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ENERGY EFFICIENCY AND RENEWABLE ENERGY CLEARINGHOUSE

Learning About Saving Energy

What is energy?

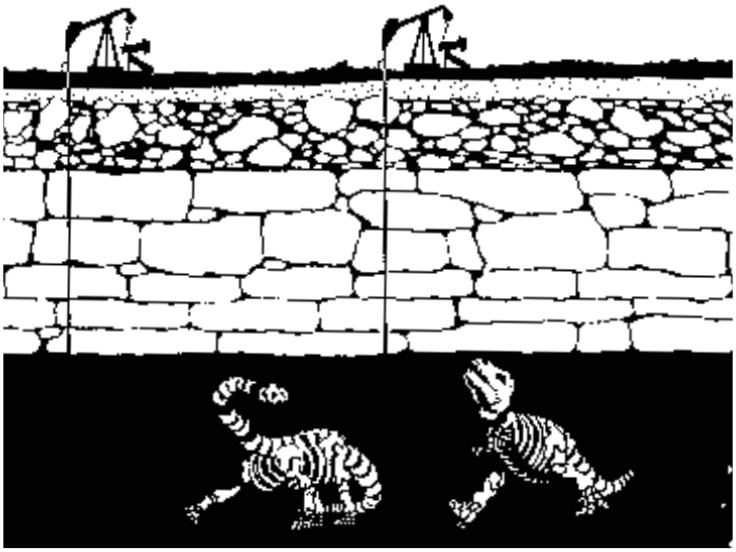
Energy is the ability to do work. It can come in the forms of heat and light. There are two types of energy: working energy and stored energy. Stored energy becomes working energy when we use it.

You eat food for energy. Then your body stores the energy until you need it. When you work and play, your stored energy becomes working energy.

We use energy every day. We use it to grow our food, warm and cool our homes, make our electricity, run our cars, and make products like clothes and toys. It is a very important part of our lives.

Most of the time, we use stored energy for fuel. Burning fuel sets the stored energy free in the form of heat. Long ago, people only burned wood as fuel. Now, we mostly burn "fossil fuels"—oil, natural gas, and coal.

They are called fossil fuels because they are formed over millions of years from the fossils, or remains, of dead animals and plants. The fossils became buried under dirt and rock. Heat from the earth and pressure from dirt and rock changes these fossils into oil, natural gas, and coal. Because it takes millions of years to make, or "renew," more fossil fuels, we call them "nonrenewable fuels."



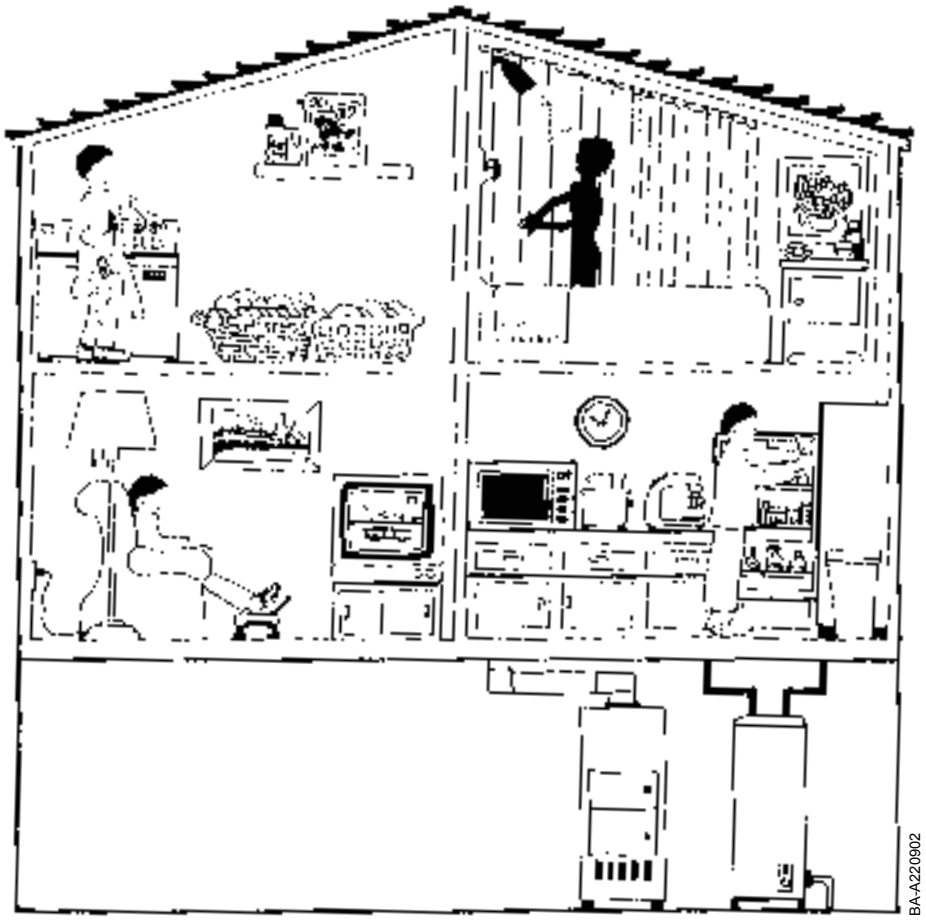
Fossil fuels come from the remains of dead animals and plants.

Other fuels are called "renewable fuels" because they are "renewed" all the time and will never run out. One example of a renewable fuel is solar energy. Energy from the sun can be turned into electricity or heat.

Another kind of fuel is nuclear energy. Nuclear energy uses special radioactive materials to make electricity. Many people believe that nuclear energy is a clean, renewable energy. But making electricity this way leaves behind radioactive wastes that must be stored safely for thousands of years.

How do we use energy?

We use a lot of energy to heat and cool our homes. We burn fuel in our furnaces or boilers for heat. We also burn fuel to heat water for our baths and showers.



We use energy every day in many ways.

Large utility companies use energy to make electricity. These companies usually burn fossil fuels, such as coal, to make electricity. But burning fossil fuels causes air pollution that damages our environment.

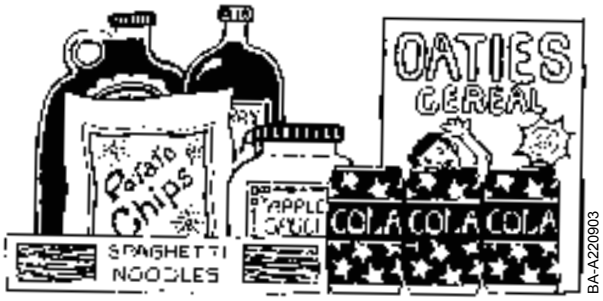
We use electricity to power our lights, TVs and radios, refrigerators and washing machines, air conditioners, and sometimes our stoves and clothes dryers.

We use energy to run our cars. Most cars use a form of oil called gasoline to make them run. Our cars can go a lot farther on a gallon of gasoline than they could 20 years ago. But now we drive more cars and drive them more often than we did 20 years ago!

Almost half the energy we use in the United States today helps make the everyday products we buy in stores. Factories use energy to make food, furniture, clothes, and toys. Factories also make paper, which we use a lot of every day. You use paper in school. And all your books are made from paper.

Some products are made of fossil fuels. For example, some plastics are made from oil. Most of the time, we use plastic products once and then throw them away.

Factories use a lot of energy to make packaging. Almost everything we buy comes in a package. For example, cereal comes in boxes made of cardboard, a kind of paper. In fact, about half of all the paper made in the United States is used for packaging.



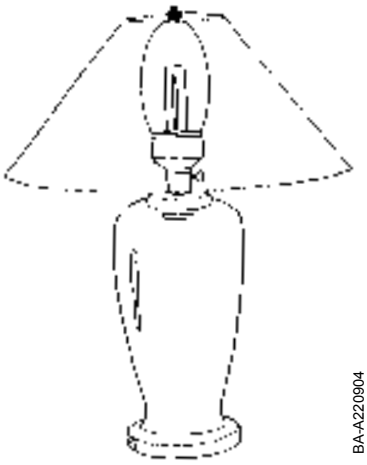
Almost everything we buy is packaged.

Many soft drinks and fruit juices come in cans or bottles. It takes a lot of energy to make steel and aluminum cans and glass bottles.

How can we save energy?

It is important to save energy because most of the energy we use comes from fossil fuels. If we use up all our fossil fuels, there will not be any left for people to use in the future.

It would be impossible to stop using energy. But we can try to use less. Here is a list of things you can do to save energy.



Energy-efficient compact fluorescent lights use less energy than do regular light bulbs.

To save energy for heating and cooling:

You can save energy in your home or apartment in many ways. First, you need to find out how much energy you use. One way is to look at your family's utility bill each month. Second, ask your parents or utility company to do an energy survey or audit of your home. This will tell you exactly where you can save energy.

Wear a sweatshirt or other warm clothing indoors when it is cold, so your parents will not have to turn the furnace up so high.

Wear fewer clothes indoors when it is hot, so your parents will not have to run the air conditioner as much.

To save electricity:

Turn off all the lights when you leave a room.

Ask your parents to replace your regular light bulbs with special lights called "compact fluorescent lights." They use about a fourth of the energy of regular light bulbs. To save the most energy, install them in light fixtures that are on for several hours at a time, such as lamps used for reading.

Turn off the TV, radio, and computer when you are through using them.

To save gasoline:

Ride the bus to school.

Walk or ride your bike to school or to visit friends.

Share rides with friends to after-school activities and Saturday games.

Ride your bike to school.

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Give clothes that you have outgrown to others.

To save energy used to make products:

Reduce. Reuse. Recycle!

Reduce
Buy products without much packaging and wrapping.

Reuse
Share your clothes and toys with others after you outgrow them.

Recycle
Recycle newspapers. Paper made from recycled paper uses about one-third less energy than paper made from raw materials.

Recycle glass bottles and jars. Glass made from recycled glass also uses about one-third less energy than glass made from raw materials.

Recycle steel and aluminum cans and aluminum foil. Aluminum cans made from recycled aluminum use 90% less energy than aluminum made from raw materials.

Buy products made of recycled material. Look for the recycle mark—three arrows that make a circle—on the package.

Activities

Here are some activities you can do to help save energy. Choose ones that you can do yourself or with your family and friends.

Count how many light bulbs you use in your home. Ask your parents to replace some of them with compact fluorescent bulbs.

Make a list of all the car trips your family takes in a week. At the end of the week, look at the list. Which trips could your family have combined? Which trips could your family have avoided by walking or riding a bike?

Do a science project on a renewable energy fuel. See the *Source List* for ideas.

Visit a recycling center. Find out where the recycled materials go.

If you don't already, start recycling at home. A good place to start is with newspapers, aluminum and steel cans, glass bottles and jars, and plastic soda and milk containers.

Go to the library and read about more ways to save energy.

Tell your friends how to save energy.

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Recycle newspaper, aluminum, plastic, steel, and glass at home.

The recycle mark tells you a product either is made from recycled materials or can be recycled.

Glossary

Coal: A solid fossil fuel found in the earth. Coal is burned to make electricity.

Compact fluorescent lights: Lights that use a lot less energy than regular light bulbs. We can use compact fluorescent lights for reading lights and ceiling lights.

Energy: Energy is the ability to do work. Stored energy becomes working energy when we use it.

Energy audit: A survey that shows how much energy you use in your house or apartment. It will help you find ways to use less energy.

Environment: All the natural and living things around us. The earth, air, weather, plants, and animals all make up our environment.

Fossil fuels: Fuels formed in the ground from the remains of dead plants and animals. It takes millions of years to form fossil fuels. Oil, natural gas, and coal are fossil fuels.

Fuel: Any material that can be burned to make energy.

Natural gas: A fossil fuel found deep in the earth. Natural gas is often found with oil.

Nonrenewable fuels: Fuels that cannot be easily made or "renewed." We can use up nonrenewable fuels. Oil, natural gas, and coal are nonrenewable fuels.

Nuclear energy: Energy that comes from splitting atoms of radioactive materials, such as uranium, which leave behind radioactive wastes.

Oil: A liquid fuel found deep in the earth. Gasoline and some plastics are made from oil.

Radioactive waste: Materials left over from making nuclear energy. Radioactive waste can harm people and the environment if it is not stored safely.

Recycling: A way to reuse materials instead of just throwing them away.

Recycle mark: A design of  three arrows that make up a circle. This mark tells you that you can recycle the product. It can also mean that the material is made from recycled materials.

Renewable fuels: Fuels that can be easily made or "renewed." We can never use up renewable fuels. Types of renewable fuels are solar, wind, and hydropower energy.

Solar energy: Energy from the sun. The heat that builds up in your car when it is parked in the sun is an example of solar energy.

Resources

This fact sheet gives you some information on how you can save energy. If you want more information, check out the groups and books listed here. Most of these books will be in your library.

Helpful Groups

These groups have more information on energy and ways to save it. Call or write them to get that information.

For You

Alliance to Save Energy
1725 K Street, NW, Suite 509
Washington, DC 20006-1401
(202) 857-0666

This group has information on saving energy in the home.

The Energy Efficiency and Renewable Energy Clearinghouse
P.O. Box 3048
Merrifield, VA 22116
(800) 363-3732

This group has information on renewable energy and saving energy. It is funded by the U.S. Department of Energy.

Keep America Beautiful, Inc.
9 West Broad Street
Stamford, CT 06902
(203) 323-8987

This group offers information on how to get rid of trash by recycling.

National Renewable Energy Laboratory
Center for Science Education
1617 Cole Boulevard
Golden, CO 80401
(800)-NEW ENGY
(800-639-3649)

This center has student and teacher information and videos on renewable energy.

Renew America
1400 16th Street, NW, Suite 710
Washington, DC 20036
(202) 232-2252

This group offers information on renewable energy and the environment.

For Your Teacher

Bull Frog Films
P.O. Box 149
Oley, PA 19547
(800) 543-3764

This group has films and videos on energy. Ask for its free catalog.

National Energy Education Development Project
1920 Association Drive, Suite 414
Reston, VA 22091
(800) 875-5029

This group offers energy education programs for grades 4 to 12.

Books

These books have more information on energy. This list does not cover all the books on energy, nor does any mention of a book mean that we recommend it. To get these books, go to your library or bookstore. Or you can write the publisher. Ask the bookstore or publisher how much the book costs before you order it.

For You

50 Simple Things Kids Can Do To Recycle, Earth-Works Press, Box 25, 1400 Shattuck Avenue, Berkeley, CA 94709, (415) 841-5866, 1994.

Experimenting with Energy, by Alan Ward, Chelsea House, ISBN: 0-7910-1510-6, 1991.

Rads, Ergs, & Cheeseburgers: The Kid's Guide to Energy & the Environment, by Bill Yanda and John Muir, ISBN: 0-945465-75-0, 1991.

Renewable Energy: A Concise Guide to Green Alternatives, by Jennifer Carless, Walker & Co, ISBN: 0-8027-8214-0, 1993.

For Your Teacher

Energy Education Resources: Kindergarten through 12th Grade, National Energy Information Center, Energy Information Administration, Room 1F-048, 1000 Independence Avenue, SW, Washington, DC 20585, (202) 586-8800, 1994.

Science Projects in Renewable Energy and Energy Efficiency, American Solar Energy Society, National Energy Foundation, 5160 Wiley Post Way, Suite 200, Salt Lake City, UT 84116, (801) 539-1406, 1991.

Teach with Energy! Fundamental Energy, Electricity and Science Lessons for Grades K–3, National Energy Foundation, 5160 Wiley Post Way, Suite 200, Salt Lake City, UT 84116, (801) 539-1406, 1990.

Teach with Energy! Fundamental Energy, Electricity and Science Lessons for Grades 4–6, National Energy Foundation, 5160 Wiley Post Way, Suite 200, Salt Lake City, UT 84116, (801) 539-1406, 1992.