

Lessons	Essential Question: How do human activities affect the ecology of the lake and what actions are necessary to protect the future health of Lake Champlain?
1-2	<p>Focusing Question: What is the water cycle? Activity #1: "Imagine!" Listen to the water music and narrate the story. Students visualize. (story from Project Wet) Activity #2: "Incredible Journey" (from Project Wet) Assessment: Based on the places visited in the "Incredible Journey" activity, write a story that chronicles your personal journey.</p>
3	<p>Focusing Question: What is a watershed? Activity: Delineating a watershed using a topographic map of Lake Champlain Basin. Discuss regions of the lake. Activity: Regions of the Lake (from This Lake Alive!)</p>
4	<p>Focusing Question: What is the human impact on the Lake Champlain watershed? How do we contribute toward pollution in the lake? How do pollutants enter the lake? Presentation: Watershed Alliance presentation of watershed model <u>Writing Response:</u> How do nonpoint and point source agricultural, urban, and industrial factors contribute toward pollution in Lake Champlain? What activities do you personally engage in that affects pollution in the lake? How might you alter your behavior to eliminate pollution? <u>Informal Assessment:</u> Pair share, small group share, whole-group share</p>
5	<p>Focusing Question: What is the difference between native, invasive, and exotic species? What are the effects of the aquatic nuisance, watch, and exotic invasive species in Lake Champlain? How were humans, if applicable, involved in their arrival? Control? Elimination? WebQuest Activity: Research zebra mussels, Eurasian watermilfoil, hydrilla, water hyacinth, purple loosestrife, giant salvinia, water chestnut, ruffe, rusty crayfish, spiny and fishhook waterflea, round goby, curly-leaf pondweed, sea lamprey, alewife, white perch, tench, spiny softshell turtle <u>Assessment:</u> Presentation of research</p>
6-7	<p>Focusing Question: What is a wetland? How do wetlands act as a filter for pollutants? Activity #1: Wetland Metaphor (from WOW! The Wonders of Wetlands) Activity #2: Create a Wetland when (from Project Wet) Activity #3: Soak It Up! (From WOW! The Wonders of Wetlands) Demonstration: Celery in colored water</p>
8	<p>Focusing Question: What are the abiotic and biotic factors of the wildrice marsh at Pond? What type of wetland is it based on the abiotic and biotic data collected? Identify the submergent, floaters, and emergent plants. How have humans impacted this marsh? What steps have been taken to preserve or eliminate species? <u>Field trip:</u> Canoe Cranberry Pool (a marsh and swamp) in Missisquoi National Wildlife. Students will inventory the biotic and abiotic factors. <u>Assessment:</u> Quiz</p>
9-10	<p>Focusing Question: What is a food web? How do food webs work? Are humans a part of the food web? How do they affect food webs? What would happen if an abiotic factor such as phosphorus overload (eutrophication) occurred? Activity #1: Life in a Lake food web (adapted from Hands-On Science) Activity #2: "Marsh Market" (from WOW! The Wonders of Wetlands) <u>Assessment:</u> Food Web Diagram and Explanation</p>
11	<p>Focusing Question: How do human activities affect the ecology of Lake Champlain? What is our level of intervention and impact on the lake? Lab workshop at Rubenstein Laboratory – 2 hour workshop "Keeping the Balance in Lake Champlain: An exploration of Lake Ecology and Human Activities"</p>
12-13	<p>Culminating Activity: What abiotic or biotic factors affect the ecology of the lake? What actions are necessary to protect the future health of the lake? What groups would need to hear the problems? What action steps might various groups of people take to take care of Lake Champlain? Inquiry questions to test aboard the Melosira. Project topics include dissolved oxygen, pH, nitrate, phosphate, conductivity, microorganisms, sediment, temperature, plankton (zooplankton & phytoplankton), zebra mussel population density, turbidity, conductivity, etc.</p> <p>Students' posters and presentations will identify the scientific problem, narrate the history of the problem, outline the experiment, and make recommendations to various groups (farmers, town road crews, fishermen, homeowners, etc.)</p> <p><u>Assessment:</u> Symposium of project questions and native, invasive, and exotic species in Lake Champlain. Projects to be presented and on display to whole school and community.</p>