

Climate Change and the Arctic Ocean

Objective: To investigate changing arctic ice

Introduction: Due to the implications of ice melt (flooding, ecosystem changes, increased warming etc.) monitoring sea ice is an important part of awareness and mitigation of climate change. This lesson aims to introduce one of the modeling techniques used in sea ice modeling and encourage students to think of local and global implications.

Curriculum Connections:

Unit 1: 6a, 8e-g

Supplies / Materials:

- Student journals / blank paper
- Data below



SCIENCE FOCUS

Lesson Subject

Experiential Science 20

Topic

Arctic Sea Ice and Climate Change

Location

Classroom

Length

50 mins



Hook: Watch “Arctic in your backyard” at:

http://wwf.panda.org/what_we_do/where_we_work/arctic/what_we_do/climate/

Intro Activity: Project or hand out copies of the PIOMAS Arctic Sea Ice Volume. Allow students a few minutes to look at the data and discuss with neighbours what information they can get out of it and what they think it means.

Main Activity:

1. Ask for students' observations.
 - a. Make sure they are aware they are looking at volume data vs. surface area – What is the difference? Why might it matter? (thickness related to stability of ice flows, weight bearing, age etc.)
 - b. Ask them about the length of data collection. Do they think this is sufficient to draw conclusions? What would skeptics suggest? Are there any ways to support claims that this trend has been happening longer than data collection? (some critics say there are 50 or 100 year cycles in climate, traditional knowledge may help to substantiate claims)
 - c. If arctic sea ice disappears what are the implications for the North? (flooding, food chain changes, increased warming, decreased Permafrost, possible contamination, landslides etc.)
 - d. How do students think they can help? (personal decisions, contribution to science, informing others)

Independent Student Work: Have students write an article for the school newsletter/ design an infographic for a school bulletin board based on what they have learned.

Conclusion / Review: Share some of how students think they can help.

Homework: Have students find a place they can watch ice melt daily and make observations about melting in regard to weather observations (T, wind speed, humidity etc). Encourage them to submit data to Ice Watch

Resources:

Polar Science Centre (PIOMAS): <http://psc.apl.uw.edu/research/projects/arctic-sea-ice-volume-anomaly/>

Ice Watch: <https://www.naturewatch.ca/icewatch/>

Extra information found online at:

<http://www.inspirationgreen.com/assets/images/Issues/2012/arctic-death-spiral.png>

