ENERGY

Annotated Bibliography of K-12 Education Resources

Wisconsin Center for Environmental Education (06/18)

The following list consists of selected resources on the general topic of Energy. Materials are organized in order by teaching material type and grade level. Materials are 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 https://www.uwsp.edu/cnr-ap/wcee/Pages/default.aspx for additional information on borrowing resources.

Teaching Activity Guides

KEEP Energy Education Activity Guide and Student Book by K-12 Energy Education Program, et. al. Wisconsin Center for Environmental Education, Stevens Point, WI. (2005, activities revised 2016).
Makes the sometimes intimidating topic of energy understandable to students of all ages. Organized by themes and grade levels to facilitate use in finding appropriate activities. Comprehensive.
Grade levels: K-12 Length: 48 activities, 406 pages
Printed guides (2005) are available through KEEP workshops, all revised activities are available as PDFs online at: https://www.uwsp.edu/cnr-ap/KEEP/Pages/EnEdActGuide.aspx

Doable Renewables by K-12 Energy Education Program, Focus on Energy and Wisconsin Center for Environmental Education, Stevens Point, WI. (2016).
A renewable energy education supplement to the KEEP activity guide and student handbook. This guide further explains and develops the concepts of renewable energy systems.
Grade levels: K-12 Length: 195 pages
Printed guide (2016) available through KEEP workshops, several revised activities available as PDFs online at:
https://www.uwsp.edu/cnr-ap/KEEP/Pages/Professional-Development/NRES-632-Course-Support.aspx

Primary, Elementary, Intermediate, and Secondary Energy InfoBooks by NEED Project, Manassas, VA.
This is a series of energy education materials developed by the National Energy Education Development Project. It introduces students to various energy resources and how they are put to use.
Grade levels: K-12 Length: varies
Available for free download from: http://www.need.org/curriculum

World Energy: Empowering the Future by Richard Thornton, Caroline Starbird and Samantha Ertenberg, Center for Teaching, International Relations, U of Denver, Denver, CO. (2004)
Using an international focus, students will learn to do research projects and think critically about energy use, including the use of nuclear power, oil, biomass, and renewable energy. All lessons and the final assessment are tied to national standards.
Grade levels: 5-12 Length: 8 activities, 58 pages
Available for purchase from: Amazon.com

Videos/DVDs

Bill Nye the Science Guy (Series) by Disney Educational Productions, Elk Grove Village, IL. (1996).

Energy-themed specials from the popular and fast-paced children's show. Topics include "Friction," "Simple Machines," "Static Electricity," "Magnetism," and numerous others. Many experiments are demonstrated.
Grade levels: 4-9 Length: Approx.45 minutes each
Available for purchase from: Amazon.com (approx. $25 per DVD)
Borrowing: Check your local library or the UWSP Library

Into the Outdoors (Series) by Discover Media Works (2008).
Wisconsin based production lead by middle school children. The two episodes related to energy are Tread Lightly and Power Shift. Great for schools
Grade levels: 4-9 Length: Approx.25 minutes each
Available for purchase from: Discover Mediaworks www.intotheoutdoors.org (approx. $25 per DVD)

The Veggie Van Voyage by Joshua Tickell, Joshua Tickell Productions/The Veggie Van Organization. (2003).
A college student learns to make biodiesel and uses it to drive his van across the country.
Grade levels: 4-6, 5-9, 9-12, adult Length: 12 minutes
Borrowing: Check your local library or the UWSP Library (call number: TL214.F78 T56 2003)

Kilowatt Ours: Energy Conservation and Renewables by Jeff Barrie, The Video Project, San Francisco, CA. (2004).
This documentary looks at the consequences of our dependency on coal, including the health effects of air pollution, destruction of wildlife and topography, and global warming. It also walks the viewer through ways to be more energy efficient, including switching to various renewable sources.
Grade levels: 5-adult Length: 35 minutes
Available for purchase from: https://www.videoproject.com/Kilowatt-Ours.html ($89.00)
Borrowing: Check your local library

Who Killed the Electric Car by Martin Sheen, Sony Pictures (2006)
This film investigates the events leading to the quiet destruction of thousands of new, efficient electric vehicles which led to a fossil fuel dependent auto industry.
Grade levels: 9-adult Length: 92 minutes
Available for purchase: Amazon ($9.79)
Borrowing: Check your local library of the UWSP Library (call number: TL220 .W46 2006)

The Eyes of Nye: Nuclear Energy by Disney Educational Productions/ Elk Grove Village, IL. (2005).
Nye weighs the risks and advantages of nuclear power as an alternative energy and visits a nuclear reactor and a proposed nuclear waste site. DVD extras include printable educator's guide, web links, and correlated activities.
Grade levels: 9-12 Length: 25 minutes
Available for purchase from: https://www.libraryvideocompany.com/bill-nye-the-science-guy-nuclear-energy-CE2523-p/ce2523.htm ($14.99)
Borrowing: Check your local library of the UWSP Library (call number: TK9148 .E94 2005)

Escape from Suburbia: Beyond the American Dream by Gregory Greene, Canada. (2007).
Examines how modern civilization is approaching the limits of growth and the end of cheap oil. Focuses on suburbs as both the symbol and cause of problems and examines several couples who have chosen to "opt out" of the "American Dream" to live more meaningful lives.
Grade levels: 9-12, adult Length: 95 minutes
Available for purchase from: Amazon.com ($4.94)

Borrowing: Check your local library of the UWSP Library (call number: HT352.U6 E83 2007)

Solar Energy: Saved by the Sun by NOVA, WGBH, Boston, MA. (2007).
This documentary explores solar power, its history, benefits and drawbacks. It explains how solar energy works, from silicon-based solar panels on homes, up to the mirror-based solar plant in the Mojave Desert.
Grade levels: 9-12, adult Length: 56 minutes
Available for purchase from: shop.pbs.org ($17.99) or Amazon.com ($16.93)

Switch: Discover the Future of Energy (Education Edition) by Arcos Films (2013).
This film provides a fun, engaging opportunity for students to learn about the energy issues that drive our world, and the part we all play in our global energy future. It can be shown in chapters or in its entirety. It has primer videos on different energy sources and information on current energy issues.
Grade levels: 5-12, adult Length: 98 minutes
Available for free download or streaming: http://www.switchenergyproject.com/education/free-dvd-and-online-access
Borrowing: Check your local library of the UWSP Library (call number: TJ163.2 .S937 2013)

Books for Youth

An Energy Expert At Home by Joanne Meier and Cecilia Minden, Child's World, Makato, MN. (2010).
Herbie Bear and his family try different energy-saving methods around the house like taking shorter showers and turning the TV off. This book is full of fun illustrations.
Grade Levels: Pre-K-4 Length: 32 pages
Available for purchase from: Barnes & Noble ($24.21)
Borrowing: Check your local library of the UWSP Library (call number: PZ7.M5148 Ene 2010)

The Magic School Bus and the Electric Field Trip in the Classroom by Joanna Cole and Bruce Degen. Scholastic, New York, NY. (1997).
Fiction. The energy installment of this popular series. An interesting story containing many "Energy Facts." Looks at the energy generation, safety, sources, mechanics, and more. See also the accompanying teachers' guide (AC EN 55), which includes science lessons, pre/post reading activities, and additional resource lists.
Grade levels: K-4 Length: 48 pages
Available for purchase from: Amazon.com ($4.71) or Barnes & Noble ($5.94)
Borrowing: Check your local library of the UWSP Library (call number: TK148 .C572 2000)

Sun Song by Jean Marzollo, Harper Collins. (1995).
This book follows the path of the sun through a young boy's eyes for a full summer day. Illustrates how animals and plants respond to the sun's changing light. Beautiful pictures!
Grade levels: K-4 Length: 30 pages
Available for purchase from: Amazon.com ($16.99)

Excited About Energy by Nadia Higgins, Magic Wagon, Edina, MN. (2009)
Explore the background on what energy is and how it functions through funny cartoons and real life examples.
Grades Levels: K-4 Length: 32 pages
Available for purchase from: Amazon.com ($8.62)
Borrowing: Check your local library or the UWSP Library (call number: TJ163.23 .H54 2009)

Why Should I Save Energy? By Jen Green, Hodder Wayland, Hauppauge, NY. (2001).

This book uses fun pictures and simple text to show the importance of saving energy. There are notes for parents and teachers that will help them use this book most effectively.
Grade Levels: K-4 Length: 32 pages
Available for purchase from: Amazon.com ($18.78)
Borrowing: Check your local library of the WCEE (call number: BY EN 84)

My Light: How Sunlight Becomes Electricity, by Molly Bang, New York, NY. (2004).
Often taken for granted, the sun gives us more than its light. In this book, a celebration of the wonder and power of the sun and its radiance. With dazzling paintings and a simple poetic text, MY LIGHT follows the paths of the sun's rays, showing the many ways in which we obtain energy from its light. Bang uses a story to explain the basic concepts behind electricity and our energy resources--a compelling and easily-accessible way to present a non-fiction subject.
Grades Levels: K-4 Length: 34 pages
Available for purchase from: Amazon.com ($14.98)

Living Sunlight: How Plants Bring the Earth To Life, by Molly Bang, New York, NY. (2009).
This book shows children, teachers, and parents the remarkable magic of what makes us human. This informative yet dramatic book will mesmerize readers and help further a child's understanding of the energy we share with all living things in nature. We are all dancing sunlight.
Grades Levels: K-4 Length: 40 pages
Available for purchase from: Amazon.com ($14.50)
Borrowing: Check your local library or the UWSP Library (call number: QK882 .B26 2009)

Buried Sunlight: How Fossil Fuels Have Changed the Earth, by Molly Bang, New York, NY. (2014).
This book presents the fascinating, timely story of fossil fuels. What are fossil fuels, and how did they come to exist? This engaging, stunning book explains how coal, oil, and gas are really "buried sunlight," trapped beneath the surface of our planet for millions and millions of years.
Grades Levels: K-4 Length: 48 pages
Available for purchase from: Amazon.com ($14.87)
Borrowing: Check your local library or the UWSP library (call number: TP318.3 .B36 2014)

Energy Makes Things Happen by Kimberly Brubaker Bradley, Harper Collins, New York, NY. (2003)
This book explores why, when, and how energy is used in our day to day life through fun colorful illustrations.
Grade Levels: K-6 Length: 35 pages
Available for purchase from: Amazon.com (Used $8.17) or Barnes & Noble ($16.89)
Borrowing: Check your local library or the UWSP Library (call number: QC73.4 .B73 2003)

Pass the Energy, Please! By Barbara Shaw, Nevada City, CA. (1999).
This book is a favorite of elementary science teachers for the food chain. Each of the creatures passes the energy in its own unique way. In this upbeat rhyming story, the food chain connects herbivores, carnivores, insects and plants together in a fascinating circle of players. All beings on Earth--from the anchovy to the zooplankton--depend upon the green plant, which is the hero of the story. The special talent of the author shines again for being able to present the science curriculum so concisely, creatively, and cleverly.
Grades Levels: 3-5 Length: 28 pages
Available for purchase from: Barnes & Noble ($8.95)
Borrowing: Check your local library or the UWSP library (call number: QH541.14 .M37 1999)

Alternative Energy Sources by Sally Morgan, Heinemann Library, Chicago, IL. (2003).
Covers fossil fuels and the problems associated with them. Then covers different alternative energy sources, providing background on how they operate, new research, how they are currently used, and any controversy associated with them.
Grade levels: 4-6 Length: pages
Available for purchase from: Amazon.com (Used $11.20)
Borrowing: Check your local library or the UWSP library (call number: TJ808.2 .M67 2003)

Renewing Energy (Our World Our Future) by Sharon Dalgleish, Chelsea House, Broommal, PA. (2002).
Covers energy basics including the history of energy use, where it comes from, and why we need it. Briefly explains the greenhouse effect and global warming and then explains nuclear waste, transportation pollution, and acid rain. Shows how recycling can help and mentions the need for a global treaty (Kyoto).
Grade levels: 4-6 Length: 32 pages
Available for purchase from: Amazon.com (Used $6.01)
Borrowing: Check your local library or the UWSP library (call number: TJ808 .D35 2003)

The Green Musketeers and the Incredible Energy Escapade by Sara St. Antoine. Clarion Books, New York, NY. (1996).
Fiction. A chapter book about a group of students who form an environmental group and work on saving evergy at their school.
Grade levels: 4-9 Length: 134 pages
Borrowing: Check your local library of the WCEE (call number: BY EN 7)

Potato Clocks and Solar Cars: Renewable and Non-renewable Resources by Elizabeth Raum. Raintree/Chicago, IL. (2008).
This book introduces the reader to renewable and non-renewable energy resources. Complete with visual examples as well as a key term aid. Great introductory source!
Grade levels: 4-9 Length: 32 pages
Available for purchase from: Amazon.com ($8.29)
Borrowing: Check your local library or the UWSP library (call number: TJ163.23 .R38 2008)

Empty by Susan Weyn, Scholastic Inc., New York, NY (2010)
Excellent book on a community that struggles when the USA runs out of oil supply. The book is written from a high school student's perspective.
Grade levels: 9-12 Length: 183 pgs.
Available for purchase from: Amazon.com ($14.65)

Fueling the Future (Series: Coal, Oil, Nuclear Power, Natural Gas, Hydrogen, Biomass, Wind, Geothermal Power, Water, Solar) by Thomson Gale, Farmington Hills, MI. (2007).
Discusses the advantages and disadvantages of various energy sources and how they would potentially be implemented into our current society.
Grade levels: 9-12 Length: varies
Available for purchase from: Amazon.com ($36.00 each)

Reference/Background Books

Biodiesel: Growing a New Energy Economy by Greg Pahl, Chelsea Green, White River Junction, VT. (2005).
This book outlines the history of biodiesel, explains biodiesel technology, and explores its potential as an energy source.

Grade levels: 9-12, Adult Length: 281 pages
Available for purchase from: Amazon.com or Barnes & Noble ($15.25)
Borrowing: Check your local library or the UWSP library (call number: TP359.B46 P34 2005)

American Energy: The Renewable Path to Energy Security by Worldwatch Institute and Center for American Progress. (2005).
This book shows that an energy future based on abundant and clean renewable resources is not only urgently needed, but achievable. The areas that it covers are Geothermal Energy, Solar Heating, and Hydropower.
Grade levels: Adult Length: 38 pages
Available for purchase from: http://www.worldwatch.org/node/4405 ($9.95)
Borrowing: Check your local library or the UWSP library (call number: TJ808 .A49 2006)

Earth: The Sequel by Fred Krupp and Miriam Horn. W.W. Norton & Company/New York, NY. (2008).
This book introduces the reader to the bold innovators who are blending business and technology as they reinvent energy. The authors explain technologies and the horizon for cleaner energy, from natural gas and biodiesel to molecular kinetic energy.
Grade levels: Adult/University Length: 279 pages
Available for purchase from: Amazon.com ($6.98)
Borrowing: Check your local library or the UWSP library (call number: TJ163.4.U6 K78 2008)

The Party's Over: Oil, War and the Fate of Industrial Societies by Richard Heinberg. New Society Publishers, Gabriola Island, BC. (2003).
Deals with the decline of cheap oil and how competition will likely lead to resource wars. Also covers how alternative energies can help compensate for oil and offers potential solutions for the future.
Grade levels: Adult Length: 274 pages
Available for purchase from: Amazon.com ($14.50)
Borrowing: Check your local library or the WCEE library (call number: BA EN 73)

Solar Water Heating: A Comprehensive Guide to Solar Water and Space Heating Systems by Bob Ramlow, New Society Publishers, Gabriola Island, Canada. (2006).
Reviews the history of solar water & space heating systems from prehistory to the present, then presents the basics of solar water heating, including an introduction to modern solar energy systems, energy conservation, and energy economics.
Grade levels: Adult Length: 238 pages
Available for purchase from: Amazon.com or Barnes & Noble ($18.96)
Borrowing: Check your local library or the WCEE library (call number: BA EN 84)

The Home Energy Diet: How to Save Money by Making your House Energy-smart by Paul Scheckel, New Society Publishers, Gabriola Island, Canada (2005).
Conveys every detail of how your home uses - and can potentially save - energy, in an understandable yet comprehensive and fun style.
Grade levels: Adult Length: 308 pages
Available for purchase from: Amazon.com or Barnes & Noble ($11.49)
Borrowing: Check your local library or the UWSP library (call number: TJ163.5.D86 S29 2005)

Demonstration Materials

Energy Audit Kit by KEEP

The Energy Audit Kit includes easy-to-use tools to perform simple energy assessments and behavior investigations in the classroom. Monitor plug load, moisture, light, and temperature levels to find energy loss in any building. Aids in integrating technology into math and science curriculum.
Grade levels: 4-adult
Borrowing: To borrow from the WCEE/KEEP office, visit their website at
http://www.uwsp.edu/cnr-ap/KEEP/Pages/Resources/Teaching/Hands-on.aspx
Note: When borrowing from WCEE/KEEP, this item can be shipped.

Pedal Power by A1 Cable Solutions, Inc.
The Pedal Power is a tool that you can use in your classroom to teach about energy production, use, and conservation. Students can actually ride a stationary bike to power a generator, which in turn powers an incandescent light bulb, a compact fluorescent light bulb (CFL), a light emitting diode (LED), a hair dryer, a radio, a fan, and more. There is also a photovoltaic (PV) panel that can be used instead of a generator.
Grade levels: 4-adult
Borrowing: To borrow from the WCEE/KEEP office, visit their website at
http://www.uwsp.edu/cnr-ap/KEEP/Pages/Resources/Teaching/Hands-on.aspx
Note: When borrowing from WCEE/KEEP, this item does not ship and must be picked up and dropped off.

Hand Crank Generator by Creative Design Associates
The hand-crank generator is a great tool to learn the difference between an incandescent light bulb and a compact fluorescent light bulb. Use your cranking power to discover how much energy it takes to light up two different light bulbs. As you crank, a generator transforms your muscle power into electrical energy.
Grade levels: 2-adult
Borrowing: To borrow from the WCEE/KEEP office, visit their website at
http://www.uwsp.edu/cnr-ap/KEEP/Pages/Resources/Teaching/Hands-on.aspx
Note: When borrowing from WCEE/KEEP, this item can be shipped.

KEEP Energy Education Trunk by the Wisconsin K-12 Energy Education Program, UW-Stevens Point
The KEEP Energy Education Trunks contain materials for FIVE popular KEEP activities as well as energy education videos and hands-on resources.
Grade levels: 5-7
Borrowing: To borrow from the WCEE/KEEP office, visit their website at
http://www.uwsp.edu/cnr-ap/KEEP/Pages/Resources/Teaching/Hands-on.aspx
Note: When borrowing from WCEE/KEEP, this item can be shipped.

Solar Oven by Sun Oven International Inc.
The Global Sun Oven is a great tool that cooks delicious treats while students learn about the potential of sun power.
Grade levels: K-adult
Available for Purchase: Sunoven.com ($349.00)
Borrowing: To borrow from the WCEE/KEEP office, visit their website at
http://www.uwsp.edu/cnr-ap/KEEP/Pages/Resources/Teaching/Hands-on.aspx
Note: When borrowing from WCEE/KEEP, this item does not ship and must be picked up and dropped off.

Watt Meter by Watts Up?
Watt Meters (sometimes called Line Loggers) are a tool that can be used to measure the electric usage of appliances. By plugging an appliance into the meter and then into a socket, you can measure the actual electric use of a particular appliance.
Grade levels: 6-adult

Borrowing: Check your local library or borrow from the WCEE/KEEP office, visit their website at http://www.uwsp.edu/cnr-ap/KEEP/Pages/Resources/Teaching/Hands-on.aspx
Note: When borrowing from WCEE/KEEP, this item can be shipped.

Websites

Seventhwave by Seventhwave (2016).
This site has multiple resources including publications (assessments, research reports, policy recommendations, etc.), an interactive carbon and home energy use fact site, infopacks, and calendar of events.
Grade Levels: K-12 Teachers
Web link: www.seventhwave.org

Energy Kids by the US Energy Information Administration (2010)
This education focused web site is full of information for students and teachers. There are downloadable lessons for every grade level. It includes several different energy calculators making it easy to convert common energy units.
Grade Levels: 4-12 Students and Teachers
Web link: http://www.eia.gov/kids/

Get Into Energy by the Center for Energy Workforce Development (2009).
This site is designed to build awareness among students, parents, teachers, guidance counselors, as well as working adults who are considering a career change. CEWD's goal is to increase the number of diverse, qualified applicants who want to come to work for utilities.
Grade Levels: 6-Adult
Web link: http://getintoenergy.com/

Myths about Energy in Schools
This site describes steps that schools can take to decrease their energy expenditures.
Grade Levels: K-12 Schools Length: 3 pages
Web link: https://www.uwsp.edu/cnr-ap/KEEP/Documents/School%20Energy%20Education/Myths%20About%20Energy%20in%20Schools.pdf

Wisconsin Focus on Energy by Wisconsin Focus on Energy (2009).
Focus on Energy works with eligible Wisconsin residents and businesses to install cost effective energy efficiency and renewable energy projects. This site offers fact sheets, case studies, information on financial incentives, cash-back rewards, and grant opportunities.
Grade Levels: K-12 Teachers
Web link: https://www.focusonenergy.com/

Wisconsin K-12 Energy Education Program (KEEP) by Wisconsin Center for Environmental Education (2009).
KEEP was created for K-12 teachers. The provide professional development, grant opportunities, student involvement, and so much more as it relates to energy in Wisconsin
Grade Levels: K-12 Teachers & Students
Web link: KEEPprogram.org

WPS Electric Appliance Calculator by Wisconsin Public Service Corporation (2009).

Visitors to this site are allowed to personally calculate the watt usage of their home or dwelling. The Wisconsin Public Service then generates a monthly and yearly bill total, which will depict what source inside a home uses the most electricity.
Grade Levels: 9-12 Teachers and Students
Web link: http://www.wisconsinpublicservice.com/home/electric_calculator.aspx

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