

# GLOBAL WARMING

## Student/Class Goal

Students were concerned about current news articles on global warming and are frustrated because friends show little concern or interest in the effects of global warming on their future.

## Outcome *(lesson objective)*

Learners need to be able to communicate with others in writing, orally, and through computer technology applications.

## Time Frame

Four 45 minute sessions

## Standard *Read with Understanding*

NRS EFL 5-6

Purpose	Benchmarks	Word Knowledge	Benchmarks	Comprehension	Benchmarks
Purpose for reading	5.1, 6.1	Decoding skills		Strategy use	5.11, 6.11
Select text	5.2, 6.2	Word parts		Text structural elements	5.12, 6.13
		Context clues		Genres	
		Reference materials	5.6, 6.6	Literary analysis	6.14
		Word relationships		Drawing conclusions	5.15, 6.15
		Content vocabulary	5.8, 6.8	Making connections	5.16, 6.16
		Figurative language			
		Fluency			

## Materials

*What is Global Warming?* Handout  
*Global Warming Roles and Tasks* Sheets  
*Presentation Peer Review* Checklist

## Learner Prior Knowledge

Brainstorm as a class about global warming and the greenhouse effect. What do student know about these concepts? What have they observed or heard? Have they noticed temperature changes? Have they heard about global warming? What are their concerns? Use blogs and research articles on climate change and global warming to enhance critical thinking. Keep track of the information using a K-W-L chart. Background knowledge of Power Point would be helpful.

## Instructional Activities

Step 1 - Present the topic of global warming addressing what it is and what the major causes are using the *What is Global Warming?* Handout. Information can be presented by the teacher, students can research each question, or teacher and students can compare their findings.

Step 2 - Pass out the *Global Warming Roles and Tasks* Sheet. Have students form groups of three or four. Each group should choose an interest group (consumer, reporter, scientist, politician). You can add additional interest groups such as corporation, oil manufacturer, transportation mogul or any others you can think of. These presentations should include:

- Summary of the findings on global warming
- Pictures, graphics, tables, charts to enhance the presentation
- Viewpoint of global warming specifically from the interest group
- Sources of the information

Discuss the procedure for working in groups; such as assigning tasks to each person, assigning a group leader to coordinate the activities, and the expectation that everyone in the group will participate in the group presentation.

Use of a technology application such as PowerPoint could be chosen to present the group's finished work.

Optional individual tasks can be completed in addition to the group role.

- √ Summarize a piece of evidence preferably a chart or graph. Be sure to print out the graph or chart. What does the graph represent? How is the information presented related to the issue of global warming?
- √ Read a current event article related to global warming from a newspaper or current events magazine. Summarize the article. Based on your research of global warming do you agree or disagree with the viewpoint or facts presented in the article? Please back up your opinion with information or facts that support your position.
- √ Write a letter to the President of the United States expressing your opinion about the issue of global warming. Remember to present information and facts to back up your opinion. This letter should be written in business style and addressed accordingly. Please refer to: E-Mail Form to send your letter via e-mail.

Step 3- Students will research the issue of global warming using the suggested Internet resources or classroom materials.

**TECHNOLOGY NOTE** All websites can be listed in a folder marked *Global Warming* on the classroom computers' desktop for easy access by students. Remember to document your research! Underneath all your responses, create links back to where you found your information.

Step 4 - The class will peer edit the presentations using pre-determined criteria. Pass out the checklist for presentations prior to the class when presentations will be given [see [Project-Based Learning Checklists](#) for additional categories]. Discuss the delivery category so everyone understands what is important for the presentation. Discussions of what makes a quality PowerPoint presentation should also be part of students' experience.

**Assessment/Evidence** *(based on outcome)*

*What is Global Warming? Summaries*  
Class Presentations  
*Presentation Peer Review Checklist*  
Individual Task of choice completed

**Teacher Reflection/Lesson Evaluation**

*Not yet completed.*

**Next Steps**

**Technology Integration**

Global Warming: Early Warning Signs [www.climatehotmap.org](http://www.climatehotmap.org)  
Global Warming and Our Changing Climate <http://epa.gov/globalwarming>  
Letter via email <http://www.whitehouse.gov/contact/>  
Sample letter <http://www.ccsd.net/schools/extension/mrspeters/sampleletterformat.htm>  
Project-Based Learning Checklist <http://4teachers.org/projectbased/checklist.shtml>

**Purposeful/Transparent**

To better understand the scientific concept of global warming will help students as they prepare for the GED Science Test.

**Contextual**

This lesson is based on current events where students had questions and were concerned about how this concept would affect their lives.

**Building Expertise**

This lesson is based on current events where students had questions and were concerned about how this concept would affect their lives.

# WHAT IS GLOBAL WARMING?

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Write a summary for each question using these web sites for your research.

*Global Warming: Early Warning Signs*

[www.climatehotmap.org](http://www.climatehotmap.org)

*Global Warming and Our Changing Climate - Answers to FAQs*

[http://yosemite.epa.gov/oar/globalwarming.nsf/uniqueKeyLookup/SHSU5BUN59/\\$file/gw\\_faq.pdf?OpenElement](http://yosemite.epa.gov/oar/globalwarming.nsf/uniqueKeyLookup/SHSU5BUN59/$file/gw_faq.pdf?OpenElement)

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## **What is this global problem?**

Most scientists agree that the temperature of the Earth is gradually increasing — a phenomenon called global warming — because of the large amounts of “greenhouse” gases humans are pouring into the environment. The majority of scientists say the Earth has warmed by 1 degree Fahrenheit in the last 100 years. While this may seem like a negligible amount, small changes in the Earth’s temperature can have drastic effects. For example, even a five-degree drop could trigger an Ice Age. The warmest 10 years of the century have all occurred in the last 15 years — and 1998 was the warmest year on record.

## **What causes this problem?**

Global warming occurs because of the large amounts of “greenhouse” gases humans are pouring into the environment. Greenhouse gases, which are created through the burning of fossil fuels such as coal, oil, and gas, get their name because they trap heat inside the Earth’s atmosphere much like the glass in a greenhouse traps heat to keep plants warm. Humans have been burning a large amount of fossil fuels to keep up with industry and transportation needs over the past century and these gases are concentrating in the atmosphere far faster than natural processes can remove them. Experts say the major source of global warming is carbon dioxide pollution from power plants, automobiles and industry. Another source is deforestation since trees remove carbon dioxide from the air as they grow and release it when they are cut down and burned.

## **What effects will global warming have on the earth?**

Some scientists and environmental activists speculate that this warming will have a devastating impact on the environment. Rising ocean temperatures are thought to damage, and in some cases, kill coral reefs, which are home to a fourth of all sea life. Global warming could lead to more severe droughts in some areas. Another possible effect is the melting of the polar ice caps, which would increase sea levels and cause beach erosion and flooding. A warmer climate will affect food crops by increasing irrigation demands and decreasing food production in the poorest countries. The Public Interest Research group predicts global warming will also have a direct effect on human health, such as causing more people to die in severe heat waves and leading to the spread of infectious diseases such as malaria and cholera, which thrive in warmer climates.

## **What solutions are available today to eliminate Global Warming?**

There are solutions to global warming available to us today. These solutions will reduce the amount of heat-trapping gases that we emit into the atmosphere. Among the solutions are ways of reducing the amount of fossil fuels we use to power our vehicles and generate our electricity, and protecting threatened forests, which store carbon in their biomass.

**Teacher Note: Possible answers are written under each question. Information can be presented by the teacher during a discussion or students can research each question and provide written summaries or teacher and students can both research and then compare their findings. A student handout could be generated with these four questions and directions.**

## **Consumers and Consumer Advocates**

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As consumers and advocates concerned about protecting consumers of all economic levels, your job is to encourage politicians to consider how legislation will affect you. Some groups believe that costs will rise for many consumer products if companies are forced to meet new guidelines in order to reduce the global warming trend.

Consumers and advocates are concerned about:

- The impact of possible increased costs of transportation, energy, food and appliances; that lower and fixed income households will be hardest hit by these cost increases;
- The reality that that consumers will have a smaller range of products to choose from (for example, perhaps only small cars will be made.
- Effects of global warming on the environment and the community
- Things they can do to help reduce global warming

### **Questions your group must answer:**

- 1) What is global warming?
- 2) How do consumer practices affect global warming?
- 3) What can consumers do to reduce the global warming trend?
- 4) What price increases would consumers face if corporations decide to change production methods to reduce the global warming trend? Visuals are a must!

### **Web sites**

Global Warming Information Page

<http://www.globalwarming.org/>

EPA Global Warming Site

<http://www.epa.gov/globalwarming/>

EnviroLink Network

[www.envirolink.org](http://www.envirolink.org)

## Reporters

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As reporters concerned about informing the public about global warming issues, your job is to present the issue of global warming from every viewpoint. Therefore, reporters are concerned about both general and specific global warming issues, and since controversial topics tend to sell stories, you strive to cover topics that generate controversy.

### Questions your group must answer:

- 1) What is global warming? Include viewpoints from several major groups such as consumers, corporations, politicians, environmentalists, etc.
- 2) What can consumers and corporations do to reduce the global warming trend? What are the pros and cons of these actions?
- 3) What are the controversial issues related to price increases, profit margins, product variety, and tax breaks for the major groups?

### Web Sites

Sierra Club

<http://www.sierraclub.org/globalwarming/>

Global Warming – American Petroleum Institute

<http://www.api.org/globalclimate/>

EPA Global Warming Site

<http://www.epa.gov/globalwarming/>

## Scientists

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As scientists, your job is to inform national and state leaders about global warming and greenhouse gas emissions. Some scientists believe immediate action is necessary to control the greenhouse effect. Others feel global warming is caused by natural cycles. Your job is to present and summarize the major scientific causes and effects behind global warming in an unbiased manner so that the national leaders will have the background to understand all the issues other groups might raise.

### Questions Your Group Must Answer:

- 1) What is global warming?
- 2) What are the causes of global warming?
- 3) What evidence exists of changes due to global warming? Visual graphs and charts are a must!
- 4) As scientists what do you think the U.S. can do to reduce global warming trends? What do you recommend as a course of action? Please defend your recommendations.

### Web Sites

Global Warming: Focus on the Future

<http://globalwarming.enviroweb.org/>

Vital Climate Graphics

<http://www.grida.no/climate/vital/>

Global Warming: Early Warning Signs

[www.climatehotmap.org](http://www.climatehotmap.org)

## **Politicians**

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States and localities have a *significant* role to play in addressing climate change. For example:

- State and local governments can help meet air quality standards for currently regulated pollutants by reducing their greenhouse gas emissions.
- State and municipal facilities offer significant opportunities for cost-effective greenhouse gas reduction efforts that can trim expenses while helping the environment.
- State and local governments have regulatory authority over many direct and indirect sources of greenhouse gas emissions. For example, local governments define land-use, zoning, and transportation policy; operate landfills; monitor air quality; pass and enforce building codes; define procurement policies; and regulate parking.
- The total and per capita emissions of some states exceed those of entire nations.
- States and communities may be vulnerable to the potential impacts of climate change and thus have a stake in efforts to reduce greenhouse gas emissions.

### **Questions Your Group Must Answer:**

- 1) What is global warming and why is it so important to your constituents?
- 2) Efforts to reduce greenhouse gas emissions may yield a range of additional environmental and social benefits. State and local governments are discovering that many policies and measures that reduce greenhouse gas emissions can be justified on the basis of those added benefits alone. These measures make good economic and environmental sense even if climate change is not an issue of concern. Illustrate these benefits in economics, public health, forestry, and agriculture.
- 3) There are several steps that states and localities take when preparing to act on climate change. Establishing a task force might be one of those steps, outline what other things need to happen and who should be involved.

### **Web Sites**

Global Warming: Focus on the Future

<http://globalwarming.enviroweb.org/>

EPA Global Warming site

<http://yosemite.epa.gov/oar/globalwarming.nsf/content/index.html>

EnviroLink Network

[www.envirolink.org](http://www.envirolink.org)

Name of report

This checklist belongs to



Put a checkmark beside the items that describe your presentation.

CONTENT	ORGANIZATION	DELIVERY	COOPERATIVE GROUPS
<p><input type="checkbox"/> I used vocabulary that the audience could understand, or I defined unfamiliar terms.</p> <p><input type="checkbox"/> Logical appeals included sound factual information.</p> <p><input type="checkbox"/> I used emotional or persuasive appeals where appropriate.</p> <p><input type="checkbox"/> I used supportive details.</p> <p><input type="checkbox"/> The information I gave was useful to others.</p> <p><input type="checkbox"/> I stayed focused; I did not stray off my topic.</p> <p><input type="checkbox"/> I was well informed on my topic.</p> <p><input type="checkbox"/> I was able to answer questions from the audience.</p>	<p><input type="checkbox"/> I used resources that addressed the topic thoroughly.</p> <p><input type="checkbox"/> I cited my resources using the appropriate format.</p> <p><input type="checkbox"/> I used credible Internet resources.</p> <p><input type="checkbox"/> I organized ideas in a meaningful way.</p> <p><input type="checkbox"/> Presentation aids were used during the speech.</p> <p><input type="checkbox"/> Presentation aids enhanced the speech or reinforced main points.</p> <p><input type="checkbox"/> Visual aids were easily viewed or read by the entire audience.</p>	<p><input type="checkbox"/> I maintained eye-contact most of the time.</p> <p><input type="checkbox"/> I spoke to the entire audience, not just one or two people.</p> <p><input type="checkbox"/> My pronunciation was clear and easy to understand.</p> <p><input type="checkbox"/> My rate of speech was not too fast or too slow.</p> <p><input type="checkbox"/> My volume was not too loud or too soft.</p> <p><input type="checkbox"/> My body language was not too relaxed or too tense.</p> <p><input type="checkbox"/> My voice varied in pitch; it was not monotone.</p> <p><input type="checkbox"/> I used meaningful gestures.</p> <p><input type="checkbox"/> I used notes sparingly; I did not read from them.</p> <p><input type="checkbox"/> I used standard grammar.</p> <p><input type="checkbox"/> I didn't hesitate or lose my place.</p> <p><input type="checkbox"/> I didn't use filler words (uhm, uh, ah, mm, like).</p> <p><input type="checkbox"/> I didn't call attention to errors by apologizing.</p> <p><input type="checkbox"/> I didn't fidget, rock back and forth, or pace.</p> <p><input type="checkbox"/> I maintained good posture.</p>	<p><input type="checkbox"/> I worked well with my other group members.</p> <p><input type="checkbox"/> I showed respect and support for fellow team members.</p> <p><input type="checkbox"/> I contributed both time and effort.</p> <p><input type="checkbox"/> I listened to my group's ideas.</p> <p><input type="checkbox"/> I helped us succeed.</p> <p><input type="checkbox"/> Everyone did the work they were supposed to.</p>

**Presentation Peer Review Checklist**