



"Air—The Sky's the Limit" Books and Videos for K-12



Chemists Celebrate Earth Day-April 22, 2009

Levels: (E) Elementary (K-5), (I) Intermediate (6-8), (HS) High School (9-12), (C) College, and (G) General Public.

NSTA Recommends: Titles from the National Science Teachers Association website <http://www.nsta.org/recommends>.

Reduce Your Carbon Footprint

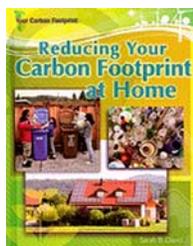


Bishop, Amanda. **How to Reduce Your Carbon Footprint.** (Energy Revolution) St. Catharines, ON: New York, 2008. (E,I)

This book explains what an individual's carbon footprint is and what can be done to make a difference. Special case studies show how these ideas are currently being put into practice around the world.

Hough, Richard. **You Can Save the Planet : A Day in the Life of Your Carbon Footprint.** London: A. & C. Black, 2007. (I, HS)

By examining activities undertaken during a typical day, at school, at home and out and about, this book shows the environmental costs hidden in these activities. Meals, chores, shopping and transportation are discussed.



Your Carbon Footprint series. New York: Rosen Central, 2009. (I, HS)

David, Sarah B. **Reducing Your Carbon Footprint at Home.**

Furgang, Kathy , and Adam Furgang. **On the Move : Green Transportation.**

Nagle, Jeanne. **Smart Shopping : Shopping Green.**

Nagle, Jeanne. **Reducing Your Carbon Footprint at School.**

Roza, Greg. **Reducing Your Carbon Footprint on Vacation.**

Your Carbon Footprint series helps students to consider the environmental implications of their lifestyles. Individual titles recommend specific choices for food purchases, saving energy, recycling and reusing materials, conserving water, using public transportation, ecotourism, and promoting green living through community action and advocacy.

Global Warming and Climate Change

Glaciers and Ice Caps: The Melting. New York: Ambrose Video Publishing, 2008. (I, HS)
NSTA Recommends

This video features experts explaining how global warming affects the cryosphere (glaciers, ice sheets, polar caps and sea ice). Includes an "Extras" folder with a teacher's guide, printable maps and graphics, and quiz component.

Cherry, Lynne, and Gary Braasch. **How We Know What We Know About Our Changing Climate: Scientists and Kids Explore Global Warming.** Nevada City, CA: Dawn Publications, 2008. (E, I)

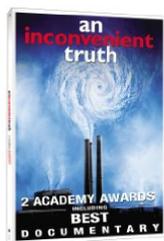
NSTA Recommends

Using maps and data collected in local efforts, citizen scientist students can explore the work of many leading scientists who study climate change and its effects on living things.

David, Laurie and Cambria Gordon. **The Down-to-Earth Guide to Global Warming.** 1st ed. New York: Orchard Books, 2007. (E, I)

Also available in Spanish: *Que Es El Calentamiento Global?* Barcelona: Oniro, 2008

Presents the basics on global warming, climate change, and how readers can green up the environment in an engaging, sometimes humorous manner.



Gore, Albert. **An Inconvenient Truth : The Crisis of Global Warming.** Rev. ed. New York: Viking, 2007. (I, HS)

Also available in Spanish: *Una Verdad Incómoda : Los Peligros Del Calentamiento Global Explicados a Los Jóvenes.* Barcelona, Gedisa Internacional, 2007 and in juvenile edition DVD from Paramount.

Former Vice President Al Gore presents the science and public policy of global warming.

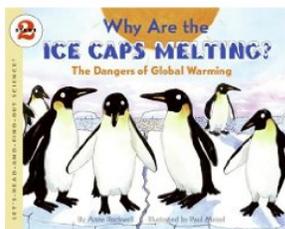
Johnson, Rebecca L. **Investigating Climate Change.** Minneapolis, MN: Lerner Publications Co., 2008.
(I, HS)

NSTA Recommends

An excellent beginning text for middle and high school level students, with a good bibliography, list of web resources and glossary.

Oxlade, Chris. **Global Warming. (Our Planet in Peril)** Mankato, MN: Bridgestone Books, 2003. (E, I)

Well-organized introduction to global warming that includes instructions for simple experiments.



Rockwell, Anne F. and Paul Meisel. **Why Are the Ice Caps Melting? : The Dangers of Global Warming. (Let's-Read-and-Find-out-Science)**

1st ed. New York: Collins, 2006. (E)

Discusses the greenhouse effect and what can be done to combat global warming.

Royston, Angela. **Global Warming.** Chicago, IL: Heinemann Library 2008. (E)

NSTA Recommends

Each chapter is formatted on a two-page spread and uses language and text appropriate to early elementary readers.

Rybolt, Thomas R. and Robert C. Mebane. **Environmental Experiments About Air. (Science Experiments for Young People)** Hillside, N.J.: Enslow Publishers, 1993. (E)

Uses text and experiments to provide information about the air and about pollution and other problems related to the atmosphere.

Stein, Paul. ***Global Warming: A Threat to Our Future***. New York: Rosen Publishing Group, Inc., 2001. (E, I)

NSTA Recommends

Uses accessible text and colorful pictures and diagrams to explain both natural and manmade factors that affect the temperature of the earth and its atmosphere.

Thornhill, Jan. ***This Is My Planet : The Kids' Guide to Global Warming***. Toronto: Maple Tree Press, 2007. (E, I)

NSTA Recommends

A book that focuses on how all living things are affected by global climate change. Photos, graphs and diagrams supplement the text.



Chemists
in the Library



CHEMISTRY CONNECTIONS

"Air—The Sky's the Limit" eResources for K-12 Chemists Celebrate Earth Day - April 22, 2009



Levels: (E) Elementary (K-5), (I) Intermediate (6-8), (HS) High School (9-12), (C) College, and (G) General Public.



America's Climate Choices (HS,C,G)

<http://dels.nas.edu/basc/climate-change>

Concerns about climate change have prompted calls for action at every level of government and across many sectors of our economy and society. In response to a request from Congress, the National Academies are launching America's Climate Choices, a suite of coordinated activities that will examine the serious and sweeping issues associated with global climate change, including the science and technology challenges involved, and provide advice on actions and strategies the nation can take to respond. Provided by: The National Academies.



CarbonCounter.org - Fight Climate Change (I,HS,C,G)

<http://www.carboncounter.org>

Every time we drive, fly, run appliances at home and keep our houses lighted, warm and cool, we emit carbon dioxide, trapping heat in the atmosphere. Be part of the solution and offset your emissions! Your tax deductible donation contributes to the development of new technologies and alternative energy that reduce carbon dioxide emissions. Take the first step, and calculate your carbon footprint. Provided by: The Climate Trust.



Center for International Earth Science Information Network (HS,C,G)

<http://www.ciesin.org/index.html>

CIESIN's mission is to provide access to and enhance the use of information worldwide, advancing understanding of human interactions in the environment and serving the needs of science and public and private decision making. CIESIN continues to focus on applying state-of-the-art information technology to pressing interdisciplinary data, information, and research problems related to human interactions in the environment. Provided by: Earth Institute, Columbia University.



ClimateChangeEducation.Org (E,I,HS,C,G)

<http://www.climatechangeeducation.com>

Created by volunteers: docents, scientists, teachers, students, artists... Based at California science museums, K-12 schools and University of California campuses. Hands-on science demonstrations is our specialty -- our principal contribution to the body of original educational material. An example is the Global Warming Discovery Demo -- a favorite at science centers and museums, in K 12 schools, UC classes, and at large community events. Much of our work is bridge-building, encouraging partnerships in education. The California Catalog, an online resource center, is a web version of this.



Earth: A Graphic Look at the State of the World (I,HS,C,G)

<http://www.theglobaleducationproject.org/earth/index.php>

A few years ago a group of educators from BC, Canada set out to try to get an objective look at the state of the world. They wanted The Big Picture, not just this or that issue, but the most essential points of every important issue. The Executive Summary of the state of the planet. This web site is the result of that search. The site (and the accompanying wall chart) are here to show you - in as clear, objective, and accessible a format as possible - the condition of the world -- both its natural and human elements. Provided by: The Global Education Project.



Earth Day Network (E,I,HS,C,G) (Translate a page in 8 languages using BabelFish)

<http://www.earthday.org>

The EDN grew out of the original Earth Day in 1970. Earth Day Network is a driving force steering environmental awareness around the world. Through EDN, activists connect, interact, and have an impact on their communities, and create positive change in local, national, and global policies. EDN's international network reaches over 17,000 organizations in 174 countries. Our domestic programs engage 5,000 groups and over 25,000 educators coordinating millions of community development and environmental protection activities throughout the year. Earth Day is the only event celebrated simultaneously around the globe by people of all backgrounds, faiths and nationalities. More than a billion people participate in Earth Day each year.



Earth Day - U.S. Government Portal (E,I,HS,C,G)

<http://www.earthday.gov>

Earth Day is a time to celebrate gains we have made and create new visions to accelerate environmental progress. Earth Day is a time to unite around new actions. Earth Day and every day is a time to act to protect our planet. Earthday.gov is a cooperative effort across the entire U.S. government.



EarthTrends- Environmental Information (I,HS,C,G)

www.earthtrends.wri.org/index.php

EarthTrends is an online collection of information regarding the environmental, social, and economic trends that shape our world. Much of the environmental information on the internet is fragmented, buried, or only available at a price. EarthTrends gathers data from the world's leading statistical agencies, along with WRI-generated maps and analyses, into a single database for rapid searching and retrieving. To facilitate the comparison of data from different sources, EarthTrends supplements its content with detailed metadata that reports on research methodologies and evaluates the information's reliability. All of these resources are made available to the public at no charge. Provided by: World Resources Institute



EduGreen: Making Environmental Learning Fun for the Young. (E,I)
www.edugreen.teri.res.in/index.asp

Explore the environment around you through the Life on earth, Forestry, Energy, Water, Air pollution, and Climate change. Enrich your knowledge through quizzes, maps, a time line, environmental laws, multimedia resources, and an environmental calendar. Provided by: The Energy & Resources Institute, New Delhi, India.



Energy Information Administration - Official Energy Statistics from the U.S. Government (E,I,HS,C,G)
www.eia.doe.gov

The Energy Information Administration (EIA), created by Congress in 1977, is a statistical agency of the U.S. Department of Energy. Our mission is to provide policy-neutral data, forecasts, and analyses to promote sound policy making, efficient markets, and public understanding regarding energy and its interaction with the economy and the environment. Includes a "Energy Kid's Page." Provided by: U.S. Department of Energy.



Global Footprint Network (I,HS,C,G) (Also in German)
www.footprintnetwork.org/en/index.php/GFN

Humans are the most successful species on the planet. But we are using more resources than the Earth can provide. An essential step in creating a one-planet future is measuring human impact on the Earth so we can make more informed choices. That is why our work aims to accelerate the use of the Ecological Footprint - a resource accounting tool that measures how much nature we have, how much we use, and who uses what. Provided by: Global Footprint Network.



The Greens - A Site for Kids About Looking After the Planet (E,I)
www.meetthegreens.org/

The GREENS is a site for kids about sustainability and green living. With The GREENS, we get kids thinking about the world and their place in it. The GREENS project is upbeat and optimistic. We encourage kids to make informed choices and meaningful changes. Through the animated episodic adventures, a blog, kids' mail, and regular updates, we explore green living, sustainability, ecology, environmental care, and social equity. We nudge kids to research, to challenge, to discover, and to take action wherever and whenever they can. Green Business named us as one of the "Ten Best Environmental Sites on the Web." Provided by: WGBH.



Intergovernmental Panel on Climate Change (HS,C,G) (Some content in 6 languages)
www.ipcc.ch/

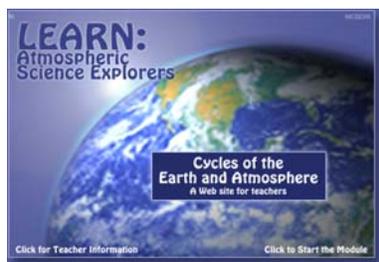
The IPCC was established to provide the decision-makers and others interested in climate change with an objective source of information about climate change. The IPCC does not conduct any research nor does it monitor climate related data or parameters. Its role is to assess on a comprehensive, objective, open and transparent basis the latest scientific, technical and socio-economic literature produced worldwide relevant to the understanding of the risk of human-induced climate change, its observed and projected impacts and options for adaptation and mitigation.



Koshland Science Museum - Global Warming Facts & Our Future (I,HS,C,G)

www.koshland-science-museum.org/exhibitgcc/index.jsp

Is the climate warming? Are we the cause? These questions are at the heart of today's public debate about global warming. Conflicting opinions are everywhere, but now is your chance to cut through the noise and discover the facts. This exhibition explores issues related to global warming, including possible implications of this phenomenon for the quality of life worldwide. Provided by: Marian Koshland Science Museum of the National Academy of Sciences.



LEARN: Atmospheric Science Explorers -- Cycles of the Earth and Atmosphere: A Web Site for Teachers (I)

www.ucar.edu/learn

The fundamental goal of both LEARN is to increase middle school science teacher knowledge of and interest in the atmospheric sciences. The three modules include background information, hands-on activities using simple materials, and authentic assessment tools. The modules were not designed to replace existing curricula or textbooks. Rather, they were intended to enhance earth and physical science programs by incorporating atmospheric science concepts. These modules were created by teachers for teachers. Provided by: University Corporation for Atmospheric Research.



LearnNet (E,I,HS,C)

www.rsc.org/education/teachers/learnnet/index.htm

LearnNet is for the use of teachers and students of chemistry at all levels. The network provides access to products and information relevant to the study of chemistry. Many resources are available free only on LearnNet. The entries are classified by experts in chemistry teaching to ensure that the best interests of the users are attended to at all times. Provided by: Royal Society of Chemistry.



Next Generation Earth - Stop Climate Change (I,HS,C,G)

www.nextgenerationearth.org

Commit to the Next Generation and join the fight against climate change. Join governments, companies, universities and individuals like yourself throughout the world to endorse a clean energy future. Provided by: Earth Institute, Columbia University.

Interactive Map Tool/U.S. Emissions Data (I,HS,C,G)

www.nextgenerationearth.org/maps



RealClimate – Climate Science from Climate Scientists (HS,C,G)

www.realclimate.org

RealClimate is a commentary site on climate science by working climate scientists for the interested public and journalists. We aim to provide a quick response to developing stories and provide the context sometimes missing in mainstream commentary. The discussion here is restricted to scientific topics and will not get involved in any political or economic implications of the science. All posts are signed by the author(s), except 'group' posts which are collective efforts from the whole team. This is a moderated forum.



Stabilization Wedges: A Concept and a Game (HS,C)

www.princeton.edu/wedges

To get on track to avoiding dramatic climate change, the world must avoid emitting about 200 billion tons of carbon, or eight 25 billion ton "wedges," over the next 50 years. This is the heart of CMI's "Stabilization Wedges" concept, a simple framework for understanding both the carbon emissions cuts needed to avoid dramatic climate change and the tools already available to do so. The Stabilization Wedges Game is a team-based exercise that teaches players about the scale of the greenhouse gas problem, plus technologies that already exist to dramatically reduce our carbon emissions and get us off the path toward dramatic and damaging climate change. Provided by: Carbon Mitigation Initiative, Princeton University



Take Action - Calculate Your Impact (I,HS,C,G)

www.conservation.org/act/live_green/Pages/default.aspx

Living green means knowing, acting, and sharing. To make responsible choices, you have to know about your impact. Then you can start making positive changes in your lifestyle. As you start to see the benefits of your decisions, share your stories with your friends and family. Living green can be an individual choice, but it can also be a community goal. Excellent site with many multimedia features. Provided by: Conservation International



Tiempo Climate Cyberlibrary (I,HS,C,G)

www.tiempocyberclimate.org

Includes Tiempo Climate Portal that provides access to carefully selected documents, websites and other resources concerned with climate and sustainable development. This site includes Tiempo Climate Newswatch, a weekly on-line magazine with news, features and comment on global warming, climate change, sea-level rise and development issues. Check out the Theme Sites which has annotated list of links on a variety of environmental, weather, and climate-related topics. Hosted by Climatic Research Unit, School of Environmental Sciences, University of East Anglia.



UN Cyberschoolbus (E,I,HS,G)

www.cyberschoolbus.un.org

The UN Cyberschoolbus captures the growing potential of the Internet as an educational tool and provides an effective medium with which to disseminate information and resources about international affairs, as well as bring together diverse communities of students and educators from around the world. Within the Cyberschoolbus site there are a number of activities and projects that teach students about global issues in an interactive, engaging and fun way. Their interactive database, InfoNation, contains accurate, official, and up-to-date information and statistics on the countries of the world. Provide by: United Nations.



U.S. Environmental Protection Agency - Climate Change (I,HS,C,G)

www.epa.gov/climatechange/index.html

EPA's Climate Change Site offers comprehensive information on the issue of climate change in a way that is accessible and meaningful to all parts of society - communities, individuals, business, states and localities, and governments

Climate Change for Kids (E,I)

www.epa.gov/climatechange/kids/index.html



The University Corporation for Atmospheric Research (I,HS,C,G)

www.ucar.edu

The University Corporation for Atmospheric Research (UCAR) promotes partnership in a collaborative community dedicated to understanding the atmosphere-the air around us- and the interconnected processes that make up the Earth system, from the ocean floor to the Sun's core. UCAR serves as a hub for research, education, and public outreach for the atmospheric and Earth system science community.

Kids' Crossing (E,I)

<http://www.eo.ucar.edu/kids/index.html>



World Meteorological Organization (I,HS,C,G)

www.wmo.int/pages/index_en.html

The WMO is a specialized agency of the United Nations. It is the UN system's authoritative voice on the state and behaviour of the Earth's atmosphere, its interaction with the oceans, the climate it produces and the resulting distribution of water resources.



Worldchanging - Change Your World (I,HS,C,G)

www.worldchanging.com

Worldchanging was founded on the idea that real solutions already exist for building the future we want. It's just a matter of grabbing hold and getting moving. Worldchanging is a media organization that comprises a global network of independent journalists, designers and thinkers covering the world's most intelligent solutions to today's problems. They inspire readers around the world with stories of the most important and innovative new tools, models and ideas for building a bright green future. Provided by: Worldchanging, Seattle.



WorldWatch Institute (I,HS,C,G)

www.worldwatch.org

The Worldwatch Institute is an independent research organization recognized by opinion leaders around the world for its accessible, fact-based analysis of critical global issues. Its mission is to generate and promote insights and ideas that empower decision makers to build an ecologically sustainable society that meets human needs



Zerofootprint: Footprint Kids Calculator (E,I)

www.zerofootprintkids.com/kids_home.aspx

The Zerofootprint Kid's Calculator measures the direct impact of a child's lifestyle on the planet. Their measurements are made in terms kids understand: carbon, land, water and trees. Provided by: ZeroFootprint.net

Reducing Your Carbon Footprint

Chemists Celebrate Earth Day 2009

American Chemical Society, Office of Community Activities

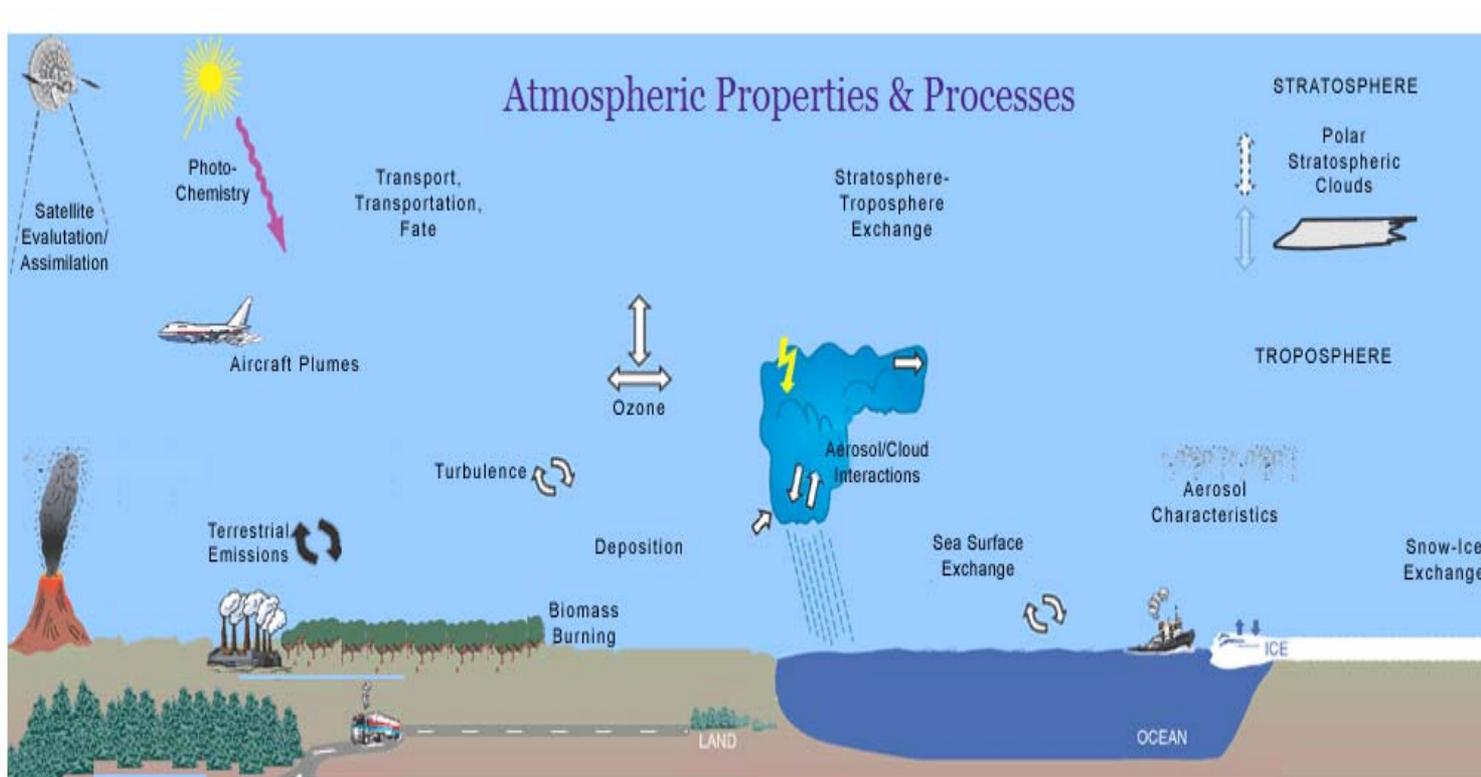
1-800-227-5558 x6097 or earthday@acs.org

Visit www.acs.org/earthday for hands-on activities, contests, local contacts and additional information!



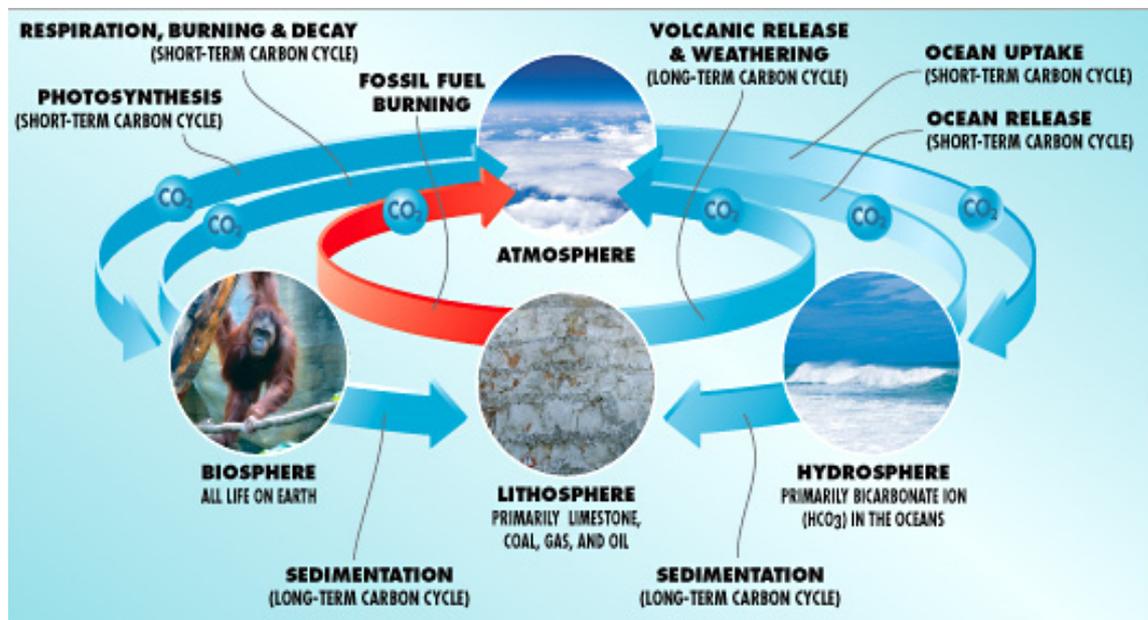


Atmospheric Properties & Processes



Reference: International Global Atmospheric Chemistry www.igac.noaa.gov/

Human Impact on the Carbon Cycle

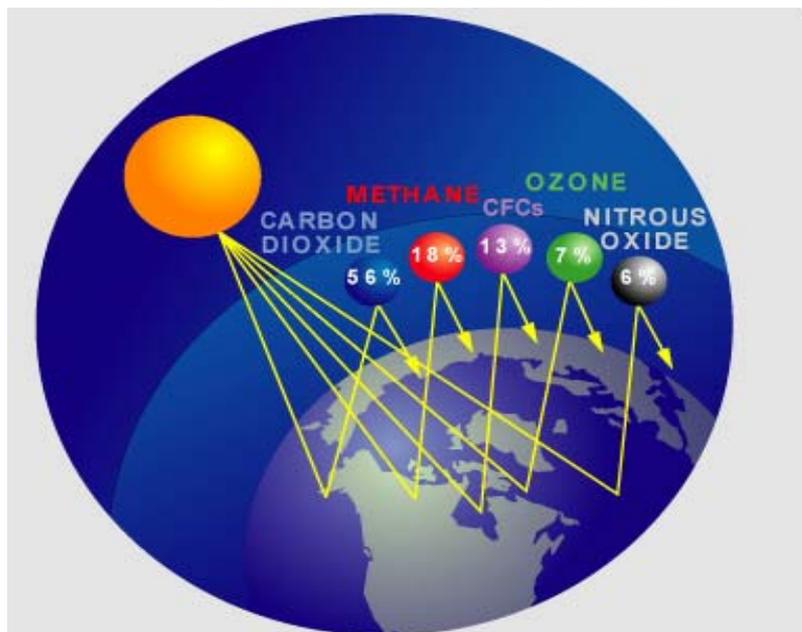


“The red arrow, representing rapid fossil fuel burning, indicates the main way in which humans affect the natural carbon cycle. Carbon dioxide (CO_2) levels are increasing because the natural system cannot keep pace with this new emission source. The natural processes that permanently remove this additional carbon - ocean uptake and sedimentation - work extremely slowly.”

Reference: Upsetting the Carbon Balance – Exhibit on Global Warming at Koshland Science Museum www.koshland-science-museum.org/exhibitgcc/carbon03.jsp



Major Human-Produced Greenhouse Gases



“Many natural and human-made gases contribute to the greenhouse effect that warms the Earth's surface. Water vapor (H_2O) is the most important, followed by: Carbon Dioxide (CO_2), Methane (CH_4), and Chlorofluorocarbons (CFCs).

This diagram shows the relative importance of the major human-produced greenhouse gases to current warming. CO_2 is the most important followed in descending order by CH_4 , CFCs, Ozone (O_3), and Nitrous Oxide (N_2O).”

Reference: CO_2 and Other Greenhouse Gas Variations – Exhibit on Global Warming at Koshland Science Museum www.koshland-science-museum.org/exhibitgcc/causes02.jsp



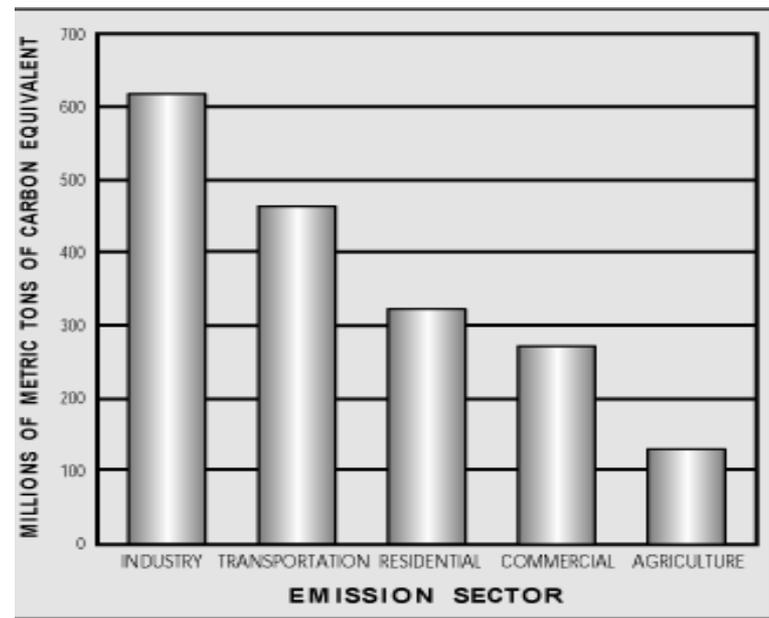
Human Activity and Greenhouse Gases-1997 Data



“The world’s economy runs on carbon: the “fuel” in fossil fuels. Coal, oil, and natural gas contribute energy to nearly every human endeavor in industrialized nations, and carbon dioxide (CO₂) is a by-product of burning these fuels.

This graph containing data for the U.S. illustrates how thoroughly fossil fuels and CO₂ emissions are integrated into American life.

CO₂ contributes more to the recent increase in greenhouse warming than any other gas. CO₂ persists in the atmosphere longer and longer as concentrations continue to rise.”



Reference: Human Activity and Greenhouse Gases – Exhibit on Global Warming at Koshland Science Museum

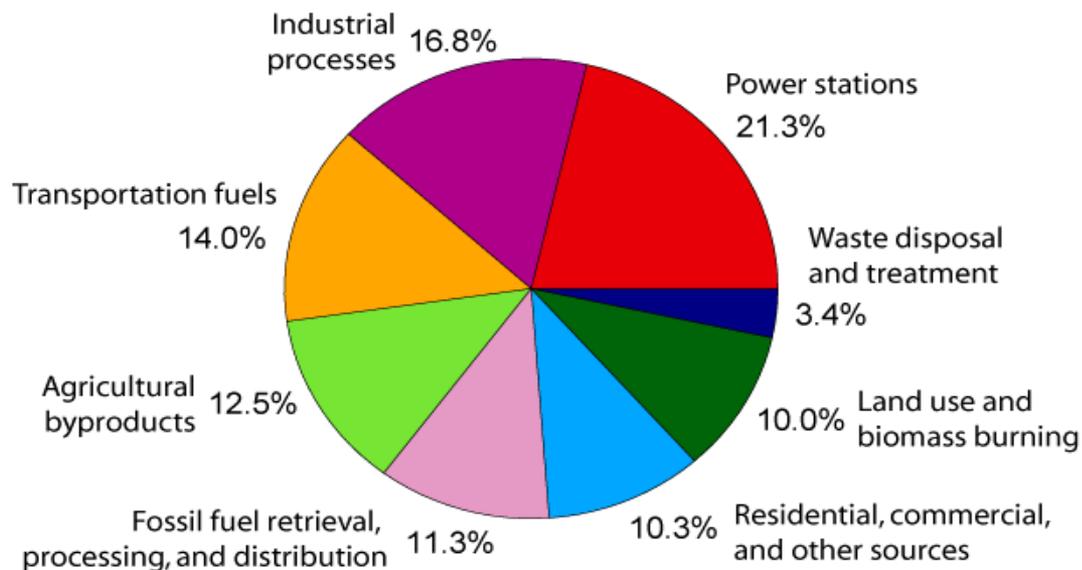
www.koshland-science-museum.org/exhibitgcc/causes03.jsp



Human Activity and Greenhouse Gases – Estimation Using 2000 Data



Annual Greenhouse Gas Emissions by Sector

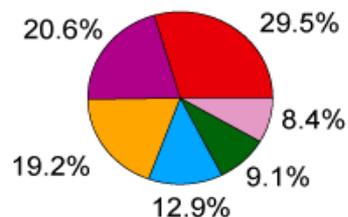


Global greenhouse gas emissions in the year 2000 weighted by their global warming potential and organized by sector. Based on estimation by the Emission Database for Global Atmospheric Research version 3.2, fast track 2000 project

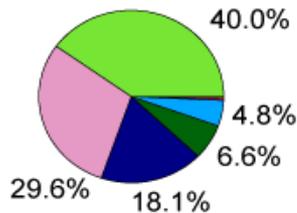
www.mnp.nl/edgar/model/v32ft2000edgar

Reference: Global Warming Art Greenhouse Gas by Sector

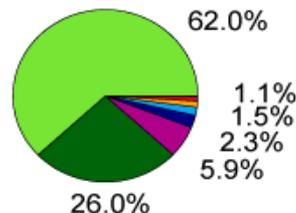
www.globalwarmingart.com/wiki/Image:Greenhouse Gas by Sector png



Carbon Dioxide
(72% of total)



Methane
(18% of total)



Nitrous Oxide
(9% of total)



Reducing Other Greenhouse Gases



“Methane is the second most significant cause of greenhouse warming, behind carbon dioxide. Cows are one of the world's greatest methane emitters because they exhale methane, a byproduct of the digestion of their grassy diet. The sheer size of cow herds makes a significant contribution to global warming.”

Source: Reducing Other Greenhouse Gases – Exhibit on Global Warming at Koshland Science Museum

www.koshland-science-museum.org/exhibitgcc/causes04.jsp



What You Can Do to Reduce Your Footprint



- Whether you are at home, buying food, on the road or at work, the energy you use in your daily life has an impact on climate change.



Reference: Global Warming – Reduce Your Carbon Footprint – Take Action
democrats.assembly.ca.gov/members/globalwarming/ad14/action.aspx



Take Action - At the Office



- **Recycle** glass, paper, aluminum and plastics.
- **Buy recycled paper** products and supplies.
- **Telecommute if possible.**
- **Turn down the air conditioning.**
- **Shutting off your computer** at closing time will reduce its carbon dioxide emissions by 83%.
- **Install a programmable light timer** that reduces light usage during off-peak hours.
- **Install a programmable thermostat**





Take Action - Inside the Home



- **Get a home energy audit** to find out if your home is poorly insulated or energy efficient. Many utility companies offer this service for free. Go to www.energystar.gov for more information or contact your local utility company.
- **Replace a regular incandescent light bulb** with a compact fluorescent bulb (CFL). Check for possible rebates from your utility company.
- **Move your thermostat down 2°** in the winter and up 2° in the summer.
- **Clean or replace filters** on your furnace and air conditioner.
- **Install window shading.**
- **Install a programmable thermostat.**





Take Action - Inside the Home



- **Look for the Energy Star® label** when choosing appliances.
- **Use less hot water**, by installing a low flow showerhead and washing your clothes in cold or warm water, instead of hot water.
- **Turn off and unplug appliances** not in use. Avoid using your appliances during peak hours, from 4pm to 6pm.
- **Turn down the thermostat** on the water heater and wrap your older model with a water heater blanket.
- **Switch to Green Power.**





Take Action - In the Kitchen



- **Support your local farmer.** Buying locally will save fuel and keep money in your community. To find a farmer's market in your area, visit Local Harvest - www.localharvest.org/
- **Mind the tap.** Conserve water in the kitchen and around the house and garden.
- **Buy fresh foods** instead of frozen. Frozen food uses 10 times more energy to produce and deliver.
- **Avoid heavily packaged products** and cut down on your garbage. Give back that extra napkin or sugar packet. Carry the gallon of milk by the handle instead of using a bag.
- **Buy organic foods.** Organic soils capture and store carbon dioxide at much higher levels than soils from conventional farms.
- **BYOB, Bring Your Own Bag**, when you visit the grocery store.
- **Clean your refrigerator's coils** and give it some breath





Take Action – On the Road



- **Cut back on driving** by walking, biking or taking public transportation.
- **Start a carpool** with your coworkers, classmates or friends.
- **Keep your car tuned up** and your tires properly inflated. Giving your engine a tune-up can improve gas mileage by more than 4%. Replacing a clogged air filter can boost efficiency by 10%. And keeping your tires properly inflated can improve gas mileage by more than 3%.
- **When purchasing a car**, choose a fuel efficient vehicle.
- **Fly less** and purchase "Carbon Offsets" to balance out your travel.
- **Travel Green.** When going on vacation or on a business trip, take your "green principles" with you.





What's the Size of Your Personal Footprint?



Earth Day Network Footprint Calculator www.earthday.net/footprint/index.html

- How much land area does it take to support your lifestyle?
- Find out your Footprint, discover your biggest areas of resource consumption, and learn what you can do to tread more lightly on the earth.



Consider a Career in Chemistry



- **In simplest terms, chemistry is the science of matter.** Anything that can be touched, tasted, smelled, seen or felt is made of chemicals.
- **Chemists are the people who transform the everyday materials around us into amazing things.** Some chemists work on cures for cancer while others monitor the ozone protecting us from the sun. Still others discover new materials to make our homes warmer in the winter, or new textiles to be used in the latest fashions. The knowledge gained through the study of chemistry opens many career pathways.”
- To learn more about careers in chemistry, see American Chemical Society > Careers > What Chemists Do > Profiles of Chemists at Work at www.acs.org



References



Gallery of Greenhouse Gases – Global Warming Art

www.globalwarmingart.com/wiki/Gallery_of_Greenhouse_Gas_Molecules

Global Warming - Reduce Your Carbon Footprint

democrats.assembly.ca.gov/members/globalwarming/ad14/action.aspx

International Global Atmospheric Chemistry (IGAC)

www.igac.noaa.gov/

Koshland Science Museum – Global Warming Facts & Our Future

www.koshland-science-museum.org/exhibitgcc/index.jsp

World of Molecules

www.worldofmolecules.com/

US Department of Energy

http://www1.eere.energy.gov/consumer/tips/home_energy.html

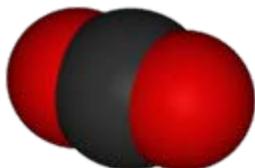
Carbon Foot Print

<http://www.carbonfootprint.com/minimisecfp.html>

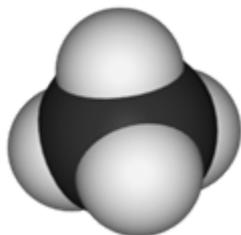
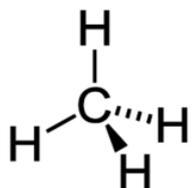
Additional Educational Material



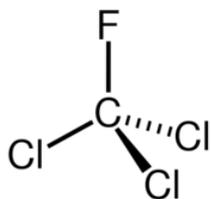
Learn More About Molecules - Greenhouse Gases



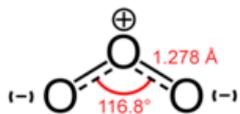
- Carbon Dioxide (CO₂)



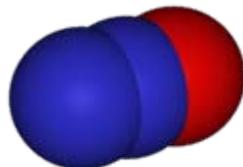
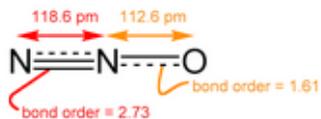
- Methane (CH₄)



- Chlorofluorocarbons (CFCs) (example:
Trichlorofluoromethane)



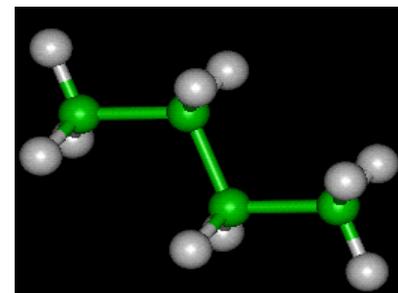
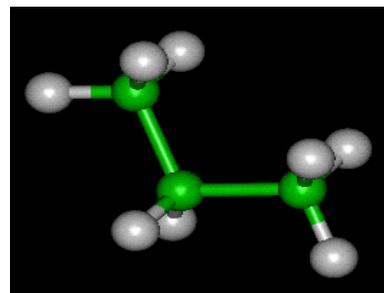
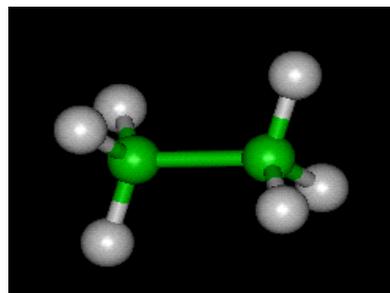
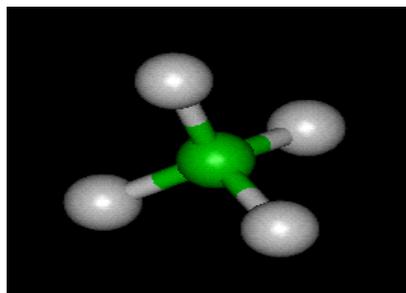
- Ozone (O₃)



- Nitrous Oxide (N₂O)



Learn More About Molecules – Natural Gas



Natural gas, which is about 80% Methane, with varying proportions of Ethane, Propane, and Butane, and is used as a fuel. For more information, please see:

References for Learn More About Molecules pages:

- Gallery of Greenhouse Gases – Global Warming Art
www.globalwarmingart.com/wiki/Gallery_of_Greenhouse_Gas_Molecules
- World of Molecules www.worldofmolecules.com/