

2/16/11 ROLE Model Webinar  
 “American Lobsters – From Hatch to Catch”  
 -**Alignment to Education Standards**-

<b>National Science Education Standards</b> <i>(from Draft Conceptual Framework, Sept. 2010)</i>	
<b>Core Disciplinary Ideas</b>	
LS 1	Organisms have structures and functions that facilitate their life processes, growth, and reproduction. (From Molecules to Organisms – Structures and Processes)
LS1.B.	How do the structure and functioning of organisms change as they grow and develop? (Growth and Development of Organisms)
LS1.C.	How do organisms get and use the matter and energy they need to live and grow? (Organization for Matter and Energy Flow in Organisms)
LS 3	Organisms and populations of organisms obtain necessary resources from their environment, which includes other organisms and physical factors. (Ecosystems: Interactions, Energy, and Dynamics)
LS3.C.	What happens to organisms and ecosystems when there are changes in the environment? (Ecosystems Dynamics, Stability, and Resilience)
LS4.C.	How does the environment influence populations of organisms? (Natural Selection and Adaptation)
ESS 4:	Human activities are constrained by and, in turn, affect all other processes at Earth’s surface. (Human Interactions with Earth)
<b>Cross-cutting Elements</b>	
Cause and effect: mechanism and prediction	
Form and function	
Stability and change	

<b>Maine Learning Results (2007)</b>	
<b>A.1. Unifying Themes—Models</b>	
Grades 9-Diploma	Students evaluate the effectiveness of a model by comparing its predictions to actual observations from the physical setting, the living environment, and the technological world.
<b>A.3. Unifying Themes—Constancy and Change</b>	
Grades 3-5	Students identify and represent basic patterns of change in the physical setting, the living environment, and the technological world.
Grades 6-8	Students describe how patterns of change vary in physical, biological, and technological systems.
Grades 9-Diploma	Students identify and analyze examples of constancy and change that result from varying types and rates of change in physical, biological, and technological systems with and without counterbalances.

<b>E.2. The Living Environment—Ecosystems</b>	
Grades 3-5	Students describe ways organisms depend upon, interact within, and change the living and non-living environment as well as ways the environment affects organisms.
Grades 6-8	Students examine how the characteristics of the physical, non-living (abiotic) environment, the types and behaviors of living (biotic) organisms, and the flow of matter and energy affect organisms and the ecosystem of which they are part.
Grades 9-Diploma	Students describe and analyze the interactions, cycles, and factors that affect short-term and long-term ecosystem stability and change.

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