



Lake Mapping 3-D Lesson Plan Template

Author:	Tom J. McConnell	
Lesson Title:	"Lake Mapping"	
Lesson Topic:	Making maps, Observing habitats	
Context		
Grade Level, Course	2-6	
Anticipated timeline	At least 1 class period, potential for longer project. (Designed for learning experiences where access to a lake is available.)	
Learning Goals and Assessments		
Anchoring Phenomenon or Problem	Scientists who study fish and other living things in lakes often need to create a map to show where they find living things. How can you make a map of a lake that would help you understand the lake and the life in it?	
Performance Expectation	Successful learners will...	How will you assess this objective?
	<ul style="list-style-type: none"> ● 2-ESS2-2: Develop a model to represent the shapes and features of a lake. ● 5-ESS2-1: Develop a model using an example to describe the ways the geosphere, biosphere, hydrosphere and/or atmosphere interact 	<ul style="list-style-type: none"> ● Learner will create a map of a lake that shows features in and around the lake
Standards alignment	Practices 2. Developing & using models 4. Analyzing & interpreting data 5. Using mathematical and computational thinking 8. Obtaining, evaluating, & communicating information	Disciplinary Core Ideas ESS2.A: Earth Materials and Systems ESS2.C: The Roles of Water in Earth's Surface Processes ESS3.A: Natural Resources
		Crosscutting Concepts 1. Patterns 3. Scale, Proportion & Quantity 4. Systems & System Models

Daily Activity Details		
Lesson Plan Activities	<p style="color: #0070c0; text-align: center;"><i>Teacher instructions</i></p> <p>Take the learners to a lake where you can observe living things, including fish. If you have an opportunity to observe on a regular basis, this map activity creates a map on which students can map data and add observations.</p> <p>Find an aerial photo or map that shows the lake. This could be from MapQuest, a topographical map, Google Earth, or printed map of the local area.</p> <p>Let the learner use tracing paper to lay over the map and trace the shape of the lake. You can also use a project to enlarge the image, and let the learner trace the lake on a large poster-size paper.</p> <p>If you have or can get contour maps or data about depth of the water, show the learner some contour maps of a lake (sample included in the CT Lake Mapping handout). Allow them to create their own contour lines on the map, or record depths of water at key locations.</p> <p>Allow the students to map the locations of important features on the shore and in the lake. These can include streams flowing in or out of the lake, piers, beaches, lily pads or wetland areas, sand bars and moss beds, coves, beaver lodges, etc. Suggested symbols are provided in the CT Lake Mapping handout.</p> <p>Students can add more details as they observe over time, and can add dots to represent data they may collect like location of certain fish or other living things.</p> <p>They can also name locations, and use those to help with observations they write in a science journal for other related projects.</p>	<p style="color: #0070c0; text-align: center;"><i>List materials, supplies, equipment needed</i></p> <ul style="list-style-type: none"> • Printable map image • Tracing Paper • Large paper (construction paper, art paper, poster board, etc) • Pencils, markers or other drawing supplies. (Colored pencils are ideal!) • Straight edge or ruler <p style="color: #0070c0; text-align: center;"><i>Optional –</i></p> <ul style="list-style-type: none"> • drawing templates with curves • If possible, a boat with depth finder technology would allow learner to record depths on the map.
	<p style="color: #0070c0; text-align: center;"><i>Student Handouts</i></p> <p>CT Lake Mapping student handout</p>	<p style="color: #0070c0; text-align: center;"><i>List student products for assessment</i></p> <p>Student generated map of the lake, and observations/features included in the map.</p>

References:

Indiana Department of Environmental Management. (2022). *Hoosier Riverwatch Training Manual 2022*. IDNR: Indianapolis, IN. <https://www.in.gov/idem/riverwatch/training-manual/>

McConnell, T. J., & Jessup, A. (2020). *Conservation Tales: Invasive Carp*. Airway Publishing: Muncie, IN. <https://conservationtales.com/carp>

APPENDIX

Handouts and Assessments

Download the CT Lake Mapping activity handout *at* <https://conservationtales.com/carp>