



Teaching & Learning for a Sustainable Future Mobilizing to Save Civilization

A Special Evening with Lester R. Brown, Founder & President of Earth Policy Institute



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Council Members



Resource Packet For Educators

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TABLE OF CONTENTS

LESTER BROWN AND THE EARTH POLICY INSTITUTE

INFORMATION SHEET : LESTER BROWN, EARTH POLICY INSTITUTE	2
EARTH POLICY INSTITUTE MISSION	3
EARTH POLICY INSTITUTE PUBLICATION.....	4
EARTH POLICY INSTITUTE PRESS RELEASE.....	5

CLIMATE AND ENERGY

INFORMATION SHEET: CLIMATE AND ENERGY AT A GLANCE.....	6
RESOURCES.....	8
LESSON PLANS, ACTIVITIES, AND DISCUSSION QUESTIONS.....	10
VOLUNTEER/ACTION OPPORTUNITIES.....	12

POPULATION PRESSURE: PEOPLE, LAND, AND WATER

INFORMATION SHEET: PEOPLE, LAND, AND WATER AT A GLANCE	14
RESOURCES.....	15
LESSON PLANS, ACTIVITIES, AND DISCUSSION QUESTIONS.....	18
VOLUNTEER/ACTION OPPORTUNITIES.....	20

FOOD SECURITY

INFORMATION SHEET: FOOD SECURITY AT A GLANCE.....	22
RESOURCES.....	23
LESSON PLANS, ACTIVITIES, AND DISCUSSION QUESTIONS.....	30
VOLUNTEER/ACTION OPPORTUNITIES.....	32

DESIGNING CITIES FOR PEOPLE

INFORMATION SHEET: CITIES FOR PEOPLE AT A GLANCE.....	34
RESOURCES.....	35
LESSON PLANS, ACTIVITIES, AND DISCUSSION QUESTIONS.....	38
VOLUNTEER/ACTION OPPORTUNITIES.....	40

LESSON PLANS FEATURING STEM.....

NOTES FROM LESTER BROWN EVENT.....

USING THIS RESOURCE GUIDE

Packet published: 11/10 2009;

Websites checked: 11/10/2009

Please note: many descriptions were excerpted directly from the websites.

Each section in this packet contains:



Information



Resources



Lesson Plans



Volunteer/Action
Opportunities

Within these sections are:



Recommended Resources



Science, Technology,
Engineering, and Math
Lesson Plans or Activities



Educational Games



Maps



Video



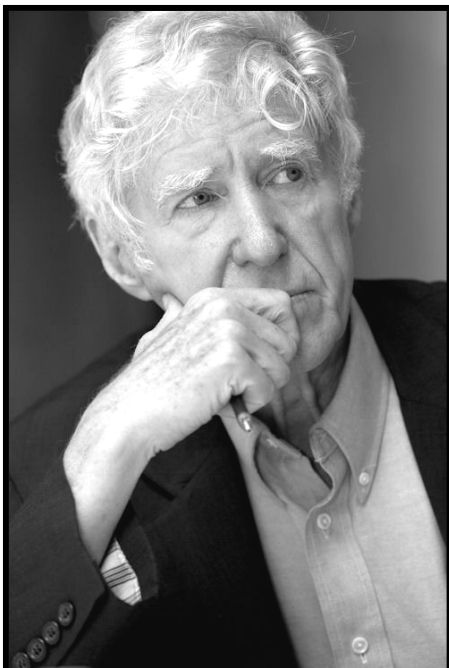
Photo Slideshows



Audio



LESTER BROWN BIOGRAPHY



The Washington Post calls Lester Brown "one of the world's most influential thinkers." *The Telegraph* of Calcutta refers to him as "the guru of the environmental movement." In 1986, the Library of Congress requested his personal papers noting that his writings "have already strongly affected thinking about problems of world population and resources."

Brown started his career as a farmer, growing tomatoes in southern New Jersey with his younger brother during high school and college. Shortly after earning a degree in agricultural science from Rutgers University in 1955, he spent six months living in rural India where he became intimately familiar with the food/population issue. In 1959 Brown joined the U.S. Department of Agriculture's Foreign Agricultural Service as an international agricultural analyst.

Brown earned masters degrees in agricultural economics from the University of Maryland and in public administration from Harvard. In 1964, he became an adviser to Secretary of Agriculture Orville Freeman on foreign agricultural policy. In 1966, the

Secretary appointed him Administrator of the department's International Agricultural Development Service. In early 1969, he left government to help establish the Overseas Development Council.

In 1974, with support of the Rockefeller Brothers Fund, Lester Brown founded the Worldwatch Institute, the first research institute devoted to the analysis of global environmental issues. While there he launched the Worldwatch Papers, the annual *State of the World* reports, *World Watch* magazine, a second annual entitled *Vital Signs: The Trends That are Shaping Our Future*, and the Environmental Alert book series.

Brown has authored or co-authored over fifty books. One of the world's most widely published authors, his books have appeared in some forty languages. Among his earlier books are *Man, Land and Food*, *World Without Borders*, and *Building a Sustainable Society*. His 1995 book *Who Will Feed China?* challenged the official view of China's food prospect, spawning hundreds of conferences and seminars.

In May 2001, he founded the Earth Policy Institute to provide a vision and a road map for achieving an environmentally sustainable economy. In November 2001, he published *Eco-Economy: Building an Economy for the Earth*, which was hailed by E.O. Wilson as "an instant classic." His most recent book is *Plan B 4.0: Mobilizing to Save Civilization*. Klaus Schwab of the World Economic Forum called it, "A great book which should wake up humankind!"

He is the recipient of many prizes and awards, including twenty-three honorary degrees, a MacArthur Fellowship, the 1987 United Nations' Environment Prize, the 1989 World Wide Fund for Nature Gold Medal, and the 1994 Blue Planet Prize for his "exceptional contributions to solving global environmental problems." More recently, he was awarded the Presidential Medal of Italy, the Borgström Prize by the Royal Swedish Academy of Agriculture and Forestry, and appointed an honorary professor of the Chinese Academy of Sciences.

Taken from the Earth Policy Press Room at http://www.earth-policy.org/index.php?/press_room/C64/



INFORMATION ABOUT THE EARTH POLICY INSTITUTE¹

MISSION

The Earth Policy Institute (EPI) was founded in 2001 by Lester Brown, the founder and former president of the Worldwatch Institute, to provide a plan of a sustainable future along with a roadmap of how to get from here to there. EPI works at the global level simply because no country can fully implement a Plan B economy in isolation.

EPI's goals are (1) to provide a global plan (Plan B) for moving the world onto an environmentally and economically sustainable path, (2) to provide examples demonstrating how the plan would work, and (3) to keep the media, policymakers, academics, environmentalists, and other decision-makers focused on the process of building a Plan B economy.

ACTIVITIES

People change behavior either in response to new information or new experiences. Earth Policy Institute disseminates new information to guide the process of change via its plan of a sustainable future as outlined in its Updates, Indicators, and books, the most recent of which is *Plan B 4.0: Mobilizing to Save Civilization*.

You can also download EPI's Annual Report, which outlines EPI's major accomplishments.

BOOKS

EPI publishes its basic research in book form simply because there is a worldwide network of book publishers in all the major languages, a network that does not exist for monographs or magazines. Having books available in the world's leading languages broadens the dissemination of its research findings. The Institute has published seven books.



UPDATES, INDICATORS, AND BOOK BYTES

Plan B Updates are original, four-page analyses of environmental issues ranging from worldwide advances in renewable energy to deaths from heat waves to new flows of environmental refugees.

Eco-Economy Indicators consist of the twelve trends EPI uses to measure progress toward building a Plan B world.

Book Bytes are highlights and adaptations from EPI's books and research.

All are released electronically on EPI's listserv and are posted on its website along with:

Plan B 4.0: Mobilizing to Save Civilization at www.earthpolicy.org

¹ Take from the Earth Policy Institute website: http://www.earth-policy.org/index.php?/about_epi/



EARTH POLICY INSTITUTE PUBLICATIONS

Plan B 4.0: Mobilizing to Save Civilization

Lester R. Brown

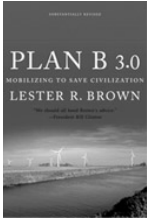
Brown argues that food may be the issue that convinces the world of the need to cut carbon emissions 80 percent by 2020. Every major environmental trend from climate change to deforestation and water scarcity affect food supplies. In this completely revised edition, Brown focuses on details of the plan and how it is already emerging in the energy economy. Released 2009.



Plan B 3.0: Mobilizing to Save Civilization

Lester R. Brown

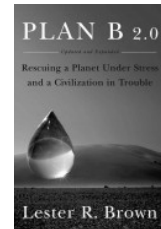
In this greatly revised edition, Brown outlines a survival strategy for our early twenty-first century civilization. The scale and complexity of the issues facing our fast-forward world have no precedent. Brown outlines an ambitious plan that includes cutting carbon emissions 80 percent by 2020, achievable with existing technologies. The choice is yours and mine. Released 2008.



Plan B 2.0: Rescuing a Planet Under Stress and a Civilization in Trouble

Lester R. Brown

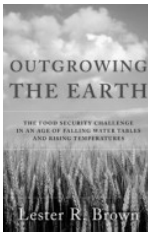
An expansion and update to Brown's best-selling *Plan B*. Here he outlines a plan, budget, and a timetable for rescuing our twenty-first century civilization. The plan includes eradicating poverty and stabilizing population, protecting and restoring soils, forests, rangelands, and fisheries, and conserving the earth's biological diversity. Released 2006.



Outgrowing the Earth: The Food Security Challenge in an Age of Falling Water Tables and Rising Temperatures

Lester R. Brown

In this groundbreaking work, Lester Brown documents the ways that human demands are outstripping the earth's natural capacities—and how the resulting environmental damage is undermining food production. In *Outgrowing the Earth*, Brown investigates these issues and outlines the steps needed to secure future food supplies. Released 2004.



Plan B: Rescuing a Planet Under Stress and a Civilization in Trouble

Lester R. Brown

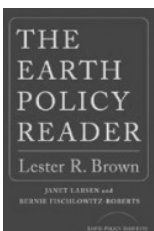
Rated one of the Top Ten Books of 2003 by the Globalist and winner of the National Library Wen-Jin Book Award (Chinese edition), *Plan B* calls for a worldwide mobilization to stabilize population and climate before they spiral out of control. It provides a plan for sustaining economic progress worldwide. Released 2002.



The Earth Policy Reader

Lester R. Brown, Janet Larsen, and Bernie Fischlowitz-Roberts

In scores of countries, converging ecological deficits are undermining local economies on a scale that has no precedent. In *The Reader*, the authors examine the economic costs of these ecological deficits. Released 2002.



Eco-Economy: Building an Economy for the Earth

Lester R. Brown

Eco-Economy provides a vision of an environmentally sustainable economy along with a roadmap on how to get from here to there. Farsi edition awarded Best Nonfiction book by the Peka Institute (Iran). Japanese edition rated the #1 translation by Asahi Shimbun. Released 2001.



Plan B 4.0: Mobilizing to Save Civilization at www.earthpolicy.org



Plan B 4.0: Mobilizing to Save Civilization

Environmental analyst Lester Brown releases a new edition of his landmark blueprint for avoiding climate catastrophe

As we watch the earth's climate changing at a pace that outstrips worst-case scenarios from leading scientists, we find ourselves in a race between political and natural tipping points on water depletion and climate change. In an attempt to mobilize our generation, Earth Policy Institute President, Lester R. Brown, has released an updated version of his prescription for saving civilization.

*"Can we move onto an economic path that is environmentally sustainable? We think we can. That is what **Plan B 4.0** is about."* - Lester R. Brown

Outlining a route to avoid environmental collapse, *Plan B 4.0* offers a bold new direction for the world economy and global leaders. The book's recommendations aim to protect climate, stabilize population, eradicate poverty, and restore the economy's natural support systems.

New In Plan B 4.0

OUR GROWING FOOD INSECURITY: THE WEAK LINK

- **The tripling of grain prices from 2006-2008 was trend-driven** (unlike event-driven surges in the past). Among the trends are the annual addition of eighty million people, three billion people moving up the food chain, and one fourth of the U.S. grain harvest being used to produce fuel for cars. On the supply side are falling water tables, eroding soils, and rising temperatures, all making humanity more vulnerable to food shortages.
- **Some 175 million Indians and 130 million Chinese are fed with grain irrigated by over pumping wells.**
- Saudi Arabia, Iran, and Yemen face similar challenges due to groundwater depletion.
- After decades of nutritional gains, **the number of hungry people has jumped from 825 million in the mid-1990s to over 1 billion in 2009.** Combined with rising food prices and intensifying competition for land and water, this trend has opened a disturbing new chapter in the politics of food scarcity.

TOWARD SOLUTIONS: HAVE WE REACHED A RENEWABLE ENERGY TIPPING POINT?

- The shift to renewable sources of energy is moving at a pace and on a scale we could not imagine even two years ago. Nationwide, **the United States installed 8,400 megawatts (MW) of new wind generating capacity in 2008**, while new coal plants only totaled 1,400 MW.
- The U.S. is not alone: China is working on **six wind farm mega-complexes with generating capacities of 10,000-30,000 MW** each, while in Europe, a corporate consortium is proposing to tap the massive solar thermal generating capacity of North Africa – a source that could power half of Europe.
- The **energy efficiency revolution has barely begun.** For instance, the electricity savings from adopting new lighting technologies would enable us to close 705 of the world's 2,670 coal-fired power plants.

Contact for additional information:

Lester R. Brown, Author & President (202) 496.9290 x11

Janet Larsen, Director of Research (202) 296.9290 x12

Plan B 4.0: Mobilizing to Save Civilization is available online for **free downloading** at www.earthpolicy.org



INFORMATION SHEET ABOUT CLIMATE AND ENERGY

WHAT IS GLOBAL WARMING?²

Carbon dioxide and other gases warm the surface of the planet naturally by trapping solar heat in the atmosphere. This is a good thing because it keeps our planet habitable. However, by burning fossil fuels such as coal, gas, and oil, and clearing forests we have dramatically increased the amount of carbon dioxide in the Earth's atmosphere and temperatures are rising. We're already seeing changes. Glaciers are melting, plants and animals are being forced from their habitat, and the number of severe storms and droughts is increasing.



The number of Category 4 and 5 hurricanes has almost doubled in the last thirty years.



Malaria has spread to higher altitudes in places like the Colombian Andes, 7,000 feet above sea level.



The flow of ice from glaciers in Greenland has more than doubled over the past decade.



At least 279 species of plants and animals are already responding to global warming, moving closer to the poles.

If the warming continues, we can expect catastrophic consequences:



Deaths from global warming will double to 300,000 people a year in just twenty-five years.



Global sea levels could rise by more than twenty feet with the loss of shelf ice in Greenland and Antarctica, devastating coastal areas worldwide.



Heat waves will be more frequent and more intense.



Droughts and wildfires will occur more often.



The Arctic Ocean could be ice free in summer by 2050.



More than a million species worldwide could be driven to extinction by 2050.

² An Inconvenient Truth, <http://www.climatecrisis.net/thescience>

INFORMATION ON ABOUT STABILIZING THE CLIMATE FROM PLAN B 4.0



STABILIZING THE CLIMATE: AN ENERGY EFFICIENCY REVOLUTION³

- **Lighting:** Shifting to more energy-efficient lighting alone lowers world electricity use by 12 percent.
- **Appliances:** If appliance efficiency is raised, the energy saved by 2020 should at least match the savings in the lighting sector.
- **Electricity & Coal:** It is easy to underestimate the potential for reducing electricity use. Within the United States, the Rocky Mountain Institute calculates that if the forty least efficient states were to achieve the electrical efficiency of the ten most efficient ones, national electricity use would be cut by one-third. This would allow the equivalent of 62 percent of all U.S. coal-fired power plants to be closed down.
- **Transportation:** In terms of transportation, the short-term keys to reducing oil use and carbon emissions involve shifting to highly fuel-efficient cars (including electric vehicles), diversifying urban transport systems, and building intercity rapid rail systems modeled on those in Japan and Europe.
- **Carbon Tax:** One simple way to achieve all these gains is to adopt a carbon tax that would help reflect the full cost of burning fossil fuels. We recommend increasing this carbon tax by twenty dollars per ton each year over the next ten years, for a total of two hundred dollars (fifty-five dollars per ton of CO₂), offsetting it with a reduction in income taxes. High though this may seem, it does not come close to covering all the indirect costs of burning fossil fuels. It does, however, encourage investment in both efficiency and carbon-free sources of energy.

STABILIZING THE CLIMATE: SHIFTING TO RENEWABLE ENERGY⁴

- **Localization of the world energy economy:** The twentieth century witnessed the globalization of the world energy economy as the entire world came to depend heavily on a handful of countries for oil, many of them in one region of the world. This century will witness the localization of the world energy economy as countries begin to tap their indigenous resources of renewable energy.
- **Localization of the world food economy:** The localization of the energy economy will lead to the localization of the food economy. For example, as the cost of shipping fresh produce from distant markets rises with the price of oil, there will be more local farmers' markets. Diets will be more locally based and seasonally sensitive than they are today. The combination of moving down the food chain and reducing the food miles in our diets will dramatically reduce energy use in the food economy.
- **Food security:** As world food insecurity mounts, more and more people will be looking to produce some of their own food in backyards, in front yards, on rooftops, in community gardens, and elsewhere, further contributing to the localization of agriculture.



³ Facts taken from Chapter 4: Stabilizing Climate: An Energy Efficiency Revolution. http://www.earth-policy.org/images/uploads/book_files/pb4cho4.pdf

⁴ Facts taken from Chapter 5: Stabilizing Climate: Shifting to Renewable Energy. http://www.earth-policy.org/images/uploads/book_files/pb4cho5.pdf



RESOURCES ON CLIMATE AND ENERGY

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

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



The EPA's climate change programs and activities are an integral part of the Agency's mission to protect human health and the environment. EPA's Climate Change website offers the public the most current and accurate information on the broad issue of climate change.

THE UNION OF CONCERNED SCIENTISTS (UCS)

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

The Union of Concerned Scientists is the leading science-based nonprofit working for a healthy environment and a safer world. UCS combines independent scientific research and citizen action to develop innovative, practical solutions, and to secure responsible changes in government policy, corporate practices, and consumer choices. The website includes an overview, solutions, and the science behind global warming.

WORLD VIEW OF GLOBAL WARMING

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



Since 2002, this website has born witness to ongoing changes on Planet Earth caused by global warming. The site includes photo essays and reports, which have been given background in comprehensive and authoritative detail by the world's climate scientists.

AN INCOVENIENT TRUTH

http://www.amazon.com/Inconvenient-Truth-Planetary-Emergency-Warming/dp/1594865671/ref=sr_1_1?ie=UTF8&s=books&qid=1257878340&sr=1-1

An Inconvenient Truth ties in with a documentary film of the same name. With this book, Gore brings together leading-edge research from top scientists around the world and personal anecdotes and observations to document the fast pace and wide scope of global warming. He presents, with alarming clarity and conclusiveness, and humor, that the fact of global warming is not in question and that its consequences for the world we live in will be disastrous if left unchecked. - *Adapted from Amazon.com's product description*



OUR CHOICE: A PLAN TO SOLVE THE CLIMATE CRISIS

http://www.amazon.com/Our-Choice-Solve-Climate-Crisis/dp/1594867348/ref=sr_1_1?ie=UTF8&s=books&qid=1257876794&sr=8-1

Properly understood, the climate crisis is an unparalleled opportunity to finally and effectively address many persistent causes of suffering and misery that have long been neglected, and to transform the prospects of future generations, giving them a chance to live healthier, more prosperous lives as they continue their pursuit of happiness.

Our Choice gathers in one place all of the most effective solutions that are available now and that, together, will solve this crisis. - *Al Gore, from the introduction*



STOP GLOBAL WARMING VIRTUAL MARCH

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



The Stop Global Warming Virtual March is a non-partisan effort to bring citizens together to declare that global warming is here now and that it is time to demand solutions. SGW believes the necessary first step must be to encourage Americans to take action. This online grassroots movement is about change—as individuals, as a country, and as a global community.

RESOURCES ON CLIMATE AND ENERGY



UNESCO: NATURAL SCIENCES

<http://www.unesco.org/science/>

The United Nations Educational, Scientific, and Cultural Organization has an easy to use website with thematic areas of interest such as science policy and sustainable development, renewable sources of energy, and fresh water.

NATIONAL RESOURCES

WESTERN REGIONAL CLIMATE CHANGE INITIATIVE



The governors of Arizona, California, New Mexico, Oregon, and Washington State agreed that they would develop a regional target to lower greenhouse gases and create a program aimed at helping businesses reach emission-reduction goals. You can read more about this Initiative by visiting Governor Chris Gregoire's website, <http://www.governor.wa.gov> or by typing, http://www.governor.wa.gov/news/2007-02-26_WesternClimateAgreementFinal.pdf.

NASA'S EARTH OBSERVATORY

<http://earthobservatory.nasa.gov/>

The purpose of NASA's Earth Observatory is to provide a freely-accessible publication on the Internet where the public can obtain new satellite imagery and scientific information about our home planet. The focus is on Earth's climate and environmental change.

SIERRA CLUB: GLOBAL WARMING AND CLEAN ENERGY

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

This special page from the Sierra Club provides resources on how to promote solutions to global warming using current and cutting-edge technology that will reduce our use of fossil fuels. By switching to energy efficient cars and trucks, and clean, renewable energy, the Sierra Club believes we can curb global warming pollution, save consumers money, and curtail our reliance on oil.

LOCAL RESOURCES

STEP IT UP SEATTLE



<http://stepitupseattle.org/>

This website contains information on "Step It Up," the grassroots campaign that helped sponsor the National Day of Climate Action which took place on April 14, 2007. It also contains helpful websites and resources for policy steps to reduce global warming and events taking place locally regarding greenhouse gas reduction.

CLIMATE SOLUTIONS

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

Climate Solutions is a Northwest non-profit organization, formed through a merger between Atmosphere Alliance and Energy Outreach Center in late 1998. Climate Solutions' mission is to accelerate practical and profitable solutions to global warming by galvanizing leadership, growing investment, and bridging divides. This organization is generating fresh political momentum for energy and transportation solutions that benefit the region's economy and quality-of-life.



LESSON PLANS ABOUT CLIMATE AND ENERGY



BBC SCHOOLS: ENERGY AND THE ENVIRONMENT

<http://www.bbc.co.uk/schools/gcsebitesize/geography/energy/energydemandrev5.shtml>

The BBC Schools program devotes a webpage to energy issues and the environment. In particular, it looks at the implications of global warming and provides a comprehensible map, which contrasts global economic development with emissions of carbon dioxide.

GLOBAL WARMING INTERNATIONAL CENTER (GWIC)

<http://globalwarming.net/>

The Global Warming International Center (GWIC) is the international body disseminating information on global warming science and policy, serving both governmental, non-governmental organizations, and industries in more than 145 countries. It sponsors unbiased research supporting the understanding of global warming and its mitigation. The Global Warming International Center sponsors the annual Global Warming International Conference & Expo and the Executive Workshop on Industry Technology and Greenhouse Gas Emission, which facilitates international exchange and provides the most up-to-date hands-on workshop for corporation and utilities executives. It also provides students with basic information on global warming.



NATURAL RESOURCES DEFENSE COUNCIL (NRDC)

<http://www.nrdc.org/globalWarming/>

The Natural Resources Defense Council (NRDC) is the nation's most effective environmental action organization. The Council uses law, science, and the support of 1.2 million members and online activists to protect the planet's wildlife and wild places and to ensure a safe and healthy environment for all living things. Among other issues, the Council provides in brief and in depth articles about global warming, as well as related links. It also includes a kids program, the "Green Squad." The "Green Squad" teaches kids about the relationship between their schools and environmental and health issues. The site is designed primarily for students in fifth through eighth grade, but also offers information for younger and older students, as well as parents and teachers.



TIME FOR KIDS: GLOBAL WARMING

<http://www.timeforkids.com/TFK/specials/articles/0,6709,1113542,00.html>

Time for Kids is a weekly classroom news magazine that motivates kids to read! Issues cover a wide range of real-world topics kids love to learn about. A powerful teaching tool, *Time for Kids* builds reading and writing skills and is easily integrated across your curriculum, including social studies, science, and math. *Time for Kids* devotes a special report to global warming, including news, Q & A, games, ways to help, and student reports. In addition, this magazine provides teachers with K-6 lessons plans on global warming, water conservation, recycling, and energy, among others. Access these great resources by visiting <http://www.timeforkids.com/TFK>.



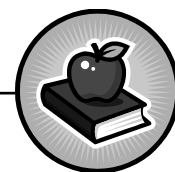
EIA ENERGY KIDS PAGE

<http://www.eia.doe.gov/kids>

The EIA also has a website for kids, geared for grades K-12. There are links to classroom activities, energy facts, fun and games, and a glossary. It provides useful statistics, facts, and background histories on the basics: oil, natural gas, solar and wind power, and the science of energy.



LESSON PLANS ABOUT CLIMATE AND ENERGY



NEW YORK TIMES: ADDING FUEL TO THE FIRE

<http://www.nytimes.com/learning/teachers/lessons/20031023thursday.html>

This website is from the Daily Lesson Plan collection, published by the *New York Times*. Students will look at the impact of China's growth in fuel consumption (global warming and the greenhouse effect), and then explore how these issues are affecting countries with both growing and high-energy usage. Then, students will graph their findings and write papers considering how continued usage could affect the future of the atmosphere and the global economy. Lesson plans are included for grades 6-8 and 9-12.



"CHINA'S ENVIRONMENTAL CHALLENGE"

HUMANS AND THE ENVIRONMENT- HIGH SCHOOL CBA

<http://www.world-affairs.org/globalclassroom/CBA.htm#ChinaEnvironment>

With its intense economic growth, huge population, and rising energy consumption, China now faces many serious environmental problems. In this curriculum unit, students will learn about China's current environmental situation and explore the complex challenges facing the leadership and the peoples of this diverse land. This unit includes an environmental quiz and extensive fact sheets. In a role-playing exercise, students will use primary sources to explore multiple perspectives and points of view. From the World Affairs Council.



WEATHER SCOPE: AN INVESTIGATIVE STUDY OF WEATHER AND CLIMATE

<http://www.ciese.org/curriculum/weatherproj2/en/guidelessons.shtml>

In this project you will conduct an investigation on local and world weather and climate. To complete your investigation, you will have at your disposal detailed instructions that describe how to create weather instruments, how to access the Internet to locate real-time weather information from around the world, and this online educational project to guide you along.

CLIMATE CHANGE NORTH

http://climatechangenorth.ca/section-LP/C1_Lesson_plans.html

The lesson plans in Climate Change North are specifically designed to help northern students "get into" the topic of climate change. Developed by northern teachers and educators, all lessons are linked to the curriculum learning outcomes for your region.

CLIMATE CLASSROOM: WHAT'S UP WITH GLOBAL WARMING?

<http://www.nwf.org/ClimateClassroom/teens/lessonplans.cfm>

Climate Classroom Lesson Plans offer educators a way to connect with students using activity-oriented scenarios and cooperative projects. Lessons are tailored for high school students and are aligned with established teaching standards. All educational materials use timely environmental topics to get vital compelling science instruction into classrooms.



ALLIANCE FOR CLIMATE EDUCATION

<http://www.youtube.com/watch?v=vcVVroug8vo>

Alliance for Climate Education aims to inspire, educate, and empower students in the fight against global warming. They believe that young adults can have a substantial and near-term positive impact on the global climate crisis. Southern California educators, Ethan and Sophie, were so impressed by the students at FSHA that we asked them their reactions after the presentation.



VOLUNTEER/ACTION OPPORTUNITIES FOR TEACHERS AND STUDENTS INVOLVING CLIMATE AND ENERGY

ENGAGE KIDS IN FIGHTING GLOBAL WARMING

http://www.seattlecan.org/featured_news_archive.htm#Featured5Seattle

Climate Action Now is announcing a great new way to engage kids in fighting global warming. "Shrinking Bigfoot" encourages students to play an active role in protecting our planet by shrinking their own carbon footprints with easy, everyday choices. Find out more and sign up for free, fun, live-theater assembly performances, classroom presentations and teacher trainings throughout Seattle City Light's service territory at:
<http://www2.seattle.gov/exploreenenergy/>

VOLUNTEER AT GREEN SEATTLE DAY

http://www.seattlecan.org/featured_news_archive.htm

Have fun, bring the kids, help protect our water, wildlife, and climate! Join your neighbors planting trees and shrubs during our biggest volunteer event of the year—Green Seattle Day takes place in early November (check website calendar), at a park near you.

KIDS CLIMATE DAY IN SEATTLE

http://www.seattlecan.org/featured_news_archive.htm#kids

Join the Seattle Art Museum and Climate Action Now for an Earth Day celebration at the Olympic Sculpture Park! Learn about climate change and what actions your family can take to reduce your carbon footprint—including car-free transportation, green energy choices, and sustainable food. Kids Climate Day takes place in early spring, usually April. Check the online calendar at <http://www.seattleartmuseum.org/>.



SEATTLE GREEN FESTIVAL

http://www.seattlecan.org/featured_news_archive.htm#kids

Seattle will host its third-annual Green Festival in 2010. The festival will present limitless tips on sustainable living, expert presentations on the new green economy, live music, among other events. Check the online calendar for details.

CHECK OUT SEATTLE CLIMATE ACTION NOW EVENTS

<http://www.seattlecan.org/events/index.htm>

Seattle Climate Action Now is involved in lots of great events throughout the year. Check out our events calendar to find out how you can get involved.

VOLUNTEER WITH EARTH CORPS

<http://www.earthcorps.org/volunteer.php?dateId=692>

Volunteering is a great way to get involved in your community and to make new friends. EarthCorps provides volunteer opportunities for individuals and/or groups to work on trails, remove invasive plants, and plant native species. See photos and read volunteer reviews on our sample events page. You can also complete Service Learning hours for school credit.

{ EarthCorps gives school presentations!
Contact Eileen Lambert, Development Manager
eileen@earthcorps.org, 206.322.9296 x 101 }

VOLUNTEER/ACTION OPPORTUNITIES FOR TEACHERS AND STUDENTS INVOLVING CLIMATE AND ENERGY



JOIN EARTH CORPS ON FACEBOOK

<http://www.facebook.com/pages/Earthcorps/22887924320>

FOLLOW EARTH CORPS ON TWITTER

<http://twitter.com/earthcorps>

JOIN THE SIERRA CLUB AT ONE OF THEIR EVENTS

<http://cascade.sierraclub.org/events>

The Cascade Chapter sponsors numerous events throughout the year. Check out our month-at-a-glance calendar, or view detailed listings of outings and meetings.

WHAT KIDS CAN DO TO REDUCE THEIR CARBON FOOTPRINT

<http://www.pewclimate.org/WhatYouCanDo/tips#AtHome>

WHAT KIDS CAN DO ABOUT GLOBAL WARMING

<http://www.pewclimate.org/global-warming-basics/kidspage.cfm>

There's a lot you can learn about global warming. To help, this site provides answers to six key questions about global warming, how it occurs, and how you can help to stop the process.

TEN THINGS TO DO⁵

Want to do something to help stop global warming?

Here are 10 simple things you can do and how much carbon dioxide you will save doing them.

- **Change a light:** Replacing one regular light bulb with a compact fluorescent light bulb will save 150 pounds of carbon dioxide a year.
- **Drive less:** Walk, bike, carpool or take mass transit more often. You will save one pound of carbon dioxide for every mile you don't drive!
- **Recycle more:** You can save 2,400 pounds of carbon dioxide per year by recycling just half of your household waste.
- **Check your tires:** Keeping your tires inflated properly can improve gas mileage by more than 3%. Every gallon of gasoline saved keeps 20 pounds of carbon dioxide out of the atmosphere!
- **Use less hot water:** It takes a lot of energy to heat water. Use less hot water by installing a low flow showerhead and washing your clothes in cold or warm water (850 pounds of CO₂ per year).
- **Avoid products with a lot of packaging:** You can save 1,200 pounds of carbon dioxide if you cut down your garbage by 10%.
- **Adjust your thermostat:** Moving your thermostat down just 2 degrees in winter and up 2 degrees in summer. You could save about 2,000 pounds of carbon dioxide a year with this simple adjustment.
- **Plant a tree:** A single tree will absorb one ton of carbon dioxide over its lifetime.
- **Turn off electronic devices:** Simply turning off your television, DVD player, stereo, and computer when you are not using them will save you thousands of pounds of carbon dioxide a year.

⁵ An Inconvenient Truth, <http://www.climatecrisis.net/pdf/10things.pdf>



INFORMATION SHEET ON POPULATION PRESSURE: PEOPLE, LAND, AND WATER

COMPETITION FOR RESOURCES: LAND AND WATER⁶

As land and water become scarce, competition for these vital resources intensifies within societies, particularly between the wealthy and those who are poor and dispossessed. The shrinkage of life-supporting resources per person that comes with population growth is threatening to drop the living standards of millions of people below the survival level, leading to potentially unmanageable social tensions.

LAND

Access to land is a prime source of social tension. Expanding world population has cut the grainland per person in half, from 0.23 hectares in 1950 to 0.10 hectares in 2007. One tenth of a hectare is half of a building lot in an affluent U.S. suburb. This ongoing shrinkage of grainland per person makes it difficult for the world's farmers to feed the seventy million people added to world population each year. The shrinkage in cropland per person not only threatens livelihoods; in largely subsistence societies, it threatens survival itself. Tensions within communities begin to build as landholdings shrink below that needed for survival.



WATER

Disagreements over the allocation of water among countries that share river systems is a common source of international political conflict, especially where populations are outgrowing the flow of the river. Nowhere is this potential conflict starker than among Egypt, Sudan, and Ethiopia in the Nile River valley. Agriculture in Egypt, where it rarely rains, is wholly dependent on water from the Nile. Egypt now gets the lion's share of the Nile's water, but its population of seventy-five million is projected to reach one hundred twenty-one million by 2050, thus greatly expanding the demand for grain and water. Sudan, whose thirty-nine million people also depend heavily on food produced with Nile water, is expected to have seventy-three million by 2050. And the number of Ethiopians, in the country that controls 85 percent of the river's headwaters, is projected to expand from eighty-three million to one hundred eighty-three million.



In the Aral Sea basin in Central Asia, there is an uneasy arrangement among five countries over the sharing of the two rivers, the Amu Darya and the Syr Darya, that drain into the sea. The demand for water in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan already exceeds the flow of the two rivers by 25 percent. Turkmenistan, which is upstream on the Amu Darya, is planning to develop another half-million hectares of irrigated agriculture. Racked by insurgencies, the region lacks the cooperation needed to manage its scarce water resources. Geographer Sarah O'Hara of the University of Nottingham who studies the region's water problems, says, "We talk about the developing world and the developed world, but this is the deteriorating world."

⁶ Adapted from Chapter 1, "Entering a New World," in Lester R. Brown, *Plan B 3.0: Mobilizing to Save Civilization* (New York: W.W. Norton & Company, 2008), available for free downloading and purchase at www.earthpolicy.org/index.php?/books/pb3.



POPULATION PRESSURE

FAMILY HEALTH INTERNATIONAL: IMPROVING REPRODUCTIVE HEALTH CHOICES AND SERVICES

<http://www.fhi.org/en/RH/index.htm>

Family Health International, one of America's largest non-profit international biomedical research and technical assistance organizations, is committed to assisting the people of the developing world in planning for healthy families and improving their reproductive health. This includes assuring contraceptive safety, preventing the spread of HIV, and other sexually transmitted diseases, improving maternal care, and facilitating access to quality reproductive health services. FHI also works to close gaps in service delivery and bring the best evidence to bear on health programs and policies. There are links on this page to country profiles and their status on reproductive health.

EMBARQ: THE WRI CENTER FOR TRANSPORT AND THE ENVIRONMENT

<http://embarq.wri.org/en/index.aspx>

Embarq has an interesting agenda to alleviate traffic congestion and pollution problems all at once. As the population of cities in the developing world swell, administrators, entrepreneurs, and organizations have to think of innovative ways to relieve the symptoms of over-population. One of the unspoken challenges of the twenty-first century will be to stop mass poverty and environmental degradation from engulfing developing cities of today and tomorrow. For the past three years EMBARQ—the transport and environment center founded by the World Resources Institute (WRI) and the Shell Foundation—has risen to the challenge by establishing a string of sustainable mobility projects with major cities across the world.

ETHIOPIAN FARMERS TALK ABOUT POPULATION PRESSURE

<http://www.populationaction.org/blog/2008/12/we-farmers-dont-have-access.html>

As the world focuses on the outcomes of the meeting on climate change that just concluded in Poznan, Poland, I am sitting in a workshop in Nazret, Ethiopia, listening to a panel of farmers talking about the effects of climate change on their lives – less rain, lower crop yields, malaria, no milk for their children. The farmers, from Amhara Region in the Rift Valley, talked about population pressure.

POPULATION ACTION INTERNATIONAL

http://www.populationaction.org/About_PA/Index.shtml

Population Action International works to ensure that every person has the right and access to sexual and reproductive health, so that humanity and the natural environment can exist in balance and fewer people live in poverty.

EARTH SYSTEM VISIONING

<http://www.icsu-visioning.org/2009/09/where-how-will-population-pressure-climate-change-affect-the-availability-of-freshwater/>

Where and how will population pressure and climate change affect the availability of freshwater for human needs and diverse ecological communities? Regional patterns of population pressure and human demands for freshwater will likely interact with the effects of climate change to alter the distribution and availability of freshwater across the face of the globe. Humans and freshwater/estuarine ecosystems will both suffer.



RESOURCES ABOUT POPULATION PRESSURE: PEOPLE, LAND, AND WATER

WATER

INTERNATIONAL RIVERS NETWORK (IRN)

<http://www.irn.org>

IRN supports local communities working to protect their rivers and watersheds. This organization works to halt destructive river development projects, and to encourage equitable and sustainable methods of meeting needs for water, energy, and flood management.

INTERNATIONAL WATER MANAGEMENT INSTITUTE (IWMI)

<http://www.iwmi.cgiar.org>

IWMI is a non-profit scientific organization funded by the Consultative Group on International Agricultural Research (CGIAR). IWMI's research agenda is organized around four priority themes covering key issues relating to land, water, livelihoods, health, and environment. The Institute concentrates on water and related land management challenges faced by poor rural communities. The challenges are those that affect their nutrition, livelihoods, and health, as well as the integrity of environmental services on which these depend.

LEADERSHIP FOR ENVIRONMENT AND DEVELOPMENT INTERNATIONAL (LEAD)

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

Leadership for Environment and Development International is a global network of individuals and nongovernmental organizations, committed to sustainable development.

WATER LIBRARY

<http://www.wateryear2003.org/en/ev.php->

[URL_ID=2651&URL_DO=DO_TOPIC&URL_SECTION=201.html](http://www.wateryear2003.org/en/ev.php-URL_ID=2651&URL_DO=DO_TOPIC&URL_SECTION=201.html)

The water library provides a selection of websites, online publications, books, and reports classified by theme. This site is helpful for learning more about water issues and researching about the state of our freshwater resources.

WATER PARTNERS INTERNATIONAL

<http://www.water.org>

Water Partners International's goal is to draw attention to unsafe and inadequate water supplies and to raise funds to help fight this immense problem one community at a time. Their site has a useful page entitled "What you can do" that contains information for children and schools on how they can involve themselves in supporting sustainable water projects.

THE WORLD'S WATER

<http://www.worldwater.org>

This site is dedicated to providing up-to-date water information, data, and web connections to organizations, institutions, and individuals working on a wide range of global freshwater problems and solutions. It has data concerning water laws and policies, table, charts, and maps pertaining to freshwater and water links. *The World's Water 2006-2007: The Biennial Report on Freshwater Resources* is also available through this website.



LAND

ENVIRONMENTAL LITERACY COUNCIL

<http://www.enviroliteracy.org/subcategory.php?id=1>

For more than a decade, the Environmental Literacy Council has been dedicated to helping teachers, students, policymakers, and the public find cross-disciplinary resources on the environment. An independent, 501(c)3 organization, the Council offers free background information on common environmental science concepts; vetted resources to broaden understanding; and curricular materials that don't tell teachers how to teach, but give them the tools to augment their own backgrounds—no matter what their current knowledge.

UNESCO: NATURAL SCIENCES

<http://www.unesco.org/science/>

The United Nations Educational, Scientific, and Cultural Organization has an easy to use website with thematic areas of interest such as science policy and sustainable development, renewable sources of energy, and fresh water.

ENVIRONMENT ACTION

<http://www.environmental-action.org/>

Environment Action's mission is to deliver impassioned, results-oriented activism that protects the environment from special interest polluters and their allies in government. Environment Action's offices are located across the country.

NATIONAL ENVIRONMENTAL TRUST (NET)

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

The National Environmental Trust is a non-profit, non-partisan organization established in 1994 to inform citizens about environmental problems and how they affect health and quality of life. NET's public education campaigns use modern communication techniques and the latest scientific studies to translate complex environmental issues for citizens. NET also works in states across the country to localize the impacts of national problems, as well as to highlight opportunities for Americans to engage in the policymaking process.

SIERRA CLUB

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

The Sierra Club is America's oldest, largest, and most influential grassroots environmental organization. They have a membership database of more than 1.3 million people and offer a wealth of resources and volunteer opportunities throughout the country.

LEAVE NO TRACE: CENTER FOR OUTDOOR ETHICS

<http://www.lnt.org/main.html>

The Leave No Trace Center for Outdoor Ethics is an international nonprofit organization dedicated to promoting and inspiring responsible outdoor recreation through education, research, and partnerships. They are well known for their development of the seven Leave No Trace principles which have been helpful in promoting stewardship in the outdoors.



LESSON PLANS ABOUT POPULATION PRESSURE: PEOPLE, LAND, AND WATER

THE SCIENCE SPOT



<http://www.sciencespot.net/Pages/nclssltnks.html>

The Science Spot is a helpful website for junior high teachers and students who want to implement environmental education into their curriculum. Biodiversity activities, climatograms, and plenty of information on other environmental topics are available.

ENVIRONMENTAL PROTECTION AGENCY (EPA) PROGRAM: TEACHER RESOURCES



<http://www.epa.gov/teachers/teachresources.htm>

The Environmental Protection Agency's (EPA) website for teachers contains numerous websites, documents, and lesson plans based on air, conservation, ecosystems, human health, local issues, waste, recycling, and water issues.

POPULATION REFERENCE BUREAU (PRB): POPULATION EDUCATION PROGRAM

<http://www.prb.org/Educators.aspx>

The PRB site contains a variety of lesson plans, teaching guides, and resources about population issues, trends, and their implications. Making Population Real, their module for AP Human Geography, won the 2006 Geography Excellence in Media (GEM) Award from the National Council for Geographic Education.

POPULATION GROWTH PROJECT



<http://k12science2.ciese.stevens-tech.edu/curriculum/popgrowthproj/>

This project, created by the Stevens Institute of Technology, includes a series of activities for students on the mathematic and environmental aspects of population growth. Students use information from the Census Bureau to model population growth and can submit their work to be published online. The activity website also includes a Teacher Guide and a list of experts and references for more information.

FACING THE FUTURE: EVERY DROP COUNTS!



<http://www.facingthefuture.org/Curriculum/DownloadFreeCurriculum/tabid/114/Default.aspx>

A series of water-related lesson plans beginning with a water trivia game and a short demonstration of how much of the earth's water is available for human and other species' needs.

A LOOK AT THE POPULATION DENSITY OF THE UNITED STATES

<http://www.nationalgeographic.com/xpeditions/lessons/01/gg12/density.html>

"Population density" is the term that describes the number of individuals occupying an area in relation to the size of that area. The population density is derived by dividing the number of people by the area they occupy. This lesson focuses on the spatial distribution of the population density of the United States at different levels of scale. Geographers can "see the world in spatial terms" by using different scales of analysis (local, state or province, national, and global). Geographers use maps as tools to discern patterns and to understand why things are where they are. Students will create maps showing the population density of the U.S. at different scales. This will enable students to organize spatial information in categories, analyze the information, and draw conclusions.

LESSON PLANS ABOUT POPULATION PRESSURE: PEOPLE, LAND, AND WATER



NATURAL RESOURCES DEFENSE COUNCIL (NRDC)

<http://www.nrdc.org/globalWarming/>

The Natural Resources Defense Council (NRDC) is the nation's most effective environmental action organization. The Council uses law, science, and the support of 1.2 million members and online activists to protect the planet's wildlife and wild places and to ensure a safe and healthy environment for all living things. Among other issues, the Council provides in brief and in depth articles about global warming, as well as related links. It also includes a kids program, the "Green Squad." The "Green Squad" teaches kids about the relationship between their schools and environmental and health issues. The site is designed primarily for students in fifth through eighth grade, but also offers information for younger and older students, as well as parents and teachers.

AN INTRODUCTION TO WORLD POPULATION

<http://74.125.95.132/search?q=cache:1RRKKPy3UyEJ:www.iupui.edu/~ghw/lessons/materials/PopulationUnitCH.doc+LESSON+PLAN+population+pressure&cd=4&hl=en&ct=clnk&gl=us&client=firefox-a>

This is a two-week unit plan for the purpose of introducing students to world population characteristics and distribution.

INTRODUCTION TO POPULATIONS

<http://www.bioedonline.org/slides/slide01.cfm?tk=8>

Slideshow about the populations and the interdependence of life.

WATER, WATER EVERYWHERE?

<http://school.discoveryeducation.com/lessonplans/activities/watereverywhere/>

In this lesson, students will:

1. manipulate a data module showing the relationship between population growth and water availability, and answer questions about what the chart shows;
2. draw a bar graph showing the relationship between population growth and water availability in the United States;
3. draw a similar bar graph for a country facing water scarcity; and
4. research and write an action plan for how that country can tackle its water scarcity problems.

NATIONAL GEOGRAPHIC CONSERVATION LESSON PLANS

<http://www.nationalgeographic.com/geography-action/conservation.html>

What in nature do you appreciate? Clean air? Fresh drinking water? Wildflowers? Conservation is about balancing some of the needs of people—places to live, work, play, and go to school—with the need for a planet that will be healthy for years to come. Conservation helps us protect what we want to be here tomorrow for others to enjoy. Conservation and geography are closely linked. As geography helps us to better understand our planet's complexity, conservation enables us to become better protectors of its biological and cultural diversity.

Find lesson plans for classrooms of all levels about conservation issues: **biodiversity, fresh water, oceans, and population.**



VOLUNTEER/ACTION OPPORTUNITIES: PEOPLE, LAND, AND WATER

THE NATURE CONSERVANCY

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

The mission of The Nature Conservancy is to preserve the plants, animals, and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. They work closely with partners, corporations, indigenous people, and traditional communities all over the world. This website also has links to local educational and volunteer opportunities in the Puget Sound Area.



SUBSCRIBE TO YES! MAGAZINE

<http://www.yesmagazine.org>

YES! Magazine is an ad-free quarterly magazine in print and online about people—in the U.S. and around the globe—creating a more just, sustainable, and compassionate world. Based on Bainbridge Island, YES! provides free one-year subscriptions for teachers in the U.S. and offers a wide variety of educational resources online.

PEOPLE FOR PUGET SOUND

<http://pugetsound.org/>

People for Puget Sound is a citizens' group working to protect and restore the health of Puget Sound and the Northwest Straits through education and action. Their website contains a colorful, interactive guide entitled "10 Things YOU, Yes You, Can Do to Help Puget Sound."

CEDARSONG NATURE SCHOOL

<http://cedarsongnatureschool.org/>

Cedarsong Nature School is a Vashon Island based non-profit that is dedicated to preserving the remaining ancient forest ecosystems of Western Washington, especially those on public lands through educating and familiarizing people with the unique plants that grow in the ancient forest ecosystem. They offer plant identification field trips to a low elevation ancient forest in the Western Washington Cascades as well as in-city classes on preparing homemade herbal remedies.

ISLANDWOOD

<http://islandwood.org/>

Located on Bainbridge Island, IslandWood is a unique 255-acre outdoor learning center designed to provide exceptional learning experiences and inspire lifelong environmental and community stewardship. They offer programs for schools as well as programs for adults, graduate students, teachers, children and families; volunteer opportunities, a host of speaker's series, and other community events open to the public.

NORTH CASCADES INSTITUTE: MOUNTAIN SCHOOL

<http://www.ncascades.org/programs/school/index.html>

Mountain School is an environmental education program offered by the North Cascades Institute in cooperation with North Cascades National Park. Students come to the North Cascades with their school class, teacher, and chaperones to learn about the ecosystems, geology and natural and cultural history of the mountains. They provide environmental education workshops for grades 4-12, including programs such as ecosystem exploration, community building through restoration, and field science and leadership.

VOLUNTEER/ACTION OPPORTUNITIES: PEOPLE, LAND, AND WATER



SEATTLE TILTH

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

Founded in 1978, Seattle Tilth is a non-profit organization dedicated to cultivating sustainable community through gardening education. By using demonstration gardens, P-Patches, and other community gardens across the region, Tilth teaches people how to improve their environment by using organic gardening techniques. Their website contains dates for workshops and summer programs for children ages two-ten years old.

SUSTAINABLE SEATTLE

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

Founded in 1991, Sustainable Seattle is a non-profit organization dedicated to enhancing the long term quality of life in the Seattle/King County area. Sustainable Seattle achieves its mission through awareness (Create opportunities to learn about sustainable living principles and practices), assessment (Develop tools to monitor the community's progress toward long-term sustainability), and action (Foster dialogue among diverse constituencies and their development of local models).

SUSTAINABLE NORTHWEST

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

Sustainable Northwest partners with communities and enterprises to achieve economic, ecological, community vitality, and resilience. Sustainable Northwest envisions an economy and society in the Pacific Northwest where people, communities, and businesses refuse to sacrifice the good of the land for the good of the people, or the good of the people for the good of the land and instead finding a new path which honors both. This organization is committed to a human community working.

ECO ENCORE

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

Eco Encore raises funds for environmental organizations in the Pacific Northwest through the online resale of books, CDs, DVDs, and software donated by individuals and academic institutions around the country, while increasing awareness of reuse as a vital practice for resource conservation and waste reduction. Eco Encore is dedicated to treading lightly on the earth. They utilize recycled and used paper whenever possible, and ship packages through the U.S. Postal Service, which they believe to be the most environmentally efficient system.

NORTHWEST ENVIRONMENTAL EDUCATION COUNCIL (NWEEC)

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

The Northwest Environmental Education Council (NWEEC) provides in-school and after-school environmental education programs for youth, training programs for school teachers, training programs for environmental professionals (e.g., scientists, engineers, and government agency staff), and service learning programs for all ages that improve environmental quality (e.g., native habitat restoration and natural resource conservation).



INFORMATION ON FOOD SECURITY

As we prepare to feed a world population of eight billion within the next two decades, we are entering a new food era. Early signs of this are the record-high grain prices of the last few years, the restriction on grain exports by exporting countries, and the acquisition of vast tracts of land abroad by grain-importing countries. And because some of the countries where land is being acquired do not have enough land to adequately feed their own people, the stage is being set for future conflicts between the so-called land grabbers and hungry local people.

The leaders in this land acquisition movement—Saudi Arabia, South Korea, and China—are all facing growing food insecurity. Saudi Arabia's wheat harvest is shrinking as it loses irrigation water to aquifer depletion. South Korea, heavily dependent on corn imports to sustain its livestock and poultry production, sees its principal supplier—the United States—diverting more corn to fuel production for cars than to exports. China is losing irrigation water as its aquifers are depleted and its mountain glaciers disappear.

The growing competition for land across national boundaries is indirectly competition for water. In effect, land acquisitions are also water acquisitions. As Sudan sells or leases land to other countries, for example, the water to irrigate this land will likely come from the Nile, leaving less for Egypt.

Attention has focused on oil insecurity, and rightly so, but it is not the same as food insecurity. An empty gas tank is one thing, an empty stomach another. And while there are substitutes for oil, there are none for food.

In the world food economy, as in the energy economy, achieving an acceptable balance between supply and demand now includes reducing demand as well as expanding supply. It means accelerating the shift to smaller families to reduce future population size. For those in affluent countries, it means moving down the food chain. And for oil-insecure countries, it means finding substitutes for oil other than fuel from food crops.

As noted early on, securing future food supplies now goes far beyond agriculture. In our crowded, warming world, policies dealing with energy, population, water, climate, and transport all directly affect food security. That said, there are many things that can be done in agriculture to raise land and water productivity.

Taken from Plan B 4.0 Chapter 9. Feeding Eight Billion People Well: Introduction

FOR YOUR CONSIDERATION

"For the life of me, I cannot understand why the terrorists have not attacked our food supply, because it is so easy to do."- Tommy Thompson, former Secretary of Health and Human Services

THINK GLOBALLY EAT LOCALLY- NYT (Dec. 2004)

http://www.nytimes.com/2004/12/18/opinion/18wilkins.html?_r=1&scp=1&sq=food+distribution+systems&st=nyt

The United States is importing more and more food, and not just from the Middle East (which actually accounts for only 0.4 percent of our food imports). Tomatoes from Mexico, grapes from Chile and beef from Brazil are standard fare on American tables...Yet few of these imports are examined to ensure they meet American health and safety standards.

*If this imported food posed a national security concern in 2004...what about today?
Could eating local potentially save your life?*



RESOURCES ABOUT FOOD SECURITY

THE GLOBAL FOOD ECONOMY, FOOD SECURITY, AND THE GLOBAL FOOD CRISIS

UNITED NATIONS: WORLD HEALTH ORGANIZATION

<http://www.who.int/trade/glossary/story028/en/>

The World Food Summit of 1996 defined food security as existing “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life.” Commonly, the concept of food security is defined as including both physical and economic access to food that meets people’s dietary needs as well as their food preferences. In many countries, health problems related to dietary excess are an ever increasing threat. In fact, malnutrition and foodborne diarrhea are becoming a double burden.



FT: G8 WARNS OF HUNGER THREAT TO STABILITY (April 2009)

http://www.ft.com/cms/s/0/164de0fa-22e1-11de-9c99-00144feabdco.html?ncllick_check=1

The world faces a permanent food crisis and global instability unless countries act now to feed a surging population by doubling agricultural output, a report drafted for ministers of the Group of Eight nations has warned. The policy document, prepared by the G8’s Italian presidency for its first ministerial meeting on agriculture and seen by the *Financial Times*, says “immediate interventions” are needed.



GLOBAL EDUCATION NETWORK NEWSLETTER: WHY IS THERE A WORLD FOOD CRISIS?

<http://peacecorpsconnect.org/sites/default/files/GTNFallo8.pdf>

Peace Corps Educational Newsletter focused on the Global Food Crisis and its effects.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE: RISING FOOD PRICES, POVERTY, AND THE DOHA ROUND (May 2008)

http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=20144&prog=zgp&proj=zted&zoom_highlight=food

In this policy outlook paper, Sandra Polaski examines the role of the Doha agreement in light of rising food prices and their impact on global poverty. She finds that conventional wisdom about rising prices, their effect on the poor, and how best to respond, is largely wrong. Polaski reviews the causes of high food prices that are susceptible to action by governments, including several that grew out of past policy mistakes. She presents recent evidence on how food prices affect the poor.



HSBC GLOBAL RESEARCH: FOOD FIGHT THE GLOBAL FOOD CRISIS

<http://www.research.hsbc.com/midas/Res/RDV?p=pdf&ao=19&key=owowc5a5tk&n=214731.PDF>

With rice and wheat prices spiking upwards, riots on the streets of the Philippines, Egypt, and Haiti and moves by India, Vietnam, Cambodia, and China to restrict rice exports, food is suddenly an even hotter issue than normal.

Integrated Regional Information Networks (IRIN): FOOD SECURITY

<http://www.irinnews.org/Theme.aspx?Theme=FOO>

Latest news and features on global food security issues from IRIN, the humanitarian news and analysis agency and a project of the UN Office for the Coordination of Humanitarian Affairs.



RESOURCES ABOUT FOOD SECURITY



NATIONAL GEOGRAPHIC: GLOBAL FOOD CRISIS SPECIAL SERIES (2008)

http://news.nationalgeographic.com/news/food_crisis.html



From Kenya's slums to India's rice paddies to Brazil's cafes, the skyrocketing cost of food has left no corner of the globe untouched. A special series by *National Geographic News* explores the myriad local faces of the world's worst food crisis in decades.



WORLD FOOD IN CRISIS (May 22, 2008)

<http://video.nationalgeographic.com/video/player/news/environment-news/food-crisis-vin.html>

Across the globe, skyrocketing food prices are inciting riots, hoarding, and starvation. *National Geographic* reports, in this three minute video brief, about what has caused this food crisis.

ISSUES NOTE FOR SPECIAL MEETING OF THE ECONOMIC AND SOCIAL COUNCIL ON GLOBAL FOOD CRISIS (May 2008)

http://huwu.org/ecosoc/docs/pdfs/Food_crisis_Issues_note_may_2008.pdf

ECOSOC held a special meeting in May of 2008 to help the process of defining a concerted, coordinated, and comprehensive global response to the global food crisis. The meeting addressed how best to identify and implement urgent actions at the country and sub-regional levels. It also helped to ensure a stronger commitment from all stakeholders (governments, the UN, civil society, and private sector) to longer-term actions including investments in agriculture and rural development. This background note was prepared to help the meeting focus comprehensively on the complex issues which need to be understood in defining the global response.

UN CHRONICLE ONLINE: FOOD SECURITY IN DEVELOPING COUNTRIES: WHY GOVERNMENT ACTION IS NEEDED

<http://www.un.org/Pubs/chronicle/2003/issue3/0303p65.asp>

Global food supplies are sufficient to meet the calorie requirements of all people if food were distributed according to needs. Per capita food supplies are projected to increase further over the next twenty years. Thus, the world food problem now and in the foreseeable future is not one of global shortage. Instead, the world is faced with three main food-related challenges: widespread hunger and malnutrition, mismanagement of natural resources in food production, and obesity. This article deals with the first two only.

THE BROOKINGS INSTITUTION: THE GLOBAL FOOD CRISIS

<http://www.brookings.edu/topics/global-food-crisis.aspx>

The Brookings Institution is an independent, nonpartisan organization devoted to research, analysis, and public education with an emphasis on economics, foreign policy, governance, and metropolitan policy. The goal of Brookings activities is to improve the performance of American institutions and the quality of public policy by using social science to analyze emerging issues and to offer practical approaches to those issues in language aimed at the general public. Brookings' Global Food Crisis page provides links to numerous articles on issues relating to the Global Food Crisis and how they affect public policy and regional/international security.



STUFFED AND STARVED

<http://stuffedandstarved.org/>

Raj Patel has worked for the World Bank, interned at the WTO, consulted for the UN and been involved in international campaigns against his former employers. Currently a researcher at the University of KwaZulu-Natal in South Africa and a visiting scholar at the Center for African Studies at the University of California at Berkeley, his education includes degrees from Oxford, the London School of Economics, and Cornell University. The resources here take off from the book *Stuffed and Starved*, providing a venue for food system activists, researchers, and readers to meet and discuss.

SEEKING GLOBAL FOOD JUSTICE: AND INTERVIEW WITH RAJ PATEL- CIVIL EATS: PART 1 (July 2008)

<http://civileats.com/2008/07/20/seeking-global-food-justice-an-interview-with-raj-patel/>

This is an interview with Raj Patel, the author of *Stuffed and Starved: The Hidden Battle for the World Food System*. "...the state isn't stepping in and supporting its farmers, its sort of cutting them off to the private sector. And the private sector is either these predatory lenders, or just regular banks like we see here in the United States, who are no less predatory for having shiny corporate headquarters. And as a result, more independent, sustainable family farms around the world are facing very similar circumstances with subsidies going to the mega-farms and unsustainable production being the sort of thing governments fund. Whereas good, healthy, clean food is almost being stamped out by government actions and inactions."

SEEKING GLOBAL FOOD JUSTICE: PART 2 (July 2008)

<http://civileats.com/2008/07/28/seeking-global-food-justicean-interview-with-raj-patel/>

THE SEEDS OF DISASTER: THE COUNCIL ON FOREIGN RELATIONS (April 21, 2008)

http://www.cfr.org/publication/16062/seeds_of_disaster.html?breadcrumb=%2F

For consumers and businesses in the United States and Europe, bubbling inflation and rising oil prices bring varying degrees of hardship, producing a nuisance for some and raising solvency issues for others. Elsewhere in the world, these factors threaten more existential consequences. World Bank data shows rising commodity prices have prompted a dramatic spike in global food prices, with the cost of staples like wheat and rice showing the greatest increases. Unrest has risen along with prices. Riots over food prices have broken out in North and South America, the Caribbean, Africa, the Middle East, and East Asia—an interactive chart from the *Financial Times* shows the global reach and magnitude of the crisis.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE: THE FOOD PRICE CRISIS IN THE ARAB COUNTRIES (June 2008)

http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=20246&prog=zgp&proj=zme,zted&zoom_highlight=food

Arab governments tempered public anger at rising food prices by increasing wages and subsidies, but their approach is not sustainable without raising taxes. Instead they should revise agricultural policies, expand social safety nets, and curb excessive energy consumption, argues Carnegie Middle East Center economist Ibrahim Saif. Examining the response to the crisis by both oil-producing Gulf countries and populous non-oil exporting countries, Saif recommends sustainable alternative policies in this.



RESOURCES ABOUT FOOD SECURITY



FINANCIAL TIMES (FT) INTERACTIVE GRAPHICS: THE GLOBAL FOOD CRISIS

http://www.ft.com/cms/s/0/d8184634-07cc-11dd-a922-0000779fd2ac.html?ncllick_check=1
Find out how rising food prices have hit trade balances and in which countries the inflationary impact has been the highest. Our interactive feature maps food prices related to civil unrest and policy measures governments have taken in response to rapid food inflation.



WHY ARE FOOD PRICES RISING?- FT



<http://media.ft.com/cms/s/2/f5bd920c-975b-11dc-geo8-0000779fd2ac.html?from=foodcrisis>



As agricultural commodities such as wheat and dairy trade at record highs, some governments, such as Russia, are implementing price controls on selected types of bread, cheese, milk, eggs, and vegetable oil. But why is food getting more expensive? What role do biofuels play and how has the weather affected crop yields this year? How does the cost of oil factor into the price of food? This multimedia feature explains. Also found on this page are related links, audio commentary from scholars and professionals on GM, analyses, and Q&A. <http://www.ft.com/foodprices>

CIVIL EATS.COM

<http://www.civileats.com>

Civil Eats promotes critical thought about sustainable agriculture and food systems as part of building economically and socially just communities. In our efforts, we support the development of a dialog among local and national leaders about the American food system, and its effects abroad. Civil Eats can be humorous, serious, academic, philosophical, conversational, its style of conversation is as diverse as its 40+ contributors, but it is always thought provoking, innovative, and focused on food politics.



NEW YORK TIMES: CHANGE WE CAN STOMACH (May 2008)

<http://www.nytimes.com/2008/05/11/opinion/11barber.html?pagewanted=2&r=1&sq=Change%20we%20can%20stomach&st=cse&scp=1>

Cooking, like farming, for all its down-home community spirit, is essentially a solitary craft. But lately it's feeling more like a lonely burden. Finding guilt-free food for our menus—food that's clean, green and humane—is about as easy as securing a housing loan. And we're suddenly paying more—75 percent more in the last six years—to stock our pantries. Around the world, from Cairo to Port-au-Prince, increases in food prices have governments facing riots born of shortages and hunger.



THE COST OF FOOD (October 2008)

http://news.bbc.co.uk/2/hi/in_depth/world/2008/costoffood/default.stm

BBC correspondents examine the impact of fluctuating food costs on families, farmers, and economies around the world.



FACTS AND FIGURES- BBC

<http://news.bbc.co.uk/2/hi/7284196.stm>

Explore the facts and figures behind the fluctuating price of food across the globe.



EAT LOCALLY

FORAGE LOCALLY OR CONSUME GLOBALLY?- SEATTLE METROPOLITAN MAGAZINE

(May 2006)

<http://www.theendoffood.com/id14.html>

Locally grown food is fresher and often of higher quality. It imposes fewer environmental and social costs. It helps consumers reconnect with the land. And each local purchase supports not only local producers but the entire local economy. One respected report, *The Andersonville Study of Retail Economics*, found that 68 cents of each dollar spent at local retailer stays in the local economy, versus 43 cents at a chain retailer. And many eat-local advocates think Seattle is just the place for the homegrown movement to expand from a trendy niche to a viable model for a new food economy.

100 MILE DIET

<http://100milediet.org/>

In 2005, Alisa Smith and J.B. MacKinnon began a one-year experiment in local eating. Their “100-Mile Diet” struck a deeper chord than anyone could have predicted, inspiring thousands of individuals, and even whole communities, to change the way they eat. Locally raised and produced food has been called “the new organic”—better tasting, better for the environment, better for local economies, and better for your health. From reviving the family farm to reconnecting with the seasons, the local foods movement is turning good eating into a revolution.

BBC: FOOD MILES

http://www.bbc.co.uk/food/food_matters/foodmiles.shtml

Working out the environmental impact of the food we buy can be confusing. It’s no longer just about food miles—there’s production, processing, packaging, and storage to weigh up too.



SUSTAINABLE SEATTLE

BUILDING THE LOCAL FOOD ECONOMY: A CALL TO ACTION

<http://www.sustainableseattle.org/Programs/localfoodeconomy>

A growing number of people in our region are committed to building a healthy local food economy. This is not an easy task. A significant part of the challenge is to show that developing strong local economic linkages is crucial to the economic success of our region’s food producers, manufacturers, distributors, and purveyors. In 2005, Sustainable Seattle began a local multiplier project focusing on the food industry in the Central Puget Sound region for this purpose. The project report, *Why Local Linkages Matter: Findings from the Local Food Economy Study*, explains why we should care about our spending choices when it comes to food and sustainability. It finds that locally directed spending supports a web of relationships, rooted in place, which makes for healthier and more prosperous communities. Read the report!



RESOURCES ABOUT FOOD SECURITY



KUOW: FARM TO CAFETERIA

<http://www.kuow.org/program.php?id=17146>

"School lunch: Can you smell the chicken nuggets, sloppy joes, and ambrosia salad? What if school lunch was healthy, fresh, and local instead? Straight from the farms to your kids. The "Local Farms-Healthy Kids" bill passed the state legislature last year, but it's been hard to implement. Many schools don't even have kitchens. Today we'll check up on how the farm to school initiative is going in Washington State."

KITSAP SUN : LOCAL PRODUCE GETS MORE PROMINENT IN THE LUNCH LINE

<http://www.kitsapsun.com/news/2008/oct/11/local-produce-more-prominent-in-the-lunch-line/>

Opportunities to try something different are coming regularly this school year to two campuses in the Bremerton School District. Armin Jahr and West Hills elementaries have received government grants to add more fruits and vegetables into students' diets, putting them in the vanguard of a movement to bring more fresh produce to schools — locally grown when possible.

THE EAT WELL GUIDE

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

Eat Well Guide is a free online directory of thousands of family farms, restaurants, and other outlets for fresh, locally grown food in the U.S. and Canada. Originally a database of sustainably-raised meat and dairy producers, its listings have expanded to include farmers' markets, CSA programs, partner organizations, water-conscious ratings and vegetarian eateries. Visitors can search by location, keyword, or category to find good food, download customized guides, or plan a trip with the innovative mapping tool Eat Well Everywhere. Eat Well is also home to The Green Fork blog and the free print and online book *Cultivating the Web: High Tech Tools for the Sustainable Food Movement*.

WASHINGTON STATE FARMERS' MARKETS

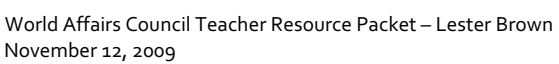
<http://www.wafarmersmarkets.com/>

WSFMA supports and promotes vibrant and sustainable farmers markets in Washington State. Our vision is to have a thriving and sustainable farmers market within reach of every resident in Washington State. Washingtonians understand the importance of farmers markets in developing healthy communities and a sustainable local food system. WSFMA is a national leader in the movement to increase access to local foods through farmers markets.

Values

- Healthy local food system
- Economically & environmentally sustainable farms
- Community gathering places where all people have a sense of belonging and connection

<http://www.wafarmersmarkets.com/>





LESSON PLANS ABOUT FOOD SECURITY

OUTREACH WORLD: FOOD CURRICULA AND LESSON PLANS

<http://www.google syndicated search.com/u/outreachworld?q=food&sa=Go>

Outreach World is a growing online community of educators dedicated to showcasing the achievements of its members and strengthening vital links across the education spectrum, and between the United States and the world. The results of this sites collaboration can be seen in the outstanding professional development programs available annually to K-12 educators.

PBS TEACHERS: FOOD

<http://www.pbs.org/teachers/search/results.html?q=food>

A search of the PBS database for food that provides topics of a wide range, from the *Meaning of Food* to nutritional topics, to genetic modification to food ecosystems.

PBS TEACHERS

<http://www.pbs.org/teachers/>

Classroom materials suitable for a wide range of subjects and grade levels; thousands of lesson plans, teaching activities, on-demand video assets, and interactive games and simulations. These resources are correlated to state and national educational standards and are tied to PBS' on-air and online programming like NOVA, Nature, Cyberchase, and more. Here you can also locate local resources and services, professional development materials, and links. (K-12)

FEEDING MINDS. FIGHTING HUNGER

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

An international classroom for exploring the problems of hunger, malnutrition, and food insecurity. Feeding Minds Fighting Hunger is designed to help equip and encourage teachers, students and young people all over the world to actively participate in creating a world free from hunger.

UNITED NATIONS CYBERSCHOOLBUS

<http://cyberschoolbus.un.org/>

The United Nations Cyberschoolbus vision is to provide exceptional educational resources (both online and in print) to students growing up in a world undergoing increased globalization.

ECO HEALTH 101

http://ecohealth101.org/whats_left/index.html

EcoHealth101 was designed as an online textbook that includes a section on food: *What's Left to Eat?* The website was developed as a tool for students and teachers. But it's also a great resource for anyone interested in the environment and human health. The site also contains a glossary, lesson plans, and updated Q&A section along with a multitude of other resources and related news.

THE EDIBLE SCHOOLYARD

<http://www.edibleschoolyard.org>

The Edible Schoolyard has been recognized around the world for its organic garden, landscape, and kitchen, which are grounded in ecological principles and wholly integrated into the school's curriculum.

LESSON PLANS ABOUT FOOD SECURITY



FACING THE FUTURE: FOOD AND WATER

<http://www.facingthefuture.org/FTFDataDNN/60SecondTours/InDepthTours/tabid/132/Default.aspx>



The human costs of food and water insecurity are high. Drastic shortages of food and water heighten the gap between rich and poor and often lead to conflicts on both sides of the borders of a particular country. Here you can find educator-oriented information on food and water security issues globally. They have a K-4 lesson plan book called *Connections All Around: Me, My Food, and My Environment*, and a new math book called *Solving Algebraic Equations: Food Choices* with a focus on nutrition and personal well-being.

FARMING FOR THE FUTURE: ACTIVITY-BASED LESSONS AND ACTION PROJECTS

www.facingthefuture.org/Home/CurriculumDetails/tabid/131/Default.aspx?ItemID=ESTGI

This is the main page for the *Facing the Future* Lesson Plan Book which teachers can view and/or purchase, look to the right for links to Farming for the Future and other sub-topics within.

CURRICULUM FINDER

www.facingthefuture.org/Curriculum/FindCurriculumthatIsRightforYou/tabid/68/Default.aspx

Here you can select what grade you teach, what subject and then pick a topic from their international issues list to search for relevant curriculum (We suggest selecting the Global Food Security topic).



THIRD WORLD FARMER

<http://www.3rdworldfarmer.com/>

Third World Farmer is a new kind of game. It aims at simulating the real-world mechanisms that cause and sustain poverty in Third World countries. In the game, the player gets to manage an African farm, and is soon confronted with the often difficult choices that poverty and conflict necessitate. This kind of experience is efficient at making the issues more relevant to people...The player "experiences" the injustices, rather than being told about them, so as to stimulate a deeper and more personal reflection on the topics.



FOOD FORCE: UN WORLD FOOD PROGRAMME (WFP)

<http://www.food-force.com/>

Each mission represents a part of the process of delivering food aid to an area in crisis. The final mission shows you how food aid can help people rebuild their lives in the years following a disaster. There are links to related news, country food profiles, and information and materials on the 'Reality' so students can link the game to what's happening in the real world.

RESOURCES AND IDEAS FOR TEACHING FOOD FORCE- SCHOLASTIC

<http://teacher.scholastic.com/scholasticnews/indepth/foodforce/articles/index.asp?article=intro&topic=o>

At the end of each article in this report, you can play the Food Force video game, where you can learn to fight hunger. Each of the game's six missions takes you to the imaginary land of Sheylan, where a terrible disaster has struck.



FREE RICE: (WFP)

<http://www.freerice.com>



A WFP program game where, by answering trivia questions on art, geography, math, science, English, and other languages online, kids can actually become a part of the solution and provide rice to needy families.



VOLUNTEER/ACTION OPPORTUNITIES REGARDING FOOD SECURITY⁷

FARM TO SCHOOL

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

Farm to School brings healthy food from local farms to school children nationwide. The program teaches students about the path from farm to fork, and instills healthy eating habits that can last a lifetime. At the same time, use of local produce in school meals and educational activities provides a new direct market for farmers in the area and mitigates environmental impacts of transporting food long distances. More than thirty million children eat a school lunch five days a week, 180 days a year. If school lunch can taste great, and support the local community, it is a win-win for everyone.

ORCAS ISLAND FARM TO CAFETERIA PROGRAM

<http://www.farmtoschool.org/state-programs.php?action=detail&id=8&pid=309>

The program started very small about four years ago. In 2009 we created a farm to cafeteria (F2C) committee and hired a coordinator with funds raised from our wonderful community. Since May of 2009, we have increased the production and participation in our school garden by implementing a community care program during the summer, had our first 5th Season event, established stronger relationships between the farmers and food service establishing regular deliveries to the cafeteria during the school year, spruced up our cafeteria with a new look for the new school year, and established a "snack comparison" event in elementary school classrooms to compare the difference in taste and nutrition between store-bought and local organic fruits and vegetables. We are planting fruit trees on campus that will be used as learning opportunities as they grow, bloom and produce; and as we get further into the school year, we will be implementing more curriculum centered around the school garden as well as encouraging older students to get excited about food preparation, menu planning and cooking.

AUBURN SCHOOL DISTRICT-CHILD NUTRITION SERVICES, LOCAL FARMERS, AND OUR SCHOOL GARDEN

<http://www.farmtoschool.org/state-programs.php?action=detail&id=8&pid=298>

The Auburn School District also has it's own organic school garden and forty-five tree orchard; the garden hosts an after-school elementary garden club and a "Summer Food Academy" where elementary students combine garden education while scratch cooking their own breakfast and lunch with produce from the garden. Other produce from the school garden is used in the school breakfast, lunch, and summer food service programs.

WASHINGTON STATE DEPARTMENT OF AGRICULTURE: FARM-TO-SCHOOL PROGRAM

<http://agr.wa.gov/marketing/farmtoschool/>

The WSDA Farm-to-School Program is dedicated to fostering relationships between schools and agricultural producers in Washington State. The program provides information, inspiration, assistance, and policy solutions for those working to supply healthy Washington-grown food and related education to youth in our State. Listen to a segment on Farm-to-School from KUOW's Weekday and register with the program to receive newsletters, information on school gardens, job opportunities, and more.

⁷ See also Volunteer/Action Opportunities in the Designing Cities for People Section for opportunities involving Urban Farming.



FOOD \$ENSE CHANGE (CULTIVATING HEALTH AND NUTRITION THROUGH GARDENING EDUCATION)

<http://king.wsu.edu/nutrition/change.htm>

Food \$ense CHANGE improves the nutrition of limited income children and their families by teaching a nutrition curriculum enhanced by gardening, cooking, and other hands-on activities. In addition to teaching classroom lessons, primarily in elementary schools, CHANGE instructors act as a support system and resource for teachers as they incorporate nutrition education into their daily classroom work. CHANGE instructors also participate in school family nights and other family or adult outreach activities.



CHANGE integrates nutrition education with reading, writing, math, and science studies, while providing hands-on learning in cooking and gardening for elementary aged children. Through these lessons, students learn how to grow and cook their own food, the foundations of a healthy diet, key vitamins and minerals essential to a good health, the importance of fiber, and the connections between healthy soil and healthy food. Each unit is packed with engaging activities that will get your students eating vegetables and asking for more! CHANGE lessons are aligned to the Washington Essential Academic Learning Requirements (EALR's) and Grade Level Expectation GLE's).

CHEF IN THE CLASSROOM

<http://king.wsu.edu/nutrition/ChefintheClassroom.htm>

Chef in the Classroom is a two hour lesson designed to educate students in grades four through six about whole foods by learning about the differences between whole foods and processed foods. During the class students prepare whole foods chili from scratch. In addition to the classroom lesson taught by two CHANGE educators, teachers receive a packet of supplemental activities to reinforce concepts taught in class. Students learn how to read a food label, how to categorize foods as whole or processed, have a basic understanding of common food additives, how to decipher packaging nutrient claims, and how to follow directions in a recipe.



HARVEST OF THE SEASON

<http://king.wsu.edu/nutrition/HarvestoftheSeason.htm>



Harvest of the Season is a curriculum box program that teaches nutrition through cooking with local, seasonal produce in the classroom. Four times a year, the curriculum box is delivered to the school, highlighting a seasonal fruit or vegetable from a local farm. Inside the box is a complete cooking kit and all the ingredients needed for up to thirty children to cook (without heat) a seasonal recipe. A complete curriculum guide accompanies the box, providing instructions for successfully cooking in the classroom, in addition to supplemental materials and activities. Students learn about the nutritional value of fruits and vegetables, how to handle and cook with fresh produce, and about the farmer who grew the food.

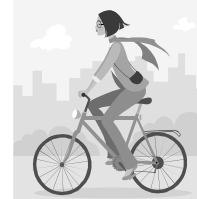


DESIGNING CITIES FOR PEOPLE INFORMATION SHEET⁸

REDESIGN URBAN TRANSPORT

Urban transport systems based on a combination of rail lines, bus lines, bicycle pathways, and pedestrian walkways offer the best of all possible worlds in providing mobility, low-cost transportation, and a healthy urban environment.

An innovative initiative in Paris was the establishment of a city bicycle rental program that has 20,600 bikes available at 1,450 docking stations throughout the city...Based on the first two years, the bicycles are proving to be immensely popular—with forty-eight million trips taken.



The bicycle has many attractions as a form of personal transportation. It alleviates congestion, lowers air pollution, reduces obesity, increases physical fitness, does not emit climate-disrupting carbon dioxide, and is priced within reach of billions of people who cannot afford a car.

REDUCE URBAN WATER USE

The one-time use of water to disperse human and industrial wastes is an outmoded practice, made obsolete by new technologies and water shortages. Water enters a city, becomes contaminated with human and industrial wastes, and leaves the city dangerously polluted. For cities wanting to move away from using water to disperse wastes, fortunately there is a low-cost alternative: the composting toilet. At the household level, water can also be saved by using more water-efficient showerheads, flush toilets, dishwashers, and clothes washers.

FARM IN THE CITY

In 2005, the U.N. Food and Agriculture Organization (FAO) reported that urban and peri-urban farms—those within or immediately adjacent to the city—supply food to some 700 million urban residents worldwide. These are mostly small plots—vacant lots, yards, even rooftops.

In some countries, such as the United States, there is a huge unrealized potential for urban gardening...Urban gardening has a regenerative effect...when vacant lots are transformed from eyesores—weedy, trash-ridden dangerous gathering places—into bountiful, beautiful, and safe fardens that feed people's bodies and souls.

A parallel trend to urban gardening is the growing number of local farmers' markets, where farmers near a city produce fresh fruits and vegetable, pork, poultry, eggs, and cheese for direct marketing to consumers in urban markets.

UPGRADE SQUATTER SETTLEMENTS

Among the simplest services that can be provided in a squatter settlement are taps that provide safe running water and community composting toilets...And regular bus service enables workers living in the settlements to travel to their place of work.

⁸ Information adapted from *Plan B 4.0* Chapter 6: Designing Cities for People



URBAN TRANSPORT

URBAN TRANSPORT FACTBOOK

<http://www.publicpurpose.com/ut-index.htm>

To facilitate the ideal of government as the servant of the people by identifying and implementing strategies to achieve public purposes at a cost that is no higher than necessary.

URBAN TRANSPORT THEMATIC GROUP OF THE WORLD BANK

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTTRANSPORT/EXTURBANTRANSPORT/0,,menuPK:341455~pagePK:149018~piPK:149093~theSitePK:341449,00.html>

Urban transport and urban development are closely intertwined, jointly influencing the accessibility and mobility of the increasing urban populations in developing countries. Transport "serves" urban land-use and economic development. It also influences the character and amount of development.

THE URBAN TRANSPORTATION MONITOR

<http://www.urban-transportation-monitor.com/>

For twenty-two years, the *Urban Transportation Monitor* has been the trusted source for urban transportation (traffic engineering, transportation planning, and transit) news. The *Urban Transportation Monitor* delivers concise, accurate, inside information, and hard facts and figures on significant trends, emerging technologies, new developments, and research across the industry.

JANE'S URBAN TRANSPORT SYSTEMS

<http://juts.janes.com/public/juts/index.shtml>

Survey the systems, manufacturers and consultants within the global public transport market with *Jane's Urban Transport Systems*. City-by-city, you can analyze the world's public transport systems and access details of both current operations and future plans. Traffic statistics are given for all operations wherever they are available, together with fleet lists and numbers in service. Key contact details are also provided, enabling you to both locate new suppliers and identify market opportunities.

SEATTLE DEPARTMENT OF TRANSPORTATION'S BICYCLE PROGRAM

<http://www.seattle.gov/transportation/bikeprogram.htm>

Seattle consistently has been rated one of the top spots in the country for bicycling. Not surprisingly, a substantial proportion of Seattleites use their bicycles for recreation or transportation. It is estimated that about 36 percent of Seattle's 520,000 citizens engage in recreational bicycling, and between four thousand and eight thousand people bicycle commute in Seattle each day, depending on the time of year and weather conditions.

Seattle Department of Transportation's Bicycle Program has been working steadily toward developing an urban trail system to accommodate bicyclists. Urban trails include shared use paths, bike lanes, signed bike routes, arterials with wide shoulders, and pedestrian pathways. Seattle has about twenty-eight miles of shared use paths, twenty-two miles of on-street, striped bike lanes, and about ninety miles of signed bike routes.



DESIGNING CITIES FOR PEOPLE RESOURCES

CASCADE BICYCLE CLUB

<http://www.cascade.org/Home/>

Cascade Bicycle Club is a non-profit organization creating more livable communities by promoting health and recreation through bicycle activities, advocacy, and education.

BIKES BELONG

<http://www.bikesbelong.org>

Bikes Belong works to put more people on bicycles more often. From helping create safe places to ride to promoting bicycling, we carefully select projects and partnerships that have the capacity to make a difference.

We concentrate our efforts in four areas:

- Federal Policy and Funding
- National Partnerships
- Community Grants
- Promoting Bicycling

In addition, we operate the Bikes Belong Foundation to focus on kids and bicycle safety.

URBAN WATER USE

THE WORLD'S WATER: INFORMATION ON THE WORLD'S FRESHWATER RESOURCES

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

Water is one of our most critical resources, but around the world it is under threat.

Worldwater.org is dedicated to providing information and resources to help protect and preserve fresh water around the globe.

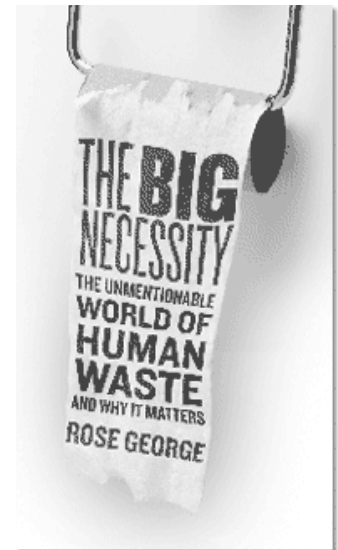
THE BIG NECESSITY:

THE UNMENTIONABLE WORLD OF HUMAN WASTE AND WHY IT MATTERS

<http://rosegeorge.com/site/books/the-big-necessity/>

In the early twenty-first century, when surgery can be done microscopically and human achievement seems limitless, 2.6 billion people lack the most basic thing that human dignity requires. Four in ten people in the world have no toilet. They must do their business instead on roadsides, in the bushes, wherever they can. Yet human feces in water supplies contribute to one in ten of the world's communicable diseases. A child dies from diarrhea- usually brought on by fecal-contaminated food or water- every fifteen seconds.

Meanwhile, the western world luxuriates in flush toilets; in toilets that play music or can check blood pressure, where the flush is a thoughtless thing, and anything that can go down a sewer-nappies, motorbikes, goldfish- does...The Big Necessity- as one Mumbai toilet builder called the toilet- is the account of my travels through the profoundly intriguing but stupidly neglected world of the disposal of human waste.





CITY GARDENS, CITY FARMS

THE URBAN AGRICULTURE MAGAZINE

<http://www.cityfarmer.org/UAmag13.html>

The *Urban Agriculture Magazine* (UA Magazine) is published three times a year on the RUAF website (www.ruaf.org) and in hardcopy version. This English version is translated in Spanish, French, Arabic, and Chinese. The UA-Magazine facilitates sharing of information on the impacts of urban agriculture, promotes the analysis and debate on critical issues for the development of the sector, and the publication of "best" or "good" or even "bad" practices in urban agriculture. The UA-Magazine welcomes contributions on new initiatives at individual, neighborhood, city and national levels. Attention is given to the technological aspects, as well as to socio-economic, institutional and policy aspects of sustainable urban food production and distribution systems. Although articles on any related issue is welcome, and is considered for publication, each UA-Magazine focuses on a selected theme.

CITY FARMER'S URBAN AGRICULTURE NOTES

www.cityfarmer.org/

A non-profit society that promotes urban food production and environmental conservation.

RESOURCE CENTERS ON URBAN AGRICULTURE AND FOOD SECURITY (RUAF)

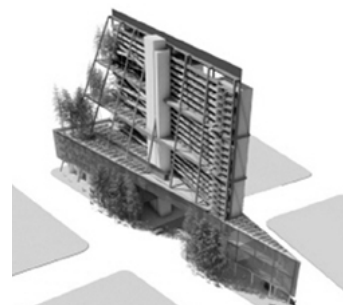
<http://www.ruaf.org/node/449>

The RUAF Foundation is an international network of seven regional resource centers and one global resource centre on Urban Agriculture and Food Security. In 1996 the international Support Group on Urban Agriculture (SGUA) took the initiative to set up a Resource Centre on Urban Agriculture and Food Security (RUAF), in response to the expressed need of organizations and local governments in the South for effective mechanisms for the documentation and exchange of research data and practical experiences on urban agriculture. In the following years RUAF gradually evolved into an international network of regional resource centers providing training, technical support, and policy advice to local and national governments, producer organizations, NGO's, and other local stakeholders. In March 2005 the RUAF partners established the RUAF Foundation as their joint administrative body and liaison office. RUAF focuses its activities mainly in 20 cities, where RUAF closely cooperates with the local government, producer organizations, NGO's, universities, and private enterprises.

SEATTLE OFF-GRID CONCEPT COMBINES CHICKENS, CROPS, AND SUSTAINABLE LIVING

http://jetsongreen.typepad.com/jetson_green/2007/09/seattle-off-gri.html

In the heart of Seattle, the design professionals at Mithun see a farm rising vertically into the sky. Although it may never be built, the Center for Urban Agriculture (CUA) won "Best of Show" in the Cascadia Region Green Building Council's Living Building Challenge. Vertically constructed on a .72 acre site, the off-grid building is designed to be completely energy and water sufficient and will include 318 affordable apartments (studio - two bedrooms). And on top of that, there will be greenhouses, rooftop gardens, a chicken farm, and fields for growing vegetables and grains.





DESIGNING CITIES FOR PEOPLE

LESSON PLANS, ACTIVITIES, AND DISCUSSION QUESTIONS

THE ECOLOGY CENTER

<http://www.ecologycenter.org/tfs/lesson.php?id=13486>

The Ecology Center Website has lesson plans introducing students to Urban Agriculture and a searchable lesson plan database.

The Ecology Center facilitates urban lifestyles consistent with the goals of ecological sustainability, social equity, and economic development. We seek to make these goals accessible by providing people with the information they need, the alternatives they seek, and the infrastructure necessary to make sustainable practices possible on a large scale. We aim to make the visionary mainstream.



Our programs include Information Services, Berkeley's residential curbside recycling, the three Berkeley Farmers' Markets, the Farm Fresh Choice food justice program, *Terrain Magazine*, and the EcoHouse demonstration house and garden. We also serve as the fiscal sponsor for a wide range of projects that align with our mission

The Ecology Center's mission is to promote environmentally and socially responsible practices through programs that educate, demonstrate, and provide direct services.



THE URBAN WATER CYCLE AND THE URBAN WATERSHED

<http://www.epa.gov/reg3wapd/nps/pdf/education/lesson3.pdf>

Goals:

- Students will learn the basics of drinking water treatment
- Students will learn the basics of wastewater treatment
- Students will become familiar with the processes of the urban water cycle
- Students will gain an understanding of how the urban watershed mimics the natural watershed
- Students will learn how pollution occurs in an urban watershed

THE U.S. PARTNERSHIP FOR EDUCATION FOR SUSTAINABLE DEVELOPMENT

http://www.uspartnership.org/main/show_passage/33

K-12 and Teacher Education Sector Team aims to:

- Develop a network of formal K-12 educators who are engaged in sustainability-related education, and who share the goal of preparing students to be informed participants in the development of sustainable communities.
- Promote the teaching of sustainability-related skills, knowledge and experiences through publications, professional associations, policy, and events.

DESIGNING CITIES FOR PEOPLE

LESSON PLANS, ACTIVITIES, AND DISCUSSION QUESTIONS



WATER QUIZ

<http://www.un.org/cyberschoolbus/waterquiz/waterquiz4/index.asp>

Interactive image and quiz on the topic of water and water usage from the UN CyberSchoolbus.

URBAN GEOGRAPHY UNIT

<http://www.hawaii.edu/hga/urbanoo/craighattam/urban/urbanlessons.html>

The Urban Geography Unit focuses on the standards found in Geography for Life, the National Geography Standards. The unit will focus on the following requirements: Standard 12, The Processes, Patterns, and Functions of Human Settlement.

PLANNING A NEW TOWN

<http://www.nationalgeographic.com/xpeditions/lessons/12/g68/newtown.html>

In this lesson, students will make decisions about buildings, businesses, services, and housing areas to include in the development of a new town. After discussing essential elements of a self-sustaining community, the students will prepare a map and give oral presentations on different aspects of the new town. From *National Geographic.com*



A COUNTOURING WE GO

http://www.educatorresourcecenter.org/view_lesson.aspx?lesson_plan_id=388

This five-day lesson is intended to further develop the students' understanding of the built environment and infrastructures of their community. The students will learn how to construct contour equipment, use the equipment, and compare the results to current topographical maps of the same area. The lesson should focus on the highest hill in a park or area of town near the school. The students will construct a contour map of this hill in class.



GREENING SCHOOLS

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

A website with information on greening school buildings and lesson plans in chemistry, physics, biology, arts and more.



EDUCATION FOR ENVIRONMENT AND SUSTAINABILITY

<http://www.k12.wa.us/curriculumInstruct/EnvironmentSustainability/default.aspx>



- The OSPI **Education for Environment and Sustainability** program supports academic success and life-long learning, and develops a responsible citizenry capable of applying knowledge of ecological, economic, and socio-cultural systems to meet current and future needs.

EES Program Priorities

- Curriculum Alignment and Integration
- Pre-service Education and Professional Development
- Resources in Support of Graduation Requirements
- Research-based Assessment
- Research and Policy Development
- Grant Programs
- Community Engagement, Collaboration



DESIGNING CITIES FOR PEOPLE VOLUNTEER/ACTION OPPORTUNITIES

YOUTH AND YOUNG PEOPLE BICYCLE PROGRAMS

<http://www.ibike.org/encouragement/>

This category covers a range of programs involving young people and bicycles: teaching young people cycling skills, a vocation, personal management, business management and community consciousness, and giving them self-esteem, while promoting bicycling and diverting good bicycles from the land fill.

Links for many communities to easily get involved with your local youth bicycle program. Most of these organization accept donated bikes, though some have constraints on what they can or will take. If you don't live in a community with a program you will probably find the people involved at these programs eager to help you set one up.

MAY IS BIKE TO SCHOOL MONTH!

<http://www.cbcef.org/btw/>

Biking to school creates daily exercise habits, reduces car traffic and air pollution, and helps teach safe cycling habits. You, your child, and your school can join us for our month or day challenge! By participating, you can make a difference for the environment and for your health. In 2008, during Cascade's Bike to School Month, 835 elementary school students completed 10,456 trips to school. Middle and high school students completed 583 round trips in the month of May! See Cascade Bicycle Club Educational Foundation for more information <http://www.cbcef.org/>.



ARCHITECTURE, CONSTRUCTION, ENGINEERING MENTOR PROGRAM FOR SEATTLE HIGH SCHOOL STUDENTS

<http://www.acementor.org/344>

For eight years, Washington's ACE affiliate in Seattle has brought high school students together with local building industry professionals to explore the opportunities available in architecture, engineering, and construction careers. Working in teams, the students and mentors complete a design project that simulates real-world situations. The teams take field trips and tour professional offices to help them in the design process. The ACE Mentor Program offers a fifteen-week program for Puget Sound students that runs from October to May.

SEATTLE ARCHITECTURE FOUNDATION (SAF)

<http://seattlearchitecture.org/youth.cfm>

It's a kid's world too, which is why SAF offers workshops and in-class activities that are interactive, engaging, and conceived to inspire a lifelong connection between youth of all ages and their communities. By developing programs that reach out and speak directly to the younger generations and their educators, we spark their desire to bond with and care for the built environment of the present and their future.



SEATTLE YOUTH GARDEN WORKS

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

Seattle Youth Garden Works empowers homeless and under-served youth through garden-based education and employment. We are a market gardening program for youth ages 14-22 in the University District and South Park neighborhoods. Our goals are to connect youth to housing, health care, education, jobs, and community.

DESIGNING CITIES FOR PEOPLE VOLUNTEER/ACTION OPPORTUNITIES



SEATTLE TILTH

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

Founded in 1978, Seattle Tilth is a non-profit organization dedicated to cultivating sustainable community through gardening education. By using demonstration gardens, P-Patches, and other community gardens across the region, Tilth teaches people how to improve their environment by using organic gardening techniques. Their website contains dates for workshops and summer programs for children ages two-ten years old.

21 ACRES & THE "SEED TO TABLE FARM CAMP"

<http://www.21acres.org>

21 Acres' mission is to cultivate, demonstrate, and advance systems that support sustainable agriculture. Its camp offers a unique opportunity for kids to directly engage in activities on an organic farm while learning about sustainable farming. Opening summer 2009, the day camp will operate in one week sessions from mid-July through August. Campers will feed the chickens and collect eggs, plant seeds and harvest vegetables in the garden, and pick berries and fruit.



PUGET SOUND FRESH & CASCADE HARVEST COALITION

<http://www.cascadeharvest.org;> <http://www.pugetsoundfresh.org>

Cascade Harvest Coalition is a non-profit organization dedicated to local agriculture. Their "Helping Hands" program (in partnership with Puget Sound Farms) serves area food banks and meal programs, and facilitates Harvest Work Parties, On-Farm Education and Emergency Feeding Program Education. Their "Puget Sound Fresh" program educates on the health and environmental benefits of eating locally grown.

FEET FIRST

<http://www.feetfirst.info/act>

Feet First is a 501(c) (3) non-profit organization serving Washington State, with a focus on the Puget Sound Region. We were founded in 1996 to promote the rights and interests of pedestrians and to encourage walking.

Starting February 2009, Feet First will collaborate with youth in the Central District to increase their knowledge of and understanding about their pedestrian environment. With a grant funded by the Central Region Emergency Medical Services and Trauma Care Council, this program will work to empower youth by inviting them to reclaim their rights and responsibilities as pedestrians through volunteer and service learning opportunities.

By using Yodio, a multi-media program, and hosting walking-audit workshops we're inviting youth ages 11- 19 to document the walking environment around Garfield High and Washington Middle School. We'll be working together to showcase the challenges and changes that need to be made in the area, as well as the assets the community has to offer to students as pedestrians and citizens alike.

For more information, to share community contacts, or if you are a youth in the CD interested in getting involved, contact Megan Jackson at Feet First--megan@feetfirst.info or 206.652.2310. View the project's blog at www.walkcdseattle.blogspot.com.



LESTER BROWN LESSON PLANS FEATURING STEM

The following lesson plans feature questions and activities promoting science, technology, engineering, and math.

What is STEM?

In its broadest sense, STEM is an initiative for securing America's Leadership in science, technology, engineering, and mathematics fields and identifying promising strategies for strengthening the educational pipeline that leads to STEM careers.

Why is STEM education important?

In the report "Tapping America's Potential: The Education for Innovation Initiative," the following statement is presented showing the importance of STEM:

"For most of the 20th century, the American education system provided a substantial part of the talent and proficiency needed to sustain and improve our way of life. ... Today, however, as the U.S. economy becomes even more reliant on workers with greater knowledge and technological expertise, the domestic supply of qualified workers is not keeping up with the skill demands."

This need is demonstrated in the report by the following statistics:

- By 2010, if current trends continue, more than 90 percent of all scientists and engineers in the world will be living in Asia.
- More than 50 percent of all engineering doctoral degrees awarded by U.S. engineering colleges are to foreign nationals.
- Although U.S. fourth graders score well against international competition, they fall near the bottom or dead last by 12th grade in mathematics and science, respectively.

To maintain our country's competitiveness in the 21st century, we must cultivate the skilled scientists and engineers needed to create tomorrow's innovations.

The business and labor community has been vocal about expressing their deep concern about the United States' ability to sustain its scientific and technological competitiveness in the 21st century economy.

<http://www.sbcalliance.org/stem.htm>

You can join the STEM Education Coalition Group on Facebook. If you are interested in joining and already a member of Facebook, just search for "STEM Education Coalition" and join the group. If not yet a member of Facebook, just go to <http://www.facebook.com> and join, membership is free.

LESTER BROWN LESSON PLANS FEATURING STEM

The following questions are samples from STEM lesson plans. Challenge your students to use STEM skills in thinking about issues such as climate, population, and designing cities.

- *What appliances are in your home? What energy source powers your home? What does this have to do with climate change?*
- *What industry in China is booming? Why did energy experts and environmentalists hope China's contribution to global warming would be limited? Which country is the largest emitter of greenhouse gases?*
- *Why do you think some types of economic activity are associated with lower population densities than others?*

TIME FOR KIDS: GLOBAL WARMING

<http://www.timeforkids.com/TFK/specials/articles/0,6709,1113542,00.html>



Time for Kids is a weekly classroom news magazine that motivates kids to read! Issues cover a wide range of real-world topics kids love to learn about. A powerful teaching tool, *Time for Kids* builds reading and writing skills and is easily integrated across your curriculum, including social studies, science, and math. *Time for Kids* devotes a special report to global warming, including news, Q & A, games, ways to help, and student reports. In addition, this magazine provides teachers with K–6 lessons plans on global warming, water conservation, recycling, and energy, among others. Access these great resources by visiting <http://www.timeforkids.com/TFK>.

EIA ENERGY KIDS PAGE

<http://www.eia.doe.gov/kids>



The EIA also has a website for kids, geared for grades K-12. There are links to classroom activities, energy facts, fun and games, and a glossary. It provides useful statistics, facts, and background histories on the basics: oil, natural gas, solar and wind power, and the science of energy.

NEW YORK TIMES: ADDING FUEL TO THE FIRE

<http://learning.blogs.nytimes.com/2003/10/23/adding-fuel-to-the-fire/?scp=1&sq=adding%20fuel%20to%20the%20fire%20china&st=cse>



This website is from the Daily Lesson Plan collection, published by the *New York Times*. Students will look at the impact of China's growth in fuel consumption (global warming and the greenhouse effect), and then explore how these issues are affecting countries with both growing and high-energy usage. Then, students will graph their findings and write papers considering how continued usage could affect the future of the atmosphere and the global economy. Lesson plans are included for grades 6-8 and 9-12.

WEATHER SCOPE: AN INVESTIGATIVE STUDY OF WEATHER AND CLIMATE

<http://www.ciese.org/curriculum/weatherproj2/en/guidelessons.shtml>



In this project you will conduct an investigation on local and world weather and climate. To complete your investigation, you will have at your disposal detailed instructions that describe how to create weather instruments, how to access the Internet to locate real-time weather information from around the world, and this online educational project to guide you along.

LESTER BROWN LESSON PLANS FEATURING STEM



CLIMATE CHANGE NORTH

<http://www.climatechangenorth.ca/>

The lesson plans in Climate Change North are specifically designed to help northern students “get into” the topic of climate change. Developed by northern teachers and educators, all lessons are linked to the curriculum learning outcomes for your region.



CLIMATE CLASSROOM: WHAT’S UP WITH GLOBAL WARMING?

<http://www.nwf.org/ClimateClassroom/teens/lessonplans.cfm>

Climate Classroom Lesson Plans offer educators a way to connect with students using activity-oriented scenarios and cooperative projects. Lessons are tailored for high school students and are aligned with established teaching standards. All educational materials use timely environmental topics to get vital compelling science instruction into classrooms.



THE SCIENCE SPOT

<http://www.sciencespot.net/Pages/nclsslInks.html>

The Science Spot is a helpful website for junior high teachers and students who want to implement environmental education into their curriculum. Biodiversity activities, climatograms, and plenty of information on other environmental topics are available.



ENVIRONMENTAL PROTECTION AGENCY (EPA) PROGRAM: TEACHER RESOURCES

<http://www.epa.gov/teachers/teachresources.htm>

The Environmental Protection Agency’s (EPA) website for teachers contains numerous websites, documents, and lesson plans based on air, conservation, ecosystems, human health, local issues, waste, recycling, and water issues.

POPULATION REFERENCE BUREAU (PRB): POPULATION EDUCATION PROGRAM

<http://www.prb.org/Educators.aspx>

The PRB site contains a variety of lesson plans, teaching guides, and resources about **THE SCIENCE SPOT**



<http://www.sciencespot.net/Pages/nclsslInks.html>

The Science Spot is a helpful website for junior high teachers and students who want to implement environmental education into their curriculum. Biodiversity activities, climatograms, and plenty of information on other environmental topics are available.



GREENING SCHOOLS

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A website with information on greening school buildings and lesson plans in chemistry, physics, biology, arts and more.



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POPULATION GROWTH PROJECT

<http://k12science2.ciese.stevens-tech.edu/curriculum/popgrowthproj/>

This project, created by the Stevens Institute of Technology, includes a series of activities for students on the mathematic and environmental aspects of population growth. Students use information from the Census Bureau to model population growth and can submit their work to be published online. The activity website also includes a Teacher Guide and a list of experts and references for more information. population issues, trends, and their implications. Making Population Real, their module for AP Human Geography, won the 2006 Geography Excellence in Media (GEM) Award from the National Council for Geographic Education.



AN INTRODUCTION TO WORLD POPULATION

<http://74.125.95.132/search?q=cache:1RRKKPy3UyEJ:www.iupui.edu/~ghw/lessons/materials/PopulationUnitCH.doc+LESSON+PLAN+population+pressure&cd=4&hl=en&ct=clnk&gl=us&client=firefox-a>

This is a two-week unit plan for the purpose of introducing students to world population characteristics and distribution.



INTRODUCTION TO POPULATIONS

<http://www.bioedonline.org/slides/slide01.cfm?tk=8>

Slideshow about the populations and the interdependence of life.



WATER, WATER EVERYWHERE?

<http://school.discoveryeducation.com/lessonplans/activities/watereverywhere/>

In this lesson, students will:

1. manipulate a data module showing the relationship between population growth and water availability, and answer questions about what the chart shows;
2. draw a bar graph showing the relationship between population growth and water availability in the United States;
3. draw a similar bar graph for a country facing water scarcity; and
4. research and write an action plan for how that country can tackle its water scarcity problems.



WORLD FOOD PROGRAM (WFP): FREE RICE

<http://www.freerice.com>

A WFP program game where, by answering trivia questions on art, geography, math, science, English, and other languages online, kids can actually become a part of the solution and provide rice to needy families.



NATIONAL GEOGRAPHIC CONSERVATION LESSON PLANS

<http://www.nationalgeographic.com/geography-action/conservation.html>

What in nature do you appreciate? Clean air? Fresh drinking water? Wildflowers? Conservation is about balancing some of the needs of people—places to live, work, play, and go to school—with the need for a planet that will be healthy for years to come. Conservation helps us protect what we want to be here tomorrow for others to enjoy. Conservation and geography are closely linked. As geography helps us to better understand our planet's complexity, conservation enables us to become better protectors of its biological and cultural diversity.

Find lesson plans for classrooms of all levels about conservation issues: **biodiversity, fresh water, oceans, and population.**



FACING THE FUTURE: FOOD AND WATER

<http://www.facingthefuture.org/FTFDataDNN/60SecondTours/InDepthTours/tabid/132/Default.aspx>

The human costs of food and water insecurity are high. Drastic shortages of food and water heighten the gap between rich and poor and often lead to conflicts on both sides of the borders of a particular country. Here you can find educator-oriented information on food and water security issues globally. They have a K-4 lesson plan book called *Connections All Around: Me, My Food, and My Environment*, and a new math book called *Solving Algebraic Equations: Food Choices* with a focus on nutrition and personal well-being.



FOOD \$ENSE CHANGE (CULTIVATING HEALTH AND NUTRITION THROUGH GARDENING EDUCATION)

<http://king.wsu.edu/nutrition/change.htm>

Food \$ense CHANGE improves the nutrition of limited income children and their families by teaching a nutrition curriculum enhanced by gardening, cooking and other hands-on activities. In addition to teaching classroom lessons, primarily in elementary schools, CHANGE instructors act as a support system and resource for teachers as they incorporate nutrition education into their daily classroom work. CHANGE instructors also participate in school family nights and other family or adult outreach activities.

CHANGE integrates nutrition education with reading, writing, math, and science studies, while providing hands-on learning in cooking and gardening for elementary aged children. Through these lessons, students learn how to grow and cook their own food, the foundations of a healthy diet, key vitamins and minerals essential to a good health, the importance of fiber, and the connections between healthy soil and healthy food. Each unit is packed with engaging activities that will get your students eating vegetables and asking for more! CHANGE lessons are aligned to the Washington Essential Academic Learning Requirements (EALR's) and Grade Level Expectation GLE's).

LESTER BROWN LESSON PLANS FEATURING STEM



THE URBAN WATER CYCLE AND THE URBAN WATERSHED

<http://www.epa.gov/reg3wapd/nps/pdf/education/lesson3.pdf>

Goals

- Students will learn the basics of drinking water treatment
- Students will learn the basics of wastewater treatment
- Students will become familiar with the processes of the urban water cycle
- Students will gain an understanding of how the urban watershed mimics the natural watershed
- Students will learn how pollution occurs in an urban watershed

Objectives

- Students will review glossary of key words for this week's lesson
- Students will learn the processes of the urban water cycle through the use of an urban water cycle chart and illustration
- Students will learn how their homes and school is connected to the urban water cycle through a household plumbing diagram and illustration
- Students will review old stream maps and sewer plan maps of Mill Creek to discuss the comparisons between natural watersheds and urban watersheds
- Students will demonstrate how storm water runoff carries away pollutants by using the urban watershed model



WATER QUIZ

<http://www.un.org/cyberschoolbus/waterquiz/waterquiz4/index.asp>

Interactive image and quiz on the topic of water and water usage from the UN CyberSchoolbus.



A COUNTOURING WE GO

http://www.educatorresourcecenter.org/view_lesson.aspx?lesson_plan_id=388

This five-day lesson is intended to further develop the students' understanding of the built environment and infrastructures of their community. The students will learn how to construct contour equipment, use the equipment, and compare the results to current topographical maps of the same area. The lesson should focus on the highest hill in a park or area of town near the school. The students will construct a contour map of this hill in class.



UNDERSTANDING ZONING: ITS USE ON THE HIGH LINE IN WEST CHELSEA

http://www.educatorresourcecenter.org/view_lesson.aspx?lesson_plan_id=415

This lesson is a two-period lesson focused on introducing students to zoning. It can be used to introduce zoning anywhere, not just in Chelsea or New York City, though it was written as part of a unit based on West Chelsea in NYC.

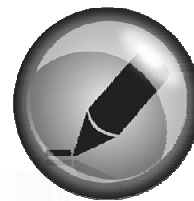


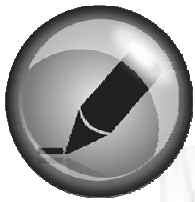
SIMULATED URBAN PLANNING

<https://dneto1.ode.state.oh.us/ims.itemdetails/lessondetail.aspx?id=0907f84c80531d70>

Students will explore how the villages and cities in which they live reflect the culture, human needs, values and ideals of their citizens. They will create plans for an ideal city and then reflect on how well they meet the needs and values of American society.

NOTES FROM LESTER BROWN EVENT

A large, faint background image of a spiral-bound notebook with horizontal lines and a pen resting on it. The notebook is open, showing multiple pages with horizontal ruling. A pen is positioned vertically on the right side of the notebook. The entire image is in a light gray, watermark-like style.



NOTES FROM LESTER BROWN EVENT

A large, faint background image of a spiral-bound notebook with horizontal lines and a pen resting on it, serving as a template for notes.

NOTES FROM LESTER BROWN EVENT

