What's So Great About The Great Lakes?
By Kathy Keeney

Grade/Subjects: Gr. 6 – 8, Earth Science/Math/Geography/Language Arts
Duration: 1-3 class periods

Lesson Overview:
Students will compare/contrast the information about the five Great Lakes including location, volume, surface area, water depths and shoreline geology.

Learning Objectives:
After this lesson, students will be able to:
1. Compare/contrast physical characteristics of the Great Lakes.
2. Locate each of the five Great Lakes on a map
3. List the countries, states, and provinces that are wholly or partly in the Great Lakes watershed and find their locations on a map.
4. Describe the variety of shorelines along the five Great lakes.
5. Describe geographic characteristics about the Great Lake

Wisconsin State Science Standards
A.8.4 – Collect evidence to show that models developed as explanations for events were (and are) based on the evidence available to scientists at that time.
C.8.2 – Identify data and locate sources of information including their own records to answer the questions being investigated.
C.8.6 – State what they have learned from investigations, relating their inferences to scientific knowledge and to data they have collected.

Materials Needed
Per student group
• Laminated map of the Great Lakes (figure 1.1or 1.2) without names of the Great Lakes or canvas floor map (can be reused)
• Labels of the Great Lakes, Volume, Density, Depth, Countries, States, Provinces in Great Lakes watershed
• Plastic bags to hold labels
• Books about the Great Lakes (see Resources at the end of this lesson)
• Websites about the Great Lakes (see Resources at the end of this lesson)
• Computer access for research
• Great Lakes research rubric for individual and group
• Brochure rubric
*If you are going to have the students glue labels on their maps, then lamination is not necessary.

Advanced Preparation:
• Laminate the Great Lakes maps and labels to be reused or to allow students to change information as they learn about the Great Lakes.
• Cut the labels and place them in plastic bags (labeled) unless you are going to have the groups cut out the labels.

Focus Questions:
• How are the Great Lakes similar? Different?
• What are some physical characteristics of the Great Lakes?

Procedure:
1. Divide students into five groups.
2. Distribute maps and labels – one set per group.
3. Have students place labels for Great Lakes countries, states and provinces, volume, surface area, water depth on their maps.
4. Hand out research outline and assign one Great Lake per group.
5. As each group reports on their Great Lake, students will make corrections to their label placement on their maps, as needed.
6. Choose 3 of the following to research about your Great Lake and create labels to add to your map: population, industry, major shipping ports

6. Assign each group to create a brochure convincing people to visit their Great Lake.

Assessment of student learning:
• Group presentation of individual Great Lake’s basic information and/or brochure to encourage individuals to vacation by their Great Lake.
• Pre/Post check of student’s knowledge of Great Lake geography.

Extension(s):
Have students find additional information to add to their group presentation or map:
• Shipwrecks on the Great Lakes
• Lighthouses on the Great Lakes.
• Shipping routes on the Great Lakes

Resources
U.S. Environmental Protection Agency and Environment Canada. 1995. Great Lakes Environmental Atlas. Includes maps, history, management facts, etc. on the Great Lakes.

Great Lakes Facts

<table>
<thead>
<tr>
<th>Lake</th>
<th>Volume</th>
<th>Surface Area</th>
<th>Greatest Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakes Huron</td>
<td>850</td>
<td>23,000</td>
<td>750</td>
</tr>
<tr>
<td>Lake Ontario</td>
<td>393</td>
<td>7,550</td>
<td>802</td>
</tr>
<tr>
<td>Lake Michigan</td>
<td>1,180</td>
<td>22,300</td>
<td>923</td>
</tr>
<tr>
<td>Lake Erie</td>
<td>116</td>
<td>9,910</td>
<td>210</td>
</tr>
<tr>
<td>Lake Superior</td>
<td>2,900</td>
<td>31,820</td>
<td>1,330</td>
</tr>
</tbody>
</table>

For soil types, see the resource: Exploring the Great Lakes by Westfield and Soper. There are also some great maps on Google Images.
**Individual Assessment Rubric**

___ 4 Contributed many ideas and suggestions. Was a positive addition to the group. Did fair share of the work. Performed multiple roles within the group.

___ 3 Contributed some ideas and suggestions. Tried to be a positive addition to the group. Did some of the work. Tried to perform multiple roles within the group.

___ 2 Contributed few ideas and suggestions. Needed to be reminded to stay on task in the group. Did very little of the work. Worked on one role within the group.

___ 1 Did not contribute any ideas or suggestions. Required frequent reminders to stay on task and with the group. Did very little work. Had difficulty handling one role within the group.

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**Group Performance Rubric**

___ 4 All group members presented information. Presentation was completed on time. All criteria were met. Project was complete, accurate and good quality.

___ 3 Most of the group members presented information. Presentation was completed on time. Most criteria were met. Project was complete with minor inaccuracies and good quality.

___ 2 Less than half of the group members presented information. Presentation was not ready on the day of presentation. Few of the criteria were met. The project was complete with several inaccuracies and need a bit more work to make it a good quality presentation.

___ 1 Only one or two group members presented the information. The presentation was not completed on time. Few criteria were met. The project was messy, incomplete with many spelling errors.
<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>(4) Excellent</th>
<th>(3) Good</th>
<th>(2) Almost</th>
<th>(1) Not Yet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attractiveness &amp; Organization</td>
<td>The brochure has attractive formatting, is in point form and has very well organized information.</td>
<td>The brochure has attractive formatting, is in point form and has organized information.</td>
<td>The brochure has adequate formatting, is in point form and is somewhat organized.</td>
<td>The brochure's formatting and organization of material are confusing to the reader. Information is not in point form.</td>
</tr>
<tr>
<td>Content - Accuracy</td>
<td>The brochure has all of the required information and some additional information.</td>
<td>The brochure has all of the required information.</td>
<td>The brochure has half of the required information.</td>
<td>The brochure has little of the required information.</td>
</tr>
<tr>
<td>Writing – Mechanics: Spelling</td>
<td>All of the writing is in complete sentences. Capitalization, punctuation and spelling are correct throughout the brochure.</td>
<td>Most of the writing is in complete sentences. Most of the capitalization, punctuation and spelling are correct throughout the brochure.</td>
<td>Half of the writing is in complete sentences. Some of the capitalization, punctuation and spelling are correct throughout the brochure.</td>
<td>Much of the writing is not in complete sentences. Much of the capitalization, punctuation and spelling is not correct throughout the brochure.</td>
</tr>
<tr>
<td>Grammar</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Punctuation</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Capitalization</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graphics/Pictures</td>
<td>More than two neatly colored graphics are included and go well with the text.</td>
<td>Two neatly colored graphics are included and go well with the text.</td>
<td>Two graphics are included but do not always go well with the text. Graphics may or may not be colored or neat.</td>
<td>Less than two graphics are used and may or may not go with the text. Graphics may or may not be colored or neat.</td>
</tr>
</tbody>
</table>
Countries

United States
Canada

Great Lakes
Lake Huron
Lake Ontario
Lake Michigan
Lake Erie
Lake Superior

Provinces
Ontario
Quebec
States

Illinois
Indiana
Michigan
Minnesota
Ohio
Pennsylvania
New York
Wisconsin
Water Volume

850 cubic miles
393 cubic miles
116 cubic miles
2,900 cubic miles
1,180 cubic miles

Surface Area

23,000 square miles
7,550 square miles
9,910 square miles
31,820 square miles
22,300 square miles
Greatest Depth

750 feet
802 feet
210 feet
1,330 feet
923 feet

Shore Type

S = Sand
R = Rock
W = Wetlands
C = Clay soil
Figure 1.1

[Map of the Great Lakes]

Fig. 1.2

[Outline map of the Great Lakes]