

Title: *Climate Change: Is There a Controversy?*

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Grade Level: 6-8

Content area: Science, Social Studies, Language Arts

Time allotted: 1 week

Academic Standards:

AAAS Benchmarks of Science Literacy

- Climates have sometimes changed abruptly in the past as a result of changes in the earth's crust, such as volcanic eruptions or impacts of huge rocks from space. Even small changes in atmospheric or ocean content can have widespread effects on climates if the change lasts long enough.
- Human activities, such as reducing the amount of forest cover, increasing the amount and variety of chemicals released into the atmospheres, and intensive farming, have changed the earth's land, oceans, and atmosphere. Some of these changes have decreased the capacity of the environment to support some life forms.

Climate Literacy Network:

- Interactions between the parts of Earth's climate system result in changes in the system. Human beings are an integral part of Earth's climate system. Human activities such as the burning of fossil fuels or deforestation can affect climate and alter the equilibrium of the climate system.

Abstract:

- Climate change is of major interest to middle school students. The Intergovernmental Panel on Climate Change has worked with scientists around the world and has concluded that climate change can be attributed to both natural and man-made activities. Students will research some of the indicators of climate change to develop an understanding of events that may be impacted.

Goal:

- Students will identify indicators of climate change and document research that supports or negates significant change.

Performance Indicators:

Students will

- list indicators of climate change.
- identify research abstracts on climate change
- summarize research reports.
- present their research in a poster session
- evaluate the effects of climate change

Background information

- Students should have developed basic research skills and know how to evaluate reliable websites

Misconceptions:

Students may not understand:

- the difference between climate and weather.
- the difference between local or regional climate and global climate
- how the Earth's seasons occur

Materials:

- Videos: *Inconvenient Truth*, *Six Degrees Could Change the World*
- Computers, books, journals and brochures on Climate Change

Technology:

- On-line access

Instructional Procedure:

Introduction:

Engage: Video clips:

- *Inconvenient Truth*
- *Six Degrees Could Change the World*

Explore:

- Using the Exploratorium website, *Global Climate Change*, students will list some of the impacts of climate change.
<http://www.exploratorium.edu/climate/index.html>
- Possible choices: Levels of CO₂, Sea Ice, Thickness of ice sheets, Ice Core Data, Ocean Sediment Core Data, Rise in Sea Level, Amount of permafrost, Climate Models, Glacier Melt,

Interactive vegetation - Tree rings, Blooming of trees, Health effects of Climate Change: Cholera, Insect driven disease - mosquitos

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Explain:

- Students will be given the guidelines for the presentation.
- Students will choose 1-3 research studies to report findings. They will summarize the reports and display their information on poster board. They will present their information to a sixth grade class in a Climate Change Poster session.

Extensions:

- Tree coring: Students will core local trees to examine the tree rings and make estimates on the tree's age from the cores.
- Students can develop a web page of their presentation to display on the school web page. Posters will be displayed in the school atrium

Assessment

Evaluation

- Student's posters will be evaluated by a rubric for content, mechanics, and presentation
- Student's presentation will be evaluated by visiting teachers and interest of visiting students

Connection to other content areas:

- Language Arts - Students will summarize the information using their words. They will be expected to use proper spelling and punctuation.
- Social Studies - Students will develop an understanding of the worldwide impact of climate change and how nations will have to cooperate to address this issue.

Resources:

- Intergovernmental Panel on Climate Change (IPCC)-
<http://www.ipcc.ch/index.html>
- US Global Change Research Program (lots of good stuff)-
<http://www.usgcrp.gov/usgcrp/default.htm>

- World Health Organization (WHO) - http://www.who.int/peh/climate/climate_and_health.htm
- US Environmental Protection Agency (EPA) - <http://yosemite.epa.gov/oar/globalwarming.nsf/content/Climate.html>
- National Snow and Ice Data Center (great cryosphere data)- <http://nsidc.org/noaa/>
- National Center for Atmospheric Research Climate and Global Dynamics - <http://www.cgd.ucar.edu/>
- Climate HotSpots Map (AMAZING!)- <http://www.climatehotmap.org/index.html>
- Vital Climate Graphics (Great ppt Graphics)- <http://www.grida.no/climate/vital/index.htm>
- World View of Global Warming (photos)- <http://www.worldviewofglobalwarming.org/>
- Exploratorium Global Change Research Explorer - <http://www.exploratorium.edu/climate/index.html>
- Global Environmental Change and Our Health - <http://www.pbs.org/journeytoplanetearth/johnshopkins/index.html>
- NCAR Education and Outreach Website - www.ncar.ucar.edu/eo

Climate Change - Is There a Controversy?

	4	3	2	1	0
Climate Change Facts	5 or more Facts with sources	4 Facts with source	3 Facts	2 Facts	1 or less fact
Research	Two or more studies. Scientific study is fully referenced and current within 5 years.	One study fully referenced, current within 5 years	One study referenced	Information is accurate, but no scientific study is referenced	No scientific study
Poster Content	Accurate, with well thought out statements	Accurate, but not fully explained	Limited information, very little explanation	Limited information, no explanation	Information is not accurate
Mechanics	No errors in spelling, punc. or grammar	Fewer than 3 errors	Fewer than 5 errors	Fewer than 7 errors	You did not proof this!
Aesthetics	Attractive and interesting. Graphics are appropriate . It holds the interest of your audience	Attractive with appropriate graphics. It holds the interest of your audience	Neat, but missing graphics or is not interesting	Messy, and missing graphics or is not interesting	No sense of design, no graphics