



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
2007 Volume IV: The Science of Natural Disasters

Greenhouse Gases: The Chemistry Behind the Culprits

Guide for Curriculum Unit 07.04.05
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This curriculum unit will explore the climate change and global warming segments of the Global Interdependence content strand (9.8) of the Connecticut State Science Standards. The makeup of the Earth's atmosphere, differentiation between climate and weather, the transfer of solar energy, and the greenhouse effect are provided as introductory information within this unit.

The foci of this unit are the major gases responsible for the greenhouse effect: water vapor, fluorinated gases, methane, and carbon dioxide. Additionally the sources of these gases, the history of their release, their global warming potential, and contribution to the greenhouse effect are included. This unit includes the methods of global warming measurement, global warming trends and ecological changes that have been observed in addition to the potential changes scientists believe can occur. Alternative energy sources including solar cells, hydroelectricity, wind turbines, nuclear energy, and geothermal energy are discussed as possible solutions to global warming.

Students are required to utilize technology and apply it to content-based activities, which parallel the Science, Technology, and Society component of the Connecticut Academic Performance Test. Students will need to evaluate the credibility of Web sites in order to conduct Internet research, in addition utilizing Microsoft Excel to construct graphs.

(Developed for Physical Chemistry and Science, grade 9; recommended for Physical Chemistry and Science, grade 9, Chemistry, grade 11, and Environmental Science and Science, grades 10-12)

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