

CLIMATE CHANGE

Annotated Bibliography of K-12 Educational Resources

Wisconsin Center for Environmental Education (12/11)

The following list consists of selected resources on the general topic of climate change. This inherently includes related topics such as air pollution, global warming, and the greenhouse effect. Many resources specifically about air or pollution individually may not be directly included here, but are available. All materials listed below are available for loan at the WCEE Resources Library. Materials are also available for purchase from a variety of book stores, Acorn Naturalist, or Amazon.com. Please call or visit the WCEE for assistance or visit our web site at www.uwsp.edu/wcee/library for additional information on borrowing resources.

Special note: Many people believe that today there is less of a controversy about whether or not global climate change is actually occurring, and maintain that human-induced climate change is generally well-accepted. This may be important to consider when designing a climate change curriculum for your classroom, as many of the older resources focus in some measure on this “controversy”. The controversy today may in fact be more about when and what types of actions should be taken in regard to climate change.

Teaching Activity Guides

Air by Ava Drutman, Good Apple, Carthage, IL. (1992).

Less an activity guide and more a series of worksheets. Works best, therefore, as a supplement to existing curricula. Reproducible handouts often include vocabulary and background information.

Grade levels: K-6 Length: 46 pages

Borrowing: Check your local library or the WCEE (call number: AC AR 5)

Project A.I.R.E by US Environmental Protection Agency. (1994)

Contains various activities dealing with indoor and outdoor air pollution. Well organized, includes several suggestions for further reading.

Grade Levels: K-12

Available for free downloadable from: <http://www.epa.gov/ne/students/teacher/aire.html>.

Borrowing: Check your local library or the WCEE (call number AC AR 8)

Teaching About Climate Change by Tim Grant and Gail Littlejohn. New Society Publishers, Gabriola Island, BC. (2001).

Developed with Green Teacher magazine, this publication serves as a combination activity guide and source for background information. An anthology of articles or activities written by classroom teachers. Very complete.

Grade levels: K-12, Adult Length: 58 pages

Available for purchase from: AcornNaturalist.com or Amazon.com (\$14.95)

Borrowing: Check your local library or the WCEE (call number: AC CC 8)

A Teacher's Guide to How We Know What We Know About Our Changing Climate: Lessons, Resources, and Guidelines by Carol N. Malnor. Dawn Publications/Nevada City, CA. (2008).

Designed by a teacher for teachers, this guide includes activities that tie into the children's book (How We Know What We Know About Our Changing Climate: Scientists and Kids Explore Global Warming-BY CC 9) and pages to be copied for the lessons. (See Books for Youth in this packet)

Grade levels: 5-9 Length: 56 pages

Available for purchase from: Amazon.com (\$8.95)

Borrowing: Check your local library or the WCEE (call number: AC CC 6)

Forecasting the Future by The Stephen Birch Aquarium-Museum Education Department, National Science Teachers Association, Arlington, VA. (1996).

Five chapters of background information about climate are linked to 14 different activities in animal biology, chemistry, geology, meteorology, physics, and plant biology. Also includes extension activities, glossary, and annotated bibliography.

Grade levels: 5-12 Length: 149 pages

Borrowing: Check your local library or the WCEE (call number: AC CC 7)

Global Warming & the Greenhouse Effect by Lawrence Hall of Science, University of California at Berkeley, Berkeley, CA. (1990).

An oldie but a goodie. This activity guide is very teacher-friendly. It is specifically about climate change. Many experiments and demonstrations are explained in a very useable format.

Grade levels: 5-12 Length: 170 pages

Available for purchase from: Amazon.com (5.91) AcornNaturalist.com (\$27.95)

Borrowing: Check your local library or the WCEE (call number: AC CC 5)

Climate Change: Connections and Solutions by Facing the Future. Seattle, WA (2007).

Complete curriculum covering topics on climate change, including unit lessons, readings, and assessments. Curriculum available for 6-8 grade levels and 9-12 grade levels.

Grade levels: 6-8 and 9-12 Length: 121 pages each

Free downloads available from: <http://www.facingthefuture.org>

Borrowing: Check your local library or the WCEE (call number: AC CC 9 and AC CC 10)

Climate Change: A Wisconsin Activity Guide. by Wisconsin Department of Natural Resources. Wisconsin Environmental Education Board. (2009).

Guide for developing the knowledge and skills needed to become informed participants in society's climate change discussions and to take action.

Grade levels: 7-12 Length: 86 pages

Free download available from: <http://www.dnr.wi.gov/ee/teacher/climatechangeuide.htm>

Borrowing: Check your local library or the WCEE (call number: AC CC 2)

Going Places, Making Choices by The National 4-H Council. National 4-H Council, Chevy Chase, MD. (1999).

A series of 5 booklets (essentially mini-activity guides) focusing on transportation and mobility issues. The third booklet deals specifically with climate change, but the other booklets are also quite relevant. Usable formats.

Grade levels: 9-12 Length: 17-22 pages each

Available for purchase from: http://www.fourhcouncil.edu/enviro_gpmc.aspx (\$10.00)

Borrowing: Check your local library or the WCEE (call number: AC LS 8)

Ozone by Norman Anderson, Kendall/Hunt Publishing Company, Dubuque, IA. (1996).
An activity guide specifically dealing with ozone and how it related to weather conditions, air quality, etc. Activities are presented in a useable format that is supplemented with a glossary and list of additional resources.

Grade levels: 9-12 Length: 146 pages

Borrowing: Check your local library or the WCEE (call number: AC AR 17)

Videos/DVDs

An Inconvenient Truth: A Global Warning by Paramount, Hollywood, CA. (2006).

Former Vice President Al Gore explains the facts of global warming, presents arguments that the dangers of global warming have reached the level of crisis, and addresses the efforts of certain interests to discredit the anti-global warming cause. Between lecture segments, Gore discusses his personal commitment to the environment, sharing anecdotes from his experience.

Grade levels: 5-9, 9-12, adult Length: 96 minutes

Available for purchase from: Amazon.com (\$14.95) AcornNaturalist.com (\$29.95)

Borrowing: Check your local library or the WCEE (call number: AV DVD CC 13)

Climate Change and Our Future by Classroom Encounters, Natick, MA. (2006).

Dr. William Moomaw, atmospheric chemist at Tufts University, discusses climate change with 9th grade students at Wellesley High School in Wellesley, MA.

Grade levels: 9-12 Length: 80 minutes

Borrowing: Check your local library or the WCEE (call number: AV DVD CC 11)

The Eyes of Nye: Global Climate Change by Disney Educational Productions, Elk Grove Village, IL. (2005).

Find out how scientists measure climate change, how CO₂ affects the Earth, and discover what role fossil fuels play in climate change. Nye takes an in-depth look at the possible causes of global warming. DVD extras include printable educator's guide, web links, and activities.

Grade levels: 9-12 Length: 23 minutes

Available for purchase from: www.dep-store.com (\$30.00)

Borrowing: Check your local library or the WCEE (call number: AV DVD CC 5)

Too Hot Not to Handle by HBO Home Video. (2006).

This video provides a good introduction to the issue of climate change, including a useful demonstration of the greenhouse effect. It also shows how climate change affects the United States.

Grade levels: 9-12, adult Length: 54 minutes

Available for purchase from: Amazon.com (\$14.95)

Borrowing: Check your local library or the WCEE (call number: AV DVD CC 15)

60 Minutes: Global Warming by CBS Broadcasting, Inc. (2006).

This short 60 Minutes segment summarizes the evidence in the Arctic supporting that global warming is real. This evidence includes melting ice caps, the intensity of storms, and the extinction of polar bears.

Grade levels: Adult Length: 10 minutes

Borrowing: Check your local library or the WCEE (call number: AV DVD CC 16)

Books for Youth

The Magic School Bus and the Climate Challenge by Joanna Cole and Bruce Degen, Scholastic Press, New York, NY. (2010).

Ms. Frizzle takes her class on an adventure examining the effects of global warming on places like the arctic. There are many fun facts and illustrations.

Grade Levels: K-6 Length: 39 pages

Available from purchase from: Amazon.com (\$11.55)

Borrowing: Check your local library or the WCEE (call number BY CC 12)

The Red Coral House by Jeff Hartman. Hartman, Oracle, AZ. (2002).

Fiction. A snail and a coral polyp search out the Red Coral House only to find it spotted white and dying. A “wise old grouper” helps explain how warmer oceans are causing many problems, including the one with the Red Coral House. A good way to help introduce the concept of climate change to younger students.

Grade levels: K-4 Length: 31 pages

Available for purchase from: Amazon.com (\$7.95)

Borrowing: Check your local library or the WCEE (call number: BY EG 68)

The Down-to-Earth Guide to Global Warming by Laurie David and Cambria Gordon, Orchard Books, New York, NY. (2007).

A vibrant and easy to read non-fiction book for students that uses real-life examples to help explain global warming.

Grade levels: 4-9 Length: 112 pages

Available for purchase from: Amazon.com (\$10.87)

Borrowing: Check your local library or the WCEE (call number: BY CC 8)

Global Warming by Sally Morgan, Reed, Chicago, IL. (2003).

Non-fiction. Similar in scope and presentation to the above two resources, quite comprehensive. Includes many pictures and charts as well as timeline, glossary, and list for further reading.

Grade levels: 5-9 Length: 64 pages

Available for purchase from: Amazon.com (\$15.54)

Borrowing: Check your local library or the WCEE (call number: BY CC 2)

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

This book introduces young scientists to the evidence supporting climate change, from birds, trees, flowers, and much more. It then suggests what can be done about it. It has a Teacher’s Guide that couples this book, A Teacher’s Guide to How We Know What We Know About Our Changing Climate: Lessons, Resources, and Guidelines about Global Warming.(AC CC 6)

Grade levels: 5-9 Length: 66 pages

Available for purchase from: Amazon.com (\$12.89)

Borrowing: Check your local library or the WCEE (call number: BY CC 9)

The North Pole Was Here by Andrew C. Revkin, Houghton Mifflin, Boston, MA. (2006).

This non-fiction narrative by New York Times reporter Andrew Revkin chronicles his time spent in the North Pole with oceanographers and climatologists. Interspersed by his personal account are historical facts and stories and other related Times articles.

Grade levels: 5-Adult Length: 128 pages

Available for purchase from: Amazon.com (\$5.26) AcornNaturalist.com (\$10.95)

Borrowing: Check your local library or the WCEE (call number: BY CC 7)

Reference/Background Books

The Complete Idiot's Guide to Global Warming by Michael Tennesen, Alpha Books, New York, NY. (2004).

This book is a good introductory text for those who want to know more about the complex topic of climate change and global warming. This book is easy to read and educational for those starting out in their examination of the field, though further reading on this topic will show that some of the core premises of the book are more contentious than the author seems to think.

Grade levels: 9-12, adult Length: 315 pages

Available for purchase from: Amazon.com (\$12.89)

Borrowing: Check your local library or the WCEE (call number: BA CC 28)

Field Notes from a Catastrophe: Man, Nature, and Climate Change by Elizabeth Kolbert, Bloomsbury, New York, NY. (2006).

Long known for her insightful and thought provoking political journalism, author Elizabeth Kolbert now tackles the controversial and increasingly urgent subject of global warming. This is the author field notes and she asks what, if anything, can be done to save our planet. Easy read and very insightful piece of literature.

Grade levels: 9-12, adult Length: 210 pages

Available for purchase from: Amazon.com (\$12.00)

Borrowing: Check your local library or the WCEE (call number: BA CC 25)

Taking Sides: Clashing Views on Environmental Issues by Thomas A. Easton, McGraw-Hill Higher Education, New York, NY (2010).

The debate-style book is designed to introduce students to controversies in environmental policy and science. Issues are divided into clear "yes" and "no" sides where students must use critical thinking skills to analyze the issues. Includes a section focused on climate change. A great resource!

Grade levels: 9-12, Adult Length: 408 pages

Available for purchase from: Amazon.com (\$31.27)

Borrowing: Check your local library or the WCEE (call number: BA EG 033)

Global Warming: Personal Solutions for a Healthy Planet by Christopher Spence, Palgrave Macmillan, New York, NY. (2005).

Christopher Spence goes step-by-step, explaining the problems and threats, the scientific views, and the role of both government and business in generating the predicament and creating possible solutions.

Grade levels: 9-12, adult Length: 191 pages

Available for purchase from: Amazon.com (\$24.26)

Borrowing: Check your local library or the WCEE (call number: BA CC 22)

Low Carbon Diet: A 30 Day Program to Lose 5000 Pounds by David Gershon, Empowerment Institute, Woodstock, NY. (2006).

This interesting book lays out how to reduce one's annual carbon dioxide emissions. It includes 22 areas that can be altered to reduce emissions and clearly describes what actions should be taken. The book also includes checklists and schedules to monitor one's progress or to help motivate a team of people/households interested in the Low Carbon Diet.

Grade levels: 9-12, adult Length: pages

Available for purchase from: Amazon.com (\$10.36)

Borrowing: Check your local library or the WCEE (call number: BA LS 63)

Six Degrees: Our Future On A Hotter Planet by Mark Lynas. National Geographic Society. (2008).

This book tackles the issue of global warming and breaks down the catastrophic results: to the degree. Six chapters (one for each increase of temp.) depict the changes in the Earth and its effects on us all.

Grade levels: Adult/University Length: 336 pages

Available for purchase from: Amazon.com (\$11.53)

Borrowing: Check your local library or the WCEE (call number: BA CC 45)

Facts and Trends to 2050: Energy and Climate Change by World Business Council for Sustainable Development, Earthprint Limited. (2004).

This publication provides an overview of key facts and societal challenges to economic development, future energy demand and the impact that demand could have on the climate system.

Grade levels: Adult Length: 13 pages

Borrowing: Check your local library or the WCEE (call number: BA CC 19)

Our Changing Planet by Subcommittee on Global Change, Office of Science and Technology. (2004).

This report focuses on the scientific study of the Earth's system and its components. Advocates for global change research.

Grade levels: Adult Length: 150 pages

Borrowing: Check your local library or the WCEE (call number: BA CC 9)

State of the World Population 2009 by UNFPA. (2009).

This report discusses population dynamics, reproductive health care, and human relationships across the globe with regard to women and their connection to climate change.

Grade levels: Adult Length: 94 pages

Available for free pdf download from: www.unfpa.org/swp/2009/en/

Borrowing: Check your local library or the WCEE (call number: SER SWP 01)

Up in Smoke? Threats from, and responses to, the impact of global warming on human development by Andrew Simms, New Economics Foundation, London. (2004).

This report represents an unprecedented coming together of leading environmental and development organizations with decades of experience working with poor communities across the world. It discusses the impacts of climate change on human existence across the globe.

Grade levels: Adult Length: 36 pages

Available for purchase from: Amazon.com (\$12.75)

Borrowing: Check your local library or the WCEE (call number: BA CC 16)

Vital Climate Change Graphics by UNEP/GRID-Arendal, Arendal, Norway. (2005).

This publication seeks to translate the complex subject of climate change into material that can be useful to a broad range of readers. Divided into 3 sections, it covers fundamentals, impacts, and conclusions.

Grade levels: Adult Length: 23 pages

Available for purchase from: Amazon.com (\$20.00)

Borrowing: Check your local library or the WCEE (call number: BA CC 17)

Websites

Climate Kids by National Aeronautics and Space Administration (NASA)

This web site is a great place for kids learning about climate changes. There are games, activities, videos, and resources for teachers. There are some things for young children through middle school.

Grade Level: 2-9

Web link: <http://climate.nasa.gov/kids>

Bill Nye's Climate Lab by Chabot Space and Science Center

BillsClimateLab.org offers fun missions and activities that increase climate literacy and teach energy-saving strategies for many areas of daily life.

Grade Level: 4-7

Web link: <http://billsclimatelab.org>

Global Warming 101 by the Will Steger Foundation, Minnesota

Following along on Will Steger's expeditions to the Arctic. Students can learn firsthand accounts of the conditions in the arctic by asking questions or viewing segments available online. Free curriculum is developed for middle school but can be adapted for younger or older grades.

Grade Levels: 4-12

Web link: www.globalwarming101.com

Paradise Lost by Center for Biology Education at University of Wisconsin-Madison

This website is designed as a resource for high school and middle school teachers on the topic of climate change. This project has grown out of the Paradise Lost? Climate Change in the Northwoods Art exhibition and Community Education Project.

Grade Level: 6-12

Web link: <http://cbe.wisc.edu/paradiselost/>

Leonardo DiCaprio's short online films 'Global Warning' and 'Water Planet' by Leonardo DiCaprio Web Site, Greenhour Corporation, Inc.

This "eco-site" provides information and action steps you can take to get informed about climate change and global water issues.

Grade Level: 6-12, adult

Web link: www.leonardodicaprio.org

Stop Global Warming by Stop Global Warming

This web site is filled with tips to reduce greenhouse gases, video clips from famous actors, musicians, politicians, etc. and information from scientists.

Grade level: 6-adult

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

Zerofootprint by Zerofootprint Foundation

Zerofootprint offers students and schools two good sections of their web site. The Zerofootprint Challenge allows students take climate change into their own hands by competing to reduce their environmental impact. Schools can sign up to compete against other schools. The Zerofootprint Youth Calculator has students answer questions about their lifestyles to determine how many “carbon earths” would be needed if everyone followed their pattern of consumption.

Grade Level: 6-12

The Zerofootprint Challenge web link: <http://www.zerofootprintfoundation.org/schools-universities/zerofootprint-challenge/>

The Zerofootprint Youth Calculator web link: <http://calc.zerofootprint.net/youth/neew>

**Note: Other carbon footprint calendars exist for younger and older age groups. The best calculators will allow for comparison and provide tips and suggestions for improvement.*

Curriculum Guide for the Climate Impact Map by the Union of Concerned Scientists

Global Warming: Early Warning Signs: Curriculum Guide for High School Courses in Biology, Environmental Science, Geography, Earth Science and others focusing on the society-environment interface.

Grade Level: 9-12

Web link: www.climatehotmap.org/curriculum/index.html

Carbon Off Sets by Trexler Climate and Energy Services

A consumer guide to help reduce carbon emissions through their purchasing power.

Grade Levels: 9-Adult Length: 41 pages

Web link: <http://www.cleanair-coolplanet.org/ConsumersGuidetoCarbonOffsets.pdf>

Climate Change by United States Environmental Protection Agency (EPA)

The EPA’s climate change site includes overviews of the causes and impacts of climate change. Topics include Health and Environmental Effects, U.S. Climate Policy, and Environmental Economics. There is a helpful “Basic Information” section, which includes frequently asked questions covering Climate Change and Health Effects and Climate Change and Society.

Grade Level: 9-adult

Web link: www.epa.gov/climatechange

Climate Literacy: The Essential Principles of Climate Science by National Oceanic and Atmospheric Association (NOAA) (2009). PDF File.

NOAA’s Climate Literacy Framework contains an explanation of climate science and climate change causes and impacts, broken down by topic.

Grade Level: 9-adult

Web link: <http://climate.noaa.gov/education/pdfs/ClimateLiteracyPoster-8.5x11-March09FinalLR.pdf>

Transportation and Climate Change Clearinghouse by United States Department of Transportation (DOT), Center for Climate Change and Environmental Forecasting

Provides information regarding how transportation contributes to climate change and what can be done to reduce negative impacts.

Grade Level: 9-adult

Web link: <http://climate.dot.gov>

Government Policy and Programs by Environmental and Energy Study Institute

Bulleted list and links to information on government policies and programs related to energy conservation, renewable energy programs, and buildings programs.

Grade Level: 11-adult

Web link: <http://eesi.org/gov>

Union of Concerned Scientists Publications by Union of Concerned Scientists

This website contains a number of documents and publications for free downloads. Topics vary but a few publications that are recommended are the following: Common Sense on Climate Change: Practical Solutions to Global Warming (2002), Confronting Climate Change in the Great Lakes Region: Impacts on Wisconsin Communities and Ecosystems (2003), and Global Warming Solutions: Reducing Heat-Trapping Emissions in the Great Lakes Region (2003)

Grade Level: 11-adult

Web link: www.ucsusa.org/publications/#environment