

Climate Change and the Great Lakes

Sleeping Bear Dunes National Lakeshore – Pre-Program Lesson Plan



Grade Levels: 6-8

Setting: Classroom

Classroom Equipment Needs:

- Documents Camera
- Projector

Duration: 1 hour

Standards Addressed:

MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Materials Needed:

- Computer
- Projector
- Internet Access
- Copy of Great Lakes Literacy Principals
- Chart Paper
- Markers
- Graphic Organizer

Vocabulary: ecosystem, preservation, Great Lakes, principle, watershed, interconnected, habitable

Introduction: Welcome to the Sleeping Bear Dunes National Lakeshore. This pre-lesson will serve as an introduction to the Great Lakes and on the importance of the Great Lakes system on the surrounding regions and the world.

Essential Question: Why is it important to preserve the Great Lakes?

How is climate change affect the Great Lakes Region?

Enduring Understanding: Climate change has an impact on the Great Lakes water system which impacts local communities and ecosystems.

Objectives:

After completing this program students will be able to:

- Justify the importance of preserving the Great Lakes
- Summarize key principles for Great Lakes Literacy
- Make connections about the importance of the Great Lakes to students lives

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Introduction (10 minutes):

1. Assess students' prior knowledge about the Great Lakes waterway. Ask students to share what they already know and record ideas on chart paper. Then ask students what questions they may have, record the questions on a separate sheet or post-its.
2. Tell students that they are going to watch a short video about the Great Lakes titled "What's so great about the Great Lakes?" <https://youtu.be/gBRcOLcEwF0> (~ 4:46 minutes in length)
 - a. **Teacher note:** At 2:04 you may choose to pause the video and discuss the Piping Plover and Sleeping Bear Dunes that appear and make a connection to tomorrow's lesson being delivered by a ranger at that park.
3. If the video answered any questions students posed take a moment to respond to those questions.

Main Activity: (45 minutes)

1. Introduce the main task to students by explaining that they are going to be learning about 8 principles that will help them to be better citizens for the protecting of the Great Lakes.
2. Project page 3 of the Great Lake Literacy document and show that 8 Principles, read the principles over together. Tell students they will become experts on one principle and be responsible for teaching the important elements of that principle to the class.
3. Pass out the graphic organizer titled Great Lake Principles. There is a modified version for special population who may struggle with writing and could instead use illustrations.
4. Divide students into 8 groups, one for each principle. Principle four is very short you can choose to combine it with another principle and have 7 groups. Assign each group a principle and give the group a copy of their principle's information only (pages 6-10 Great Lakes Literacy brochure).
5. Give each group chart paper and markers. Have each group write their principal on the top and choose 2-3 key points, written in their own words to share out with the class. Set a timer for 10 minutes and allow students ten minutes to complete the task with their group. During this time students should also fill in their principle's section on the graphic organizer. Extend time as needed or as permitted
6. Once the ten minutes has ended call on a student group representing one principle at a time to come up and present their summarization. Presentation should last no longer than 5 minutes per group. Students who are not presenting should be filling in the principle information on their graphic organizer.

Link to Great Lake Literacy Principles:

<http://greatlakesliteracy.net/downloads/gllp-brochure-web.pdf> - smaller format

<http://www.miseagrant.umich.edu/files/2012/05/gllp-brochure-web.pdf> - larger format - easier

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for projecting and aligned with page numbers provided

Alternative options:

- Adjust timing as needed to meet your class period constraints.
- Have students do a gallery walk to complete their graphic organizers instead of having groups presenting
- Create a dialog using the chalk talk method before or after students have read about the principles to engage students in making connections from the principles to their own lives/communities.

Closure (5 minutes):

1. Post the original 8 principles on the board
2. Have students choose one principle and make a connection to their lives. Use a quick write format (no more than 2 minutes)
 - a. **Teacher Note:** *This may also be done as an exit ticket and used as a formative assessment*
3. Ask for couple of students to share out time permitting

Before the Ranger Lesson: If you have ESL or Low Language Students, try these links to build concept vocabulary before the ranger led lesson. Both videos are less than five minutes each.

- <https://www.youtube.com/watch?v=YbAWny7FV3w> – This short video defines between climate and weather.
- <https://www.youtube.com/watch?v=SzcGTd8qWTg> – This short video can be used following the weather/climate video and provides a brief introduction to the concept of climate change.

Additional Tasks to Explore:

- <http://www.miseagrant.umich.edu/lessons/> - This website provides lessons related to the great lakes, searchable by standard and topic.