

Climate Change PowerPoint Presentation Notes

Section 1 – What is Climate Change?

Slide 5:

- See EPA's "Recent Climate Change" page at <http://www.epa.gov/climatechange/science/recentcc.html> for details on these changes.

Slide 6:

- The world has warmed by 1 to 1.7 degrees Fahrenheit over the past 100 years. That may not sound like much, but remember it's a global average. Some parts of the world have warmed more than the average, others less.
- The United Nations Intergovernmental Panel on Climate Change has concluded that human activities very likely caused most of the warming over the past 50 years.
- Source: http://www.epa.gov/climatechange/science/recenttc_triad.html

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- Climate change is caused naturally by factors such as long-term changes in the Earth's orbit, changes in the Sun's intensity, major volcanic eruptions, and changes in ocean currents.
- But none of these factors can explain all of the warming that has occurred over the past 50 years or so.
- You'll find a lot of good information on the causes of climate change on EPA's climate change science pages: www.epa.gov/climatechange/science/index.html.

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- Carbon dioxide is emitted by many natural sources (including humans and other animals, when we exhale). Normally these natural sources are balanced by natural "sinks" that remove carbon dioxide from the atmosphere, such as trees and the oceans.
- Fossil fuels are made from plant materials that have been buried underground for millions of years. Those plant materials contain carbon, and when we burn them the carbon combines with oxygen to form carbon dioxide. Worldwide, humans are burning fossil fuels in such large quantities that the natural sinks can't remove it quickly enough. So the carbon dioxide builds up in the atmosphere, warming the planet.

Slide 9:

- Image credit: White House OSTP publication from October 1997, entitled Climate Change: State of Knowledge. They credit the image as being created by M. Warford, 1995.

Section 2 – What are the effects of climate change?

Slide 2:

- http://earthguide.ucsd.edu/virtualmuseum/climatechange1/02_1.shtml

Slide 3:

- It's the *increase* in the greenhouse effect that worries scientists.

Slide 4:

- Useful resources for more information:
- EPA's Web page on recent temperature change:
www.epa.gov/climatechange/science/recenttc.html.
- EPA's Web page on recent precipitation changes:
www.epa.gov/climatechange/science/recentpsc.html.
- EPA's Web page on past climate change and how it is measured:
www.epa.gov/climatechange/science/pastcc.html.

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- Scientists collect air samples using weather balloons, towers, observatories, ships, and aircraft.
- Useful resources for more information:
- EPA's Web page on recent changes in concentrations of greenhouse gases:
www.epa.gov/climatechange/science/recentac.html.

Slide 6:

- Image Credit: Muir Glacier, photographed by William O. Field on 13 August 1941 (left) and by Bruce F. Molnia on 31 August 2004 (right). NSIDC/WDC for Glaciology, Boulder, compiler. 2002, updated 2006. *Glacier Photograph Collection*. Boulder, CO: National Snow and Ice Data Center/World Data Center for Glaciology. Digital media.
www.nsidc.org/gallery/glaciers/index.html.

Slide 7:

- Check out EPA's "future climate change" page for more details:
www.epa.gov/climatechange/science/futurecc.html.

Section 3 – How does climate change affect children’s health?

Slide 3:

- Carbon dioxide (CO₂) is a natural “fertilizer” for plants because they use carbon dioxide in photosynthesis. But not all plant species respond in the same ways to increasing concentrations of carbon dioxide in the atmosphere—some species grow faster when CO₂ is higher, while others see less benefit. Furthermore, the other impacts of climate change (such as changes in temperature and precipitation) may have negative impacts on many plant species; it’s difficult to predict what the net effect will be.

Slide 4:

- Children are more vulnerable to disasters than adults are because they typically rely on others to care for them. Young children may need specialized medical care after disasters due to their size and other factors.
- Floodwater may carry bacteria. Even if drinking water supplies remain safe, you could get sick if you come into direct contact with floodwater.

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- Childhood exposure to particle pollution has been associated with respiratory symptoms, decreased lung function, exacerbation of asthma, and development of chronic bronchitis. Some communities with high particulate levels have been shown to have increased rates of pre-term births, lower birth weights, and higher infant mortality.
- California fire risk figure comes from www.energy.ca.gov/2005publications/CEC-500-2005-190/CEC-500-2005-190-SF.PDF.

Slide 6:

- Mosquitoes can carry dangerous diseases such as West Nile virus, malaria, and dengue fever. In the United States, we are usually able to keep such diseases under control. That is not the case in poorer countries, such as many African and South American nations, however. The risks are much greater there.
- Heat waves in cities tend to be more severe than in surrounding countryside because pavement and buildings tend to absorb heat, while trees and grass reflect it. Children, pregnant women, and older adults are especially vulnerable to heat-related illnesses.

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- People in developing countries generally face greater risks than those in industrialized nations such as the United States because they lack systems, technologies, and access to health care that could protect them from many of the impacts of climate change.
- Worldwide, 66.5 million kids were affected by weather-related disasters every year between 1990 and 2000.
- References: 66.5 million children were affected by weather-related disasters every year between 1990 and 2000: Penrose A, 2006.

Section 4 – Protect yourself from the effects of climate change

Slide 2:

- For more information about the Air Quality Index (AQI), visit <http://airnow.gov>.

Slide 3:

- See EPA's Web page on flood risks to children for more information:
<http://yosemite.epa.gov/ochp/ochpweb.nsf/content/flood.htm>.
- Avoid moldy areas, such as houses that have been flooded. The mold can provoke asthma attacks or allergic reactions.

Slide 5:

- For more information, visit EPA's Web page on heat waves and children:
<http://yosemite.epa.gov/ochp/ochpweb.nsf/content/heat.htm>.

Section 5 – Take action to reduce energy use and greenhouse gas

Slide 1:

- We burn fossil fuels for energy for modern day conveniences such as our lights, heating, and air conditioning.

Slide 5:

- Other resources for schools: ENERGY STAR's "how to get started" page for K-12 schools: www.energystar.gov/index.cfm?c=k12_schools.bus_schoolsk12.

Slide 6:

- Information on the Kids Ride Free program is available at: www.montgomerycountymd.gov/tsvtmpl.asp?url=/content/DOT/transit/kids_free_ride.asp.

Slide 9:

- More information on green roofs is available on EPA's Urban Heat Island site: www.epa.gov/heatisland.

Slide 11:

- The free Climate CHECK tool runs on Microsoft Excel. It provides educational information on climate change and prepares a complete greenhouse gas inventory for your school. The tool meets National Science Content Standards and is aimed primarily at high school students.

Slide 12:

- You will reduce your family's energy use by taking these important steps.

Slide 13:

- Consider buying used electronics to save money and the environment.

Slide 14:

- Heating water uses energy and results in greenhouse gas emissions. A shower aerator gives you a stronger shower but uses less hot water. Shower and faucet aerators are cheap and make good Earth-friendly gifts for your parents.

Slide 16:

- Smart Growth allows towns and cities to develop in ways that preserve natural lands and critical environmental areas, protect water and air quality, and reuse already developed land. For more information on Smart Growth, see www.epa.gov/smartgrowth.
- For more information about ENERGY STAR, see www.energystar.gov.

Slide 17:

- To qualify to be a Climate Ambassador you can do things like:
 - Motivate at least 5 other students to give climate change and children's health presentations to other students, youth organizations, at school, or in the community.

- Get 10 people to [Change the World and Take the ENERGY STAR Pledge](#). The pledge encourages changes throughout the home. If every American home replaced just one light bulb with an ENERGY STAR qualified bulb, we would prevent the same amount of greenhouse gases as **removing more than 800,000 cars from the road**.
- Recruit at least one leader from your community, school, or other organization to issue a [climate change and children's health proclamation](#), encouraging young people to take actions to address climate change and its effects on children's health.
- Lead an effort to reduce energy consumption in your school or community and calculate your results. Examples include getting more students to walk, bike, carpool, or take a bus to school or reducing the amount of waste produced at your school or in your community.
- Climate Ambassadors will share their actions so that others can be inspired by what they do.
- Climate Ambassadors will inspire others to address global climate change.

Slide 19:

- More detailed information on climate change risks to children's health is available at: <http://yosemite.epa.gov/ochp/ochpweb.nsf/content/climate.htm>.