\_\_

Essential Understanding \_\_\_\_\_

Essential Question \_\_\_\_\_

Maine LEARNING RESULTS Links (Standard and PI)	Introduce (I) Mastery (M) or Review (R)	Activities	Resources	Assessments
<p><b>A1 Systems</b></p> <p><b>Students explain interactions between parts that make up whole man-made and natural things.</b></p> <p><input type="checkbox"/> a. Give examples that show how individual parts of organisms, ecosystems, or man-made structures can influence one another.</p> <p><input type="checkbox"/> b. Explain ways that things including organisms, ecosystems, or man-made structures may not work as well (or at all) if a part is missing, broken, worn out, mismatched, or misconnected.</p>				

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<p><b>A2 Models</b></p> <p>Students use <i>models</i> to represent objects, processes, and events from the physical setting, the living environment, and the technological world.</p> <p><input type="checkbox"/> a. Represent the features of a real object, event, or process using <i>models</i> including geometric figures, number sequences, graphs, diagrams, sketches, maps, or three-dimensional figures and note ways in which those representations do (and do not) match features of the originals.</p>				

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<p><b>A3 Constancy &amp; Change</b></p> <p><b>Students identify and represent basic patterns of change in the physical setting, the living environment, and the technological world.</b></p> <p><input type="checkbox"/> a. Recognize patterns of change including steady, repetitive, irregular, or apparently unpredictable change.</p> <p><input type="checkbox"/> b. Make tables or graphs to represent changes.</p>				

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<p><b>A4 Scale</b></p> <p><b>Students use mathematics to describe scale for man-made and natural things.</b></p> <p><input type="checkbox"/> a. Measure things to compare sizes, speeds, times, distances, and weights.</p> <p><input type="checkbox"/> b. Use fractions and multiples to make comparisons of scale.</p>				

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<p><b>B1 Skills and Traits of Scientific Inquiry</b></p> <p><b>Students plan, conduct, analyze data from, and communicate results of investigations, including <i>fair tests</i>.</b></p> <p><input type="checkbox"/> a. Pose investigable questions and seek answers from reliable sources of scientific information and from their own investigations.</p> <p><input type="checkbox"/> b. Plan and safely conduct investigations including simple experiments that involve a <i>fair test</i>.</p> <p><input type="checkbox"/> c. Use simple equipment, tools, and appropriate metric units of measurement to gather data and extend the senses.</p> <p><input type="checkbox"/> d. Use data to construct and support a reasonable explanation.</p> <p><input type="checkbox"/> e. Communicate scientific procedures and explanations.</p>				

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<p><b>B2 Skills and Traits of Technological Design</b></p> <p><b>Students use a design process, simple tools, and a variety of materials to solve a problem or create a product, recognizing the constraints that need to be considered.</b></p> <p><input type="checkbox"/> a. Identify and explain a simple design problem and a solution related to the problem.</p> <p><input type="checkbox"/> b. Propose a solution to a design problem that recognizes constraints including cost, materials, time, space, or safety.</p> <p><input type="checkbox"/> c. Use appropriate tools, materials, safe techniques, and quantitative measurements to implement a proposed solution to a design problem.</p> <p><input type="checkbox"/> d. Balance simple constraints in carrying out a proposed solution to a design problem.</p> <p><b>B2 Continued----</b></p>				

e. Evaluate their own design results, as well as those of others, using established criteria.

f. Modify designs based on results of evaluations.

g. Present the design problem, process, and design or solution using oral, written, and/or pictorial means of communication.

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<p><b>C1 Understanding Inquiry</b></p> <p><b>Students describe how scientific investigations result in explanations that are communicated to other scientists.</b></p> <p><input type="checkbox"/> a. Describe how scientists answer questions by developing explanations based on observations, evidence, and knowledge of the natural world.</p> <p><input type="checkbox"/> b. Describe how scientists make their explanations public.</p>				

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<p><b>C2 Understanding about Science &amp; Technology</b></p> <p><b>Students describe why people use science and technology and how scientists and engineers work.</b></p> <p><input type="checkbox"/> a. Describe how scientists seek to answer questions and explain the natural world.</p>				

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<p><b>C3 Science, Technology, and Society</b></p> <p><b>Students identify and describe the influences of science and technology on people and the environment.</b></p> <p><input type="checkbox"/> b. Give examples of changes in the environment caused by natural or man-made influences.</p> <p><input type="checkbox"/> c. Explain that natural resources are limited, and that reusing, recycling, and reducing materials and using renewable resources is important.</p>				







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Essential Question How do organisms in the Gulf of Maine interact?

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<p><b>E2 Ecosystems</b></p> <p><b>Students describe ways organisms depend upon, interact within, and change the living and non-living environment as well as ways the environment affects organisms.</b></p> <p><input type="checkbox"/> a. Explain how changes in an organism's habitat can influence its survival.</p> <p><input type="checkbox"/> b. Describe that organisms all over the Earth are living, dying, and decaying and new organisms are being produced by the old ones.</p> <p><input type="checkbox"/> c. Describe some of the ways in which organisms depend on one another, including animals carrying pollen and dispersing seeds.</p> <p><input type="checkbox"/> d. Explain how the food of most animals can be traced back to plants and how animals use food for energy and repair.</p> <p><input type="checkbox"/> e. Explain how organisms can affect the environment in different ways.</p>	<p>M</p> <p>M</p> <p>M</p> <p>R</p> <p>R</p>	<p>Gulf of Maine life cycles</p> <p>Gulf of Maine Food Chains Gulf of Maine Food Webs Gulf of Maine Plants, Animals</p>		<p>a. Student explains in writing in science notebook how scallop draggers change the ocean floor and the influence those changes have on lobsters.</p> <p>b. Students will describe the life cycle of a Gulf of Maine organism with an appropriately labeled diagram</p> <p>c. Students will create a Gulf of Maine food web and describe one food chain from producers to top consumer. Students will also give two examples of interdependence (not predator/prey) between Gulf of Maine organisms</p>

## **GRADE 4 Science Curriculum - Resources**

### **Gulf of Maine Resources:**

Gulf of Maine coloring book

Gulf of Maine Marine Habitat Primer

Gulf of Maine Current Map

Gulf of Maine fathom map

Seashore life mini poster—Mt. Desert oceanarium

### **Websites:**

[www.gomoos.com](http://www.gomoos.com) (Gulf of Maine Ocean Observing System)—real time weather conditions, maps, links to other Gulf of Maine sites (5 stars)

<http://megisims.state.me.us/whalesightings/> (Department of Marine Resource)—Map of recent whale sighting (3 stars)

[www.penobscotbayhistory.org](http://www.penobscotbayhistory.org) (Penobscot Marine Museum education site, excellent historical resources/links) (5 stars)

<http://www.gmri.org> (Gulf of Maine Research Institute)—Good photos, check “Today in the Gulf of Maine” link, good resources for teachers, too (4 stars)

[www.sgnis.org/kids/](http://www.sgnis.org/kids/) (Nab the Aquatic Invader)—an interactive game that teaches about invasive species (3 stars)

<http://stellwagen.noaa.gov> (Stellwagen Bank National Marine Sanctuary site)—great photos, good stewardship message (3 stars)

[www.nationalgeographic.com/seas/](http://www.nationalgeographic.com/seas/) (lots of lesson plan ideas) (4 stars)

[www.gomoos.org/data/recent/html](http://www.gomoos.org/data/recent/html) (Go Moos busy system)--links to several buoys located in Gulf of Maine, data on temperature, wind and wave height (5 stars)

[www.gulfofmaine.org/times](http://www.gulfofmaine.org/times) (on line newspaper) (4 stars)

[www.gulfofmaine.org](http://www.gulfofmaine.org) (good resource for teacher background)