SCHOOL OF THE ARTS

For Mr. Walter Lanik

Science Teacher-Earth Science
Rooms: 353, 417, 338

Emergency Lesson Plans

Lesson One-Day One

This lesson in an enrichment activity to give the students the opportunity to do some independent work and learn more about the "Greenhouse Effect". It is important that students have an understanding of this important societal issue.

Students should read through the handout once before looking at the questions. Students should read it a second time before starting to answer the questions. I would expect that students would complete questions Content Review and a couple of the Critical Review questions by end of the first day.

Lesson Day Two and Three

This lesson is a continuation of lesson one. Students will read the handout again and complete the remaining Critical Review questions (1-10). I would expect the students to have well written answers to be collected at the end of the period. Students who finish early can be assigned Creative Thinking question number 11.

Some answers to assist you in guiding the students.

Content Review

1. What is meant by the "Greenhouse Effect"?
The earth heats up much the same way that a greenhouse does. Heat from the sun becomes trapped in the atmosphere and is radiated back to the earth's surface. In the greenhouse the sunrays are able to pass through the glass but become trapped inside the greenhouse.

2. What are the major sources of CO2?
The major sources of CO2 are the burning of fossil fuels (coal, oil, natural gas) and natural vegetation.

3. Why is the phenomenon of global warming termed the "Greenhouse Effect"?
Because the increase in the CO2 in the atmosphere creates a similar condition to a greenhouse heating up. The heat is unable to escape from earth into the atmosphere

4. How does CO2 control the earth's temperature?
CO2 absorbs infared radiation. The more CO2 in the atmosphere, the more heat is absorbed and the less heat is lost through the atmosphere.

Critical Thinking

5. The essay states that climatologists have created computer models.
The computer models that climatologist have constructed may be based on the following assumptions

- Temperature increase of 0.6 degrees C in the last 100 years is significant
- Temperature change of 0.6 degrees C is due to the "Greenhouse Effect"

- Some climatologists believe that the many models in-exact because they do not take into account how clouds, oceans and volcanoes cool the earth.

6. Some scientists believe that the Greenland Ice Packs may have caused the global ice ages.

These scientists believe that lower CO2 concentrations resulted in extreme lower temperatures on earth. That may or may not be true. However this research does not prove that higher CO2 concentrations will result in higher temperatures.

7. Predict which nations would support or oppose regulations to control global warming.
a. Nation A- would support the regulation to control global warming. Nation A's population is located along the coast which could be flooded if the ice caps melt.
b. Nation B-would oppose any regulations. They would serve to benefit from a general increase in temperature and fewer frost free days during their growing season.
c. Nation C- would not have any strong feelings one way or the other. Nation C has more immediate problems that must be addressed first.

8. Would the committee's report be a reliable source for someone who wants to get an understanding of the issue?
No. This committee would not be a reliable source of information on global warming. The committee should have representatives that represent different models. It doesn't make sense to have a city planner involved for a world wide problem. It makes sense to have the committee be part of an international organization such as the United Nations. The United Nations does in fact have a United Nations World Climate Change Conference. In recent years the conference has been plagued with a lot of political disagreement among the nations who are participating.

9. Do you think Scientists should report finding before they have a complete understanding of the global warming issue?
I think that scientist have an ethical responsibility to report finding before the data an information is conclusive. Generally I believe that scientist should postpone publishing their findings (medical treatments, cancer etc) to not raise peoples hope to much. However with the global warming issue it would take many years to accumulate conclusive data and it may take even longer to move in the direction of a solution. It is important the world community has as much time as possible to work out a solution to global warming now while additional data is being collected.

10. Should we work on global warming now or leave it for future generations to solve?
I think it is better to move in the direction of a solution now. We are already making progress in enforcing emission standards on automobiles. It would not be smart to leave the problem for future generations. It is important that the new generations is educated about global warming so that they will be able to make informed decisions as adults.