

Lesson Planning Tool for Climate Change Unit

Title of Lesson: Boston Harbor Clean-up

Grade Level: 2

Subject: History of Boston Harbor

Source(s) of the lesson:(

Before and After photos and timeline of Deer Island/ Boston Harbor:

<http://www.mwra.state.ma.us/harbor/html/bostonharborproject.htm>

This pdf has some great visuals and maps you can use to show our watershed system.

<http://pubs.usgs.gov/circ/2005/1280/pdf/cir1280.pdf>

Essential Question(s):

- Where does the water in our watershed system end up?
 - What did Boston Harbor look like in the past?
 - What does Boston Harbor look like now?
 - Why is it important that we try to keep Boston Harbor clean?
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Massachusetts Curriculum Frameworks Science Standards:

2-ESS2-2. Map the shapes of landforms and bodies of water in an area.

2-LS2-3- Develop and use models to compare how plants and animals depend on their surroundings and other living things to meet their needs in the places they live.

Content Objectives	Practice Objectives	Language Objectives
Obtain information about Boston Harbor by looking at maps and creating timelines	8. Obtaining, evaluating and communicating information	CCSS.ELA-LITERACY.W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
Students will compare 2 photos of Boston Harbor	4. Analyzing and interpreting data	

Important Vocabulary: sewage treatment, waste water, sludge, Deer Island

Materials Needed:

- Chart Paper
- Markers
- A way to project visuals
- Paper
- Pencils
- Colored pencils, markers, crayons

Other Resources: (websites, videos, books, etc.)

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Background Information for Teacher: Provide the necessary information for effective instruction.

Please read: **The Boston Harbor Project: an Environmental Success Story**

Massachusetts Water Resources Authority

<http://www.mwra.state.ma.us/01news/2008/bhpenvironmentalsuccess/bhpenvsuccess.htm>

Video (not suitable for students!!!) <https://youtu.be/97p981QKWBA>

<http://www.mwra.state.ma.us/04water/html/hist1.htm>

Background Information the Student Needs to Access the Lesson: What prerequisite knowledge should the students have?

Students should already know about watersheds and how water and solids move through them. This lesson focuses on Boston's watershed system (specifically where the water ends up). Teachers will guide students by showing them a map of our watershed system and following it from school to Boston Harbor. Teachers may need to clarify that much of our water goes through pipes and drains to end up at Deer Island.

Lesson Structure

Lesson Launch (Do Now)	Show map from http://www.crwa.org/charles-river-watershed#map Have students locate the area where their school is and follow the system out to Boston Harbor. Lead a discussion with students on what happens to the water (and waste) after it gets to the Harbor.
Background Instruction (pre-activity)	Possible Teacher script: "Today, our wastewater and runoff goes through a series of pipes and eventually ends up at a water treatment plant named Deer Island. There the water is treated and sent way out into the Atlantic Ocean. However, not too long ago, Boston used to dump its waste right in Boston Harbor. That means when people flushed the toilet it went into the Harbor! When businesses dumped chemicals, they went right into the harbor. And if your dog pooped outside... Guess where that would end up? Can you

	<p>imagine how disgusting that would be? Luckily the people of Boston teamed up and decided they wanted to fix this problem! Here is what they did...”</p> <p>Show students the website listed below and read a few of the key parts. As a class, use information from The Boston Harbor Project to create a timeline of Boston Harbor.</p> <p>*Please rephrase this in language that is appropriate for your students http://www.mwra.state.ma.us/harbor/html/bostonharborproject.htm</p>
<p>Activity</p>	<p>Provide students with the before (1989) and after (2001) clean-up photos of Boston harbor. Have students compare the photos and identify the changes they can see in this pictures. Students will also note things they learned are different based on the timeline created with the class. Finally, have students estimate what they think the harbor looks like now (in 2016).</p> <p>This activity could be done a number of ways. Students could simply write the differences of Boston Harbor in 1989 and 2001. Students could draw pictures (or use another art media) pointing out the differences. Finally students could tell a story about the Harbor (one part set in 1989 and one part set in 2001 or present day).</p> <p>Here are some guiding questions:</p> <ul style="list-style-type: none"> ● What do you think the Harbor looked like before people lived here? ● Do you think people wanted to swim in Boston Harbor in 1989? ● Do you think there were a lot of healthy animals living in Boston Harbor in 1989? ● What do you think helped the most with cleaning up the Harbor? ● Did you include the Deer Island water treatment plant? ● Do you think there are more healthy animals in the Harbor now? ● Do people swim in Boston Harbor now? ● Why is it important that we keep Boston Harbor clean? ● Is there anything you can do to make sure Boston Harbor stays clean?
<p>Discussion/ Debrief</p>	<p>Allow time for students to present their work to the class. Use the guiding questions for a discussion about each student’s piece. Give students time to provide feedback on each other’s work.</p> <p>Extension: Contact the MWRA to come out to your classroom and give a presentation!</p>
<p>Formative Assessment</p>	<p>Exit ticket: Who is responsible for keeping Boston Harbor clean? Please provide details.</p> <p>-or-</p>

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Notes:

The following are photos of Boston Harbor Past and Present

A fun activity might be to try and sort them into photos from the past and photos from present day.



<http://bostonharborhealth.blogspot.com/>



https://en.wikipedia.org/wiki/Boston_Harbor



http://archive.boston.com/bostonglobe/ideas/articles/2008/07/13/waste_not/



<http://cruisebhc.tumblr.com/>



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