

Human Impact on the Environment

Pre-AICE Biology

Organisms and Their Environment IV.4-5.2
SC.912.L.16.9, SC.912.L.15.6

The Effect of Human Activity

- How do our daily activities affect the environment?
- Humans affect regional and global environments through
 - agriculture, development, and industry
 - has an impact on the quality of Earth's natural resources, including soil, water, and the atmosphere

PLANET EARTH

The Future: Into the Wilderness



Disk 5

Prepare for Socratic Seminar

- Research journal articles published regarding climate and conservation

Natural Communities

- Development
 - Population increase
 - Urbanization
 - industrialization
- Hunting
- Fishing
- Agriculture
- Pesticides
- Eutrophication
- Soil erosion
 - Deforestation
 - Bad farming methods
 - Overgrazing
- Air Pollution
 - Smoke
 - Sulphur dioxide
 - Smog
- Climate change

Development

Population increase

- Intensification of Agriculture
 - Removing forests and planting crops
- Urbanization
 - Development of towns and cities
- Industrialization
 - Increased population leads to manufacturing and increased industry = wastes, pollution

Hunting

- Used basic methods with little effect on environment
- More recently
 - Hunting for sport
 - Harvesting tusks/horns for trade
 - Endangered and/or extinction

Fishing & Agriculture

- Past: fishing in lakes and oceans for personal food
- Present: over fishing using more sophisticated methods
 - Threats to fish stocks depleted

Pesticides

- Kill indiscriminately
- Stay in the food chain
 - DDT becomes more concentrated as it moves up the food chain
 - Caused birds to lay eggs with thin shells, leading to declined population of hawks
 - Persistent
 - Last a long time in the ecosystem
- Poisonous to kill pests
 - Harmful to humans in high doses

Eutrophication

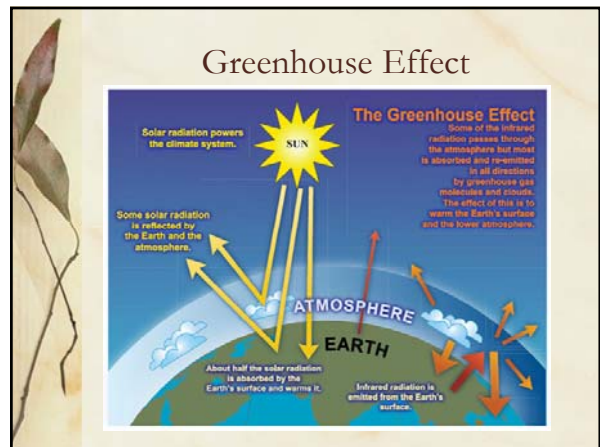
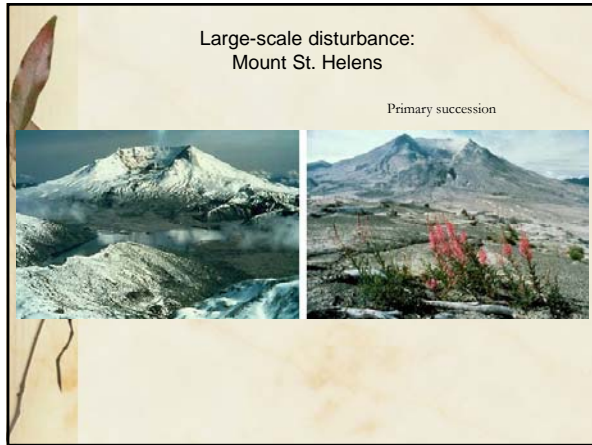
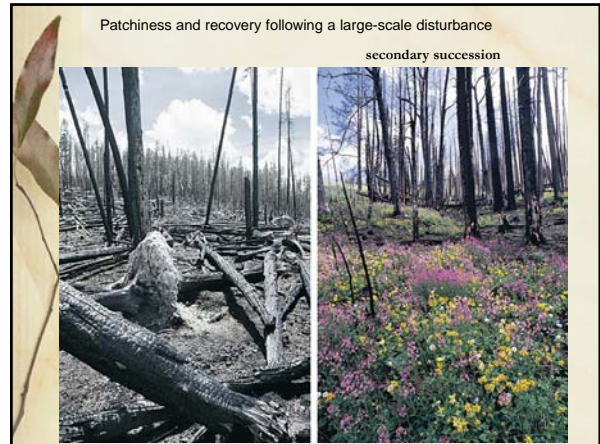


Eutrophication

- Excess phosphates and nitrates allow microscopic plant life (algae) to grow very rapidly
- Runoff seeps into rivers and streams
 - Lawn fertilizer
 - Sewage treatment
 - Detergents
 - Factory farming
- Uncontrolled growth also harms fish and other aquatic life by changing the amount of dissolved oxygen in the water system

Coral Reefs

- **Coral reefs of Southeast Asia, the most species-rich on earth, are the most threatened of any region.**
 - More than 80 percent are at risk, primarily from coastal development and fishing-related pressures.



Greenhouse Gases



(National Geographic, 2010)

Major Categories of Research Bias

There are many different types of biases described in the research literature. The most common categories of bias that can affect the validity of research include

- **Selection biases**, which may result in the subjects in the sample being unrepresentative of the population of interest
- **Measurement biases**, which include issues related to how the outcome of interest was measured
- **Intervention (exposure) biases**, which involve differences in how the treatment or intervention was carried out, or how subjects were exposed to the factor of interest

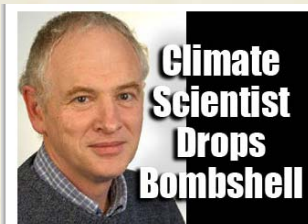
Articles in the news

Current events

Civics 101: Cap-and-Trade

- Government involvement in science
- An authority puts a limit on the amount of CO₂ emissions by individuals or groups and allows the purchase and trade of credits
 - “Carbon credits”

Headlines: February 15, 2010



Ex-head of research center at the heart of the Climate-gate scandal says there's been no global warming in 15 years.
 • Scientists Cast Doubt on U.N. Global Warming Claims
 • Measuring the Hottest Temperatures in the Universe

Global Warming ?

Feb. 15, 2010:

Global Warming in Last 15 Years Insignificant, U.K.'s Top Climate Scientist Admits

- The embattled ex-head of the research center at the heart of the Climate-gate scandal dropped a bombshell over the weekend, admitting in an interview with the BBC that there has been no global warming over the past 15 years despite recent publicity.


(Fox New Online, 2010)

Research Bias

- “Recording stations have been seriously compromised by factors such as urbanization, changes in land use and, in many cases, being moved from site to site” (Times, 2010).
 - Near jet exhaust at airports
 - Sewage treatment plants

Science chief John Beddington calls for honesty on climate change

- The IPCC's 2007 report that the glaciers would disappear by 2035 has exposed a wider problem with the way that some evidence was presented



[Article Link](#)

News Headlines

[link](#)

- Is Climate Change Plan Just Hot Air?**
By Gene J. Koprowski | Followees.com | 3/26/10
Plan to Increase Funding for Climate Change Research By Gene J. Koprowski ... serve as a clearinghouse for climate change data and resources. U.S. ... independent reevaluation of the climate change data that has been researched ...
Story | 02/14/2010
- Climate Debate Heats Up in Wake of Record Snow- Measless Mondays to**
By Steve Green | Followees.com | 3/26/10
... politicians on both sides of the climate change debate have been pointing to the ... politicians on both sides of the climate change debate have been pointing to the ... (snowing) early. Joseph Romo, a climate change expert and former Energy Department ...
Story | 02/14/2010
- Top Climate Scientist: No Warming in 15 Years**
Followees.com | 3/26/10
... (snowing) early. Joseph Romo, a climate change expert and former Energy Department ...
Story | 02/14/2010
- Scientists Cast Doubt on U.N. Global Warming Claims- Measuring the Hottest**
Sunday Times | 3/26/10
... red indicating greater change) due to global warming ... The United Nations climate panel faces a new challenge ... Intergovernmental Panel on Climate Change (IPCC) and the evidence ... American meteorologist and climate change skeptic His study ...
Story | 02/14/2010
- Calls for Climate Science Reform**
AP | 3/26/10
... chair of the Intergovernmental Panel on Climate Change (IPCC) head Rajendra Pachauri, left, and ... chairman of the Intergovernmental Panel on Climate Change. The work of the climate change panel on IPCC is often portrayed as one ...
Story | 02/14/2010

Three Major Firms Pull Out of Climate Change Alliance

February 16, 2010

ConocoPhillips, BP America and Caterpillar pulled out of a leading alliance of businesses and environmental groups pushing for climate change legislation on Tuesday, citing complaints that the bills under consideration are unfair to American industry.




Something to ponder...

“Masters says in a perfect world he'd need "200-300 years worth of records" to accurately predict further climate change. But since that's not available, "We're forced to make decisions on a limited data set." Nevertheless, Masters feels the possible dangers of global warming outweigh the risks of remaining idle. "We need to take action even in the face of inadequate data," he says” (Fox Online, 2010).



AP Photo/Intelligence Journal, Richard Herrizer
 Pennsylvania, Feb. 13, 2010
 Record snowfall



By Gene J. Koprowski
 Published February 03, 2011

Conservation

- Species
- Genes
- Habitats
- Non-renewable resources
 - Biofuels
 - Recycling
 - Sewage, water, paper, plastic



Resources

- Aims Multimedia. (2004). Protecting Coral Reefs. Retrieved February 18, 2010 from Discovery Education website
<http://streaming.discoveryeducation.com/>
- Ancient Lights. (1992). Nitrogen pollution and eutrophication. Retrieved February 18, 2010 from Discovery Education website
<http://streaming.discoveryeducation.com/>
- Campbell, N., Reece, J. (2005). *AP Edition Biology, 7th ed.* San Francisco, CA: Benjamin Cummings Publishing Company.
- Fox News. (2010). Global warming. Retrieved February 16, 2010 from website
<http://www.foxnews.com/scitech/2010/02/15/global-warming-insignificant-years-admits-uks-climate-scientist/>

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- Jones, M., Fosbery, R., Taylor, D., & Gregory, J. (2007). *AS Level and A Level Biology, 2nd ed.* Cambridge, UK: Cambridge University Press.
- National Geographic. (2010). Global warming. Retrieved February 16, 2010 from website
<http://environment.nationalgeographic.com/environment/global-warming/gw-causes>
- Times Online. (2010). Environment. Retrieved February 14, 2010 from website <http://www.timesonline.co.uk/tol/news/environment/>