

A Sense of Place

Students draw maps of their local area, weaving in the importance of the Great Lakes.

OBJECTIVES

Develop a personal map relating students' location to the nearest Great Lake

Explore students' local area and the Great Lakes Basin using a variety of maps

Draw a map of the school grounds that includes elements, such as a title, legend, scale, cardinal directions and labels

SUBJECT

Geography, Math

VOCABULARY

cartography
Geographic Information System
map
mental map
physical map
political map
topography

MATERIALS

paper
a variety of maps (see procedure and resources list)
8.5" x 11" tracing paper
ruler for each student
tape measurer for the class (if needed)
colored pencils or markers

TIME/DURATION



120 minutes

PREREQUISITE

None

SETTING

Indoors/Outdoors,
Classroom,
Computer lab

This Great Lakes in My World 9-12 activity is aligned to the Common Core State Standards (as available). This alignment is available on your Great Lakes in My World 9-12 USB flash drive in the "Standards" folder and on-line at <http://www.greatlakes.org/GLiMwstandards>.

BACKGROUND

As the poet and bioregionalist Wendell Berry says, "If you don't know where you are, you don't know who you are." This activity focuses on using a variety of maps to understand and identify your location within the Great Lakes Basin. Students will be able to create their own map or visual representation of their local area. Mapmaking is a skill used in many school subjects, including language arts (story mapping), social studies (geography), and science (topography). It is also a skill needed by community planners, engineers, surveyors and those traveling to new places.

Educator David Sobel says, "Mapmaking, in the broad sense of the word, is as important to making us human as language, music, art and mathematics. Just as young children have an innate tendency to speak, sing, draw and count, they also tend to make maps. ... The stories of their lives are folded into the niches of their neighborhoods; their maps are the weaving together of inner emotion and external forays." (*Mapmaking with Children: Sense of Place Education for the Elementary Years*, David Sobel, Heinemann 1998).

In this lesson, students will use mental mapping and look at local maps to develop their spatial reasoning abilities, their mapping skills and a greater sense of place – a connection to the Great Lakes – through new awareness, reflection and experience. Mental maps (or "sense of place" maps) show a location's shape and the mapmaker's context in relation to his/her surroundings. Not only is this type of map geographically accurate, but it also tells the story of a place from the point of view of the mapmaker(s). Kevin Lynch says, "A common exercise in urban design and urban planning courses is to ask students to draw a map of their neighborhood or city (or of a common geographical area such as the university campus) in order to develop a better understanding of the differences between the physical map and layout of an area and how people actually perceive the same area." (*The Image of the City*. Boston: The M.I.T. Press. http://dels-old.nas.edu/dels/rpt_briefs/learning_to_think_spatially_final3.pdf, 1960)

These maps are an introduction to community planning and to the Great Lakes region. Students will learn (or review) the key components of maps and create their own maps of their local area. These community-based maps will build a link between students and their physical surroundings and help them make sense of their world. The basic premise is that the better we know our communities and experience our connection to them, the more willing we are to act to ensure that they are socially- and environmentally-healthy places to live. Students begin to learn how to translate spatial reasoning in the form of cognitive maps into standardized maps. Students will learn to appreciate the differences and similarities between their perspectives and those of their classmates. They start to grasp spatial concepts, including location, distance, relationships and networks, and they learn which key components are included in a wide variety of maps.

PROCEDURE

INTRODUCTION

Students read background information and answer introductory questions on the student pages which ask

them to name three or more different types of maps and describe what elements most maps include.

PART ONE: MENTAL MAPS

1. Ask students to picture their neighborhoods. Have them think about where the following things are located in relation to each other: their school, home and the nearest Great Lake. Also, have them think about what they like and don't like about their neighborhood. What features make their neighborhood unique? What helps them feel good about their community?
2. Students follow the directions and answer the questions on the student pages. Each student will draw a mental map of his/her neighborhood, which includes his/her school, home and the nearest Great Lake. They should each think of their map as a personal recollection of a space, or as a mental map, rather than as a geographical map. Students draw these maps from memory, rather than with physical measurements.

Please see example below.



- a. Students first brainstorm a list of 10 to 15 important landmarks in their neighborhood and/or near their school. Students should include several of these landmarks on their maps. They may also include natural objects, plants and animals and their habitats.
 - b. In the center of their mental maps, students draw their school or home. Note: If all students choose to place the school in the center, all of the maps will have a common starting point, which can lead to a discussion of what makes each person's mental map unique and similar. See Kevin Lynch's *The Image of the City (1960)* for research on the common features of students' mental maps.
 - c. After drawing the places on their maps, students then make connections between features of the map, by identifying what makes these places important and how they are interconnected. For example, a student may draw an arrow from their school to the park and from the park back to the school. The student would then write "place to play, socialize, explore" and/or "nature, family" to explain the connection and the importance.
 - d. There is no right or wrong way to make these mental maps. Things that are more important to students may naturally be more prominent in their maps. They may go into as much detail as they like and as time allows.
3. Discussion:
 - a. Allow each student to present his/her mental map to large or small groups. Ask students about the prominent features in their maps. Why are these features important?
 - b. Students answer wrap-up questions on their student pages: Ask them where the lake is, and how far they think it is from their school and homes. Ask students if they have visited the lake. Ask if they consider the lake to be a part of their neighborhoods. Why or why not?
 6. Discussion: Ask students to think about why we have so many different types of maps. Why doesn't one map include roads, land use, zoning, natural resources, topography and utilities? *The answer is that maps have various purposes. They model the world in order to be useful, and if there is too much information on one map, it is no longer useful.*
 7. In their groups, have students circle the following things on their local map: their school, their homes, their local Great Lake and any local coastal habitats (i.e. sand dunes, coastal wetlands) and/or shoreline (cliffs, beach).
 8. Students should also circle or discuss the common elements of these maps, including the title, key/ legend, cardinal directions or north arrow, scale and labels.
 9. Discussion:
 - a. Describe the route from your school to the nearest Great Lakes beach or shoreline. Note: If the school or the students' homes are far from a Great Lake, this discussion will be more difficult, but still possible.
 - b. What method of transportation do you use to get to the lake from school or home? In which county do you live? In which aldermanic ward or senatorial district?
 - c. What makes living near a Great Lake interesting? If you don't live near a Great Lake, choose the lake that your state borders and discuss why you would want to visit it (identify natural, cultural and geographic features).
 - d. Students answer questions on the student pages: What different types of maps did you see in class? What common elements did these maps have?

PART TWO: LOOKING AT LOCAL MAPS

4. As a class, review some basic map-reading skills, including how to use the key, the scale and the cardinal directions.
5. Break students into groups of four. Distribute one map of the local area to each group. If possible, distribute different types of maps to each group (e.g. transportation map, topographical map, zoning map, land-use map, natural resources map, navigation map, bathymetric map, utilities map). You can also distribute maps from different years to show that maps are dynamic, not static.

PART THREE: MAPPING THE SCHOOL

10. Each student maps out the school grounds, either on-site or from memory. Each student will have one 8.5" x 11" piece of paper (plain white or graphing paper) on which to draw their map and can use drawing/art materials.
11. These maps should display the unique aspects of the school and the school grounds. To integrate mathematics, students should include the ruler measurements and the scale.
12. After creating these maps, the teacher can bring up an aerial map of the local place on a projector or interactive whiteboard. Students should compare their maps of the school grounds to the aerial image of the area.

13. Discussion: Ask students to think about the features shown on the aerial map and those they included in their maps of the school grounds. Did they include any habitats for animals? Do animals live on their school grounds? What other features were included in these maps? Do these maps show elevation, heights or depths? *No. Why not? They are one-dimensional.* Have students think about why it could be important to have two-dimensional or even three-dimensional maps.

14. Use Google Earth to print an aerial map or image of the school grounds. How does this bird's eye view compare to the mental maps that students have drawn of the school grounds? Have they forgotten to include any of the features of the school grounds?

WRAP-UP

15. As a class, look at a large map of North America. Use the map to identify important features of the local area, the distance from the school to the nearest Great Lake and other features.

16. Discussion: What states or provinces does your Great Lake border? How many states or provinces border the Great Lakes? The Great Lakes have approximately 10,900 miles of coastal shoreline. How does this compare to the Atlantic Ocean coastline on the eastern edge of our country? *The Atlantic coastline is 2,165 miles long, which is less than 1/5 the length of the Great Lakes coastal shoreline.*

17. Point out the Great Lakes watershed or the Great Lakes Basin using a map of the region, or using the "The Great Lakes Watershed" map on the USB. Point out that the entire coastal shoreline is part of the watershed, but that some cities and states are only partially included in the watershed. What else do the students notice about the watershed?

18. Select a city in the United States. Use road maps, a Web-based mapping program or Google Earth to calculate its distance from the Great Lakes. Compare this with the distance from the lake to your school.

19. Look again at the mental maps. Were students' perceptions of their proximity to the lake correct? How does the location of the lake influence experiences with it? If some of their maps include plants, animals or their habitats, discuss why they are not included in the local maps that you looked at.

20. Discussion: What makes a good map? How does the purpose of the map influence its design?

21. Students answer wrap-up questions on the student pages: Which Great Lake is nearest to you? Which state(s) or province(s) does your nearest Great Lake border? How does the location of the lake influence your experiences with it? Include your ideas on how a location's proximity to the Great Lakes could influence recreation, municipalities, transportation, tourism, industry and more. What habitats are found along the Great Lakes coastline? What types of organisms live in and around the Great Lakes?

EXTENSION

22. Students can visit the website: <http://maps.google.com>, and then type in any location to see what that land looks like on satellite photo images. Have the students discuss the similarities and differences among the lakes. Ask them to write these down in their own notebooks, or on a classroom chart. Develop a table with "differences and similarities" forming the top of the table and comparisons lining the vertical edge.

23. Have a group of students, or the entire class visit: <http://cfpub.epa.gov/surf/locate/index.cfm> to learn the name of the nearest watershed or any other watershed they would like to learn about. Type the name of that creek, stream, river, or lake into Google Maps to see a satellite photo of that particular watershed. Have students observe the land and topography of that area, and do research online to learn about the natural history and formation of that watershed. Have students create a report, presentation, diagram, model or other project on their watershed to educate the class on the area's various watersheds.

24. As a class, use a Geographic Information System (GIS) (see resource list) to find out the quantities of particular vegetation, types of water, or animal species in a chosen Great Lakes habitat and provide a report for the class (PowerPoint or another type).

ASSESSMENT

See rubric on page 23.

RESOURCES

Please see Resource List for additional information related to mapping, geographic information systems (GIS) and more.

A Sense of Place

VOCABULARY

cartography
Geographic Information
System
map
mental map
physical map
political map
topography

BACKGROUND

Learning about where we live helps us to understand who we are. The Great Lakes are bordered by eight United States and two Canadian provinces: Michigan, Wisconsin, Minnesota, Illinois, Indiana, Ohio, New York, Pennsylvania, Quebec and Ontario.

Maps are tools that help us orient ourselves on streets, in cities, in states, in counties, on the planet and more. If you have a current map, you can always find where you are, if you know how to use it. Every day we make decisions based on geography: where to go, how we will get there and what we will do when we get there. We think geographically when planning simple events, such as going to school in the morning, or when planning major events, such as a diving trip in one of the Great Lakes. In this activity, you will map your local area or "place." You will also review various maps to learn how maps are useful to many different people. By understanding our places in this world, we can make better decisions about the ways we choose to live on our planet.

INTRODUCTORY QUESTIONS

1. Name and describe three or more types of maps.

2. What elements do most maps include?

ACTIVITY

PART 1: MENTAL MAPS

3. List 10 to 15 important features of your neighborhood, including your home, your school and the nearest Great Lake.

4. What makes these features (or places) important?

5. On a separate sheet of paper, draw a "sense of place" map or a mental map of your home, school, the nearest Great Lake and the local features that you listed above.

6. After drawing your mental map, draw arrows to show how different features of your local place are connected and what makes them important. For example, you may draw an arrow from the school to the park and/or from the park to the school. You would then write "place to play, socialize, explore" and/or "nature, family" to explain the connection and the importance of each feature.

7. Where is the nearest Great Lake in relation to your school and home? Do you consider the lake to be a part of your neighborhood? Why or why not?

PART TWO: LOOKING AT LOCAL MAPS

You will explore some common (and not-so-common) types of maps. No map can depict all of the physical, biological and cultural (or political) features in even the smallest area. Most maps of the world are therefore either categorized as "physical" or "political".

8. What different types of maps did you see in class? What common elements did these maps have?

PART THREE: MAPPING THE SCHOOL GROUNDS

Now, draw a map of the school grounds on a separate sheet of paper. You can either go outside to do this, or you can map the school grounds from memory. If you are going outside, you can take measurements of the features of the school grounds using tools and mathematics. If you are mapping from memory, try your best to be accurate in drawing things to scale.

9. Think about what features you will include on this map. Make a list of what you will include here:

10. Was the map you drew one-, two- or three-dimensional? What features could be shown on a two-dimensional map that could not be shown on a one-dimensional map? What features could be shown on a three-dimensional map?

11. Compare the map you drew of the school grounds to the aerial image your teacher printed. How were the two maps similar? How were they different?

WRAP-UP QUESTIONS

12. Which Great Lake is nearest to you? Which state(s) or province(s) does your nearest Great Lake border?

13. How does the location of the lake influence your experiences with it? Include your ideas on how a location's proximity to the Great Lakes could influence recreation, municipalities, transportation, tourism, industry and more.

14. What habitats are found along the Great Lakes coastlines? What types of organisms live in and around the Great Lakes?

15. What habitats are found on your school grounds, or in your neighborhood? What types of organisms live in your neighborhood?

16. Choose one type of map, and list all of the components of that type of map.

17. What determines whether a map is a good map? How does the purpose of a map influence its design?

18. Summarize the discussion you and your classmates had on the topic of maps. Overall, what did you learn from this lesson? How does this new knowledge change the way you think about maps and your location?

RUBRIC

ELEMENTS	☆☆☆☆	☆☆☆	☆☆	☆
MENTAL MAPPING: Student imagines their school, neighborhood and nearest Great Lakes and list 10 to 15 important features of their local area. Student draws a mental map of their local "place". Student explains the importance of and connection between the features they included in their maps. Students share maps in small groups and answer wrap-up questions together.	Addresses all of the components	Missing one of the components	Missing two components	Missing three or more components
MAPS: Student recognizes there are many different types of maps, how to use all the features included in a map, and the differences and similarities between different types of maps.	Addresses all of the components	Missing one of the components	Missing two components	Missing three or more components
MAP: Student creates a map of the school grounds including important features. Student recognizes the difference between 2-D and 3-D maps and which features are characteristic to each.	Addresses all of the components	Missing one of the components	Missing two components	Missing three or more components
WRAP-UP: Student is able to get a "sense of place" of where they are in relation to the Great Lakes by looking at a map of North America. Student is able to distinguish the different types of environments that surround the Great Lakes and their homes as well.	Addresses all of the components	Missing one of the components	Missing two components	Missing three or more components