

CONNECT

3 | Beaches Over Time

GRADE LEVEL

K-4

45 minutes

Developmental Modifications: Focus on "trash timeline" as age appropriate.

summary

Students use their senses to discover what is at the beach, read a poem to discover how the beach might have changed over time and discuss what makes the Great Lakes shoreline an important place.

objectives

- Use senses to make observations at the beach.
- Differentiate between natural and human-made objects.
- Discuss historical differences in beach use over time.
- Discuss the importance of the Great Lakes to humans over time.

prerequisite

None, but this activity can be done with activities from the Human Communities units: Litter Tag, Garbage Investigation, and Adopt-a-Beach™

vocabulary

Vessel: boat

Algae: a type of plant that lives in water

Pier: a platform where boats are tied up

Haven: a safe place

Mussel: a mollusk with a hinged double shell; Great Lakes examples include the fingernail clam, the invasive zebra and quagga mussels

setting

outdoors, at a beach

subjects

Biology, Environmental Science,
Social Studies

standards

This Great Lakes in My World activity is aligned to the Common Core State Standards and to state learning standards in:

Illinois
Indiana
Michigan
Minnesota
New York
Ohio
Pennsylvania
Wisconsin

This alignment is available on your Great Lakes in My World CD in the "Standards" folder and on-line at <http://www.greatlakes.org/GLiMWstandards>.

materials

- Journals
- Pencils
- Clipboards
- Garbage bags and gloves (optional)

background

The Great Lakes shoreline has seen many changes over time. During a beach visit, students will see a “snapshot” of the beach at a specific moment. During this activity, they will compare what they currently see with what might have been seen at earlier points in time. This will enable students to imagine a historical context and gain a new perspective for the beach.

A brief history of some commonly found garbage items is listed in this activity. Older students will better understand this timeline. For younger students, focus more on discussing the poem and the difference between natural and human-made objects. See “Trash Timeline” on the compact disc for an expanded version of the history of garbage, or go to BFI-Kids Trash Timeline:

http://www.bfi-salinas.com/kids_trash_timeline_frames.cfm

resources

BFI-Kids Trash Timeline

http://www.bfi-salinas.com/kids_trash_timeline_frames.cfm

A Timeline of Soft Drink History

<http://inventors.about.com/library/weekly/aa091699.htm>

A History of Plastics

http://www.americanchemistry.com/s_plastics/doc.asp?CID=1102&DID=4665

Highlights from Trash Timeline

- 1810: (Tin can) Tin can patented.
- 1860: (Newspaper) American newspapers are printed on paper made from wood pulp fibers rather than rags.
- 1868: (Plastic) The Hyatt brothers manufacture “celluloid,” the first commercial synthetic plastic. It replaces wood, ivory, metal and linen in such items as combs, billiard balls, eyeglasses and shirt collars.
- 1892: (Bottle cap) William Painter invented the crown bottle cap.
- 1899: (Glass bottle) The first patent issued for a glass blowing machine, used to produce glass bottles. However, glass containers have been blown since ancient times.
- 1929: (Aluminum foil) Aluminum foil is invented.
- 1936: (Paper packaging) Milk products are now commonly sold in paper packaging.
- 1943: (Aerosol can) The aerosol can is invented by two researchers at the U.S. Department of Agriculture.
- 1944: (Styrofoam) Styrofoam is invented.
- 1957: (Aluminum can) The first aluminum cans used.
- 1960: (Styrofoam cup) Bead molded polystyrene cups are introduced. They provide better insulation for hot drinks.
- 1960: (Plastic bag) Bread is sold bagged in polyethylene rather than wrapped in waxed paper.
- 1960: (“Pop tops”) Easy open tops for beverage cans are invented.
- 1970: (Plastic bottle) Plastic bottles are used for soft drinks.
- 1980: (Plastic straw) Polypropylene is introduced for drinking straws. Other materials had been used in the past to make straws.

procedure

1. Have students sit in a circle at the beach or near the lake and close their eyes. Direct them to use their senses of hearing and smell to take in all the information they can about where they are. Tell them they will have their eyes closed for 30 (or more) seconds. After students open their eyes, they should share what they heard and smelled.
2. Ask what kind of feelings students had while they had their eyes closed. Older students may be more comfortable recording their answers, not sharing them aloud. *Some answers may include: peaceful, calm, relaxed, or anxious, depending on the student's past experiences with the Great Lakes.*
3. Now ask students how what they heard and smelled might have changed from 300 years ago. Ask them what would have been or lived here long ago. *Depending on where you are, things may or may not have changed significantly. However, some areas of the shoreline have been reconstructed so that there are now cities. Many of the wetlands that were once here have been removed during development of the shoreline.* Would people have felt the same way 300 years ago? *Possibly. Answers will vary.*
4. Read the poem *Beaches Over Time*. This can also be read prior to the visit, if it is easier for students to focus in the classroom. Talk about the things mentioned in the poem and tell students they can look for many of these things on the beach. Now the students will be using observation to discover what is on the beach and reflect on how it might have changed over time.
5. Students take 15 minutes, either on their own, or with a partner, to walk around the beach making observations. Students make a list of what they see, and use symbols to indicate whether items are natural or human-made. While they are walking, have them think about whether these same objects would have been here long ago. Younger students can make mental, instead of written, notes about what they see and make the list as a class.
6. Suggestion: Bring garbage bags and gloves to clean up the garbage that is found on the beach. It can be used for the Garbage Investigation activity in the Human Communities unit.

wrap-up

Bring students back together for a discussion.

1. Students share some of the items on their list. *Items might include feathers, sand, rocks, sticks, cigarette filters, plastic bottles and aluminum cans.*
2. Which of these items is natural and which is human-made? *Separate the items with the students, or in small groups. Discuss how different types of garbage indicate different types activities at the beach including picnics, fishing and playing.*

Caution: Only adults should handle sharp objects. Everyone should wear gloves when touching garbage.

3. Discuss which objects students found that were mentioned in the poem. How do students think the Great Lakes have changed over time? How were they special for people in the past? How are they special for people now?

For older students (grades 3-4)

4. What is here that might not have been here 300 years ago? *Generally, more human made garbage: cigarette filters, aluminum drink cans, plastic items, fast food containers.*
5. What is not here that might have been here 300 years ago? *Goods and containers from shipwrecks, remains of a campfire or other evidence of people camping there, such as bones or shells, Native American fishing nets or boats.*
6. What makes the beach a unique and important place for us now? *Drinking water, beauty, animals and plants that depend on the Great Lakes, transportation, recreation.*
7. What might have made it a unique and important place for others long ago? *Many of the same reasons, but for different lifestyles.*
8. How might people long ago have viewed the Great Lakes differently from how we view them now? *They might have seen them as more of a food source than we do today. They might have viewed them as bigger since they did not have aerial or satellite photos. Answers will vary.*
9. What can students do to keep the beach healthy for the future? *Keep garbage off the beaches, educate others about what a special place we live near, stay informed of changes in the community that might harm the beaches, take appropriate action if the beach or other parts of the shoreline are threatened.*

assessment

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Beaches Over Time

My friend and I went
To the beach today,
To run around
In the sand and play.

We jumped in the waves
That lapped on the shore,
And dug in the sand
To make castles galore.

I found strings of
Algae, shiny and green,
To border my castle
That sheltered my queen.

Fingernail clam shells
Made windows and doors,
And small, rounded
pebbles
Tiled the floors.

As I looked out
For treasures washed on
the shore,
I found that the beach
Was hiding much more.

Bubble gum wrappers
And cans of soda pop
Told me that others
Had sat in this spot.

That was not long
Before I came here today
But what about kids
Who came long ago to
play?

Would a Native American
Have found here instead
Fishing nets floating
In green algae beds?

Were old fire rings
And birch bark canoes
Left by hunters
Of the water blue?

Would a child of
Settlers living here
Have witnessed ships
Sailing from the pier?

And if I dove now
Into the water deep,
Would I find a ship
On the bottom, asleep?

A large vessel that
Carried spices and tea
That sank in the stormy
Freshwater sea?

Now it might rest
Not far from my fort,
A haven where fish
And mussels cavort.

This beach could be
Full of stories to tell,
Like the pearly colors
Inside of a shell.

If I let my mind wander
Beyond my sand castle
gate,
I might hear the tale
Of old times by this lake.

Author: Anne Richardson

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FIRST NAME																				
LAST NAME																				

[1] What did you find at the beach? Make a mark next to the natural objects.

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[2] Draw a picture of one item you found. Label it. Is it a natural object or did humans make it?

[3] What made the Great Lakes a special and important place for people long ago?

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[4] What makes the Great Lakes a special place for you now?

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