Where In The World Are the Great Lakes?

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Subject/Grade: 10th Grade Biology

Lesson Overview
Students will identify the location of each of the five Great Lakes, some notable geological feature of each Lake, and the states surrounding the Great Lakes, plus Canada. Students will explain how the Lakes are interconnected, with flow from one affecting another, and how the act as thermal regulators.

Michigan Content Benchmarks: Biology:
B3.2 Ecosystems. The chemical elements that make up the molecules of living things. Continual input of energy from sunlight keeps the process going.
B3.2A Identify how energy is stored in an ecosystem.
B3.2B Describe energy transfer through an ecosystem, accounting for energy lost to the environment as heat.
B3.2C Draw the flow of energy through an ecosystem.

Materials:
classroom sized map
Student desktop maps
Maps of outlines of Great Lakes
Transparencies of Great Lakes (or an Elmo/computer projector)
5x7 cards and safety pins for each
Green and blue latex paint and brushes
small pumpkins

New vocabulary:
Scour: to scrape or clean
Moraine: soil pushed up and left by receding glaciers
Northern tier: the upper states across the United States
Thermal regulation: mass that gains and/or loses heat energy slowly

Focus Questions:
Which eight states and one country touch which of the five Great Lakes? How do the Lakes effect one another? Why is it warmer near Lake Michigan in the winter and cooler in the summer?

This activity takes place over two or three days, depending on length of class.

Day One: pretest students using a sketch of blank outlines of the Great Lakes and surrounding geography. Then, give students an overview of the Lakes and geography using the classroom map, identify and name all. Have students copy onto their maps. Engage prior knowledge and
address misconceptions of locations of either Lakes or geography. Discuss stories, make connections. Use transparencies to make further connections to items of interest. Discuss how and why Lakes exist as they do, stress that glaciers were throughout the northern tier, but the soil here was softer and more movable.

**Day Two:** attach 5x7 cards with the names of one of the Lakes to the backs of each student. Keep track of who has what Lake! Allow students ten minutes to play "Guess Your Lake" with students asking questions toward clues about their tag. Prize for the student who first correctly identifies their tag using only questions related to physical characteristics, i.e. no "do we live next to it?"

**Day Three:** ten minutes of "Guess My Lake" with students wearing different Lakes, then allow each student to paint a pumpkin accurately identifying the approximate size of the Lakes and relationship of the surrounding geography. Rubric: States correctly identified? 8 points, Lakes correctly identified? 5 points, Canada included? 2 points, proportional? 10 points.

**Assessment:** post test using outlines of Lakes and states, additional questions regarding topography and demographics as chosen depending on rigor of instruction.