My Home Energy Conservation Checklist

STUDENT WORKSHEET

HEATING & COOLING CONSERVATION

- Adjusting your thermostat is the best and least costly conservation measure. Try to get used to lower temperatures in winter and warmer temperatures in summer. See if your family will agree to set the temperature at 68 degrees or lower for winter heating savings, and 78 degrees or higher for summer cooling savings. You will save 5-6 percent on the utility bill.
- Locate the thermostat on an inside wall that's not near sunlight, vents or lamps. This way you'll get an accurate reading of the temperature.
- Dress appropriately. Keeping comfortable has a lot to do with how well you insulate or ventilate your own body. Try loose-fitting clothing, open collars and open weaves for hot weather, layers of clothes and closed collars for colder weather.
- In cold weather, use more blankets or a down comforter.
- In the winter months, leave shades, blinds and curtains open on sunny days so you can make use of the sun's heat. Close them on cloudy days to prevent heat loss. Reverse the process in the summer.
- Close the fireplace damper when it's not in use to prevent heat loss.
- Don't cover the top of heating or cooling vents with knick-knacks, bowls or belongings. This makes it necessary to use more energy. Also, don't hide vents behind draperies for the same reason.
- Help cool weather come into your home in the summer. The more cool air you let in, particularly at night, the better.
- Experiment to see which windows and doors to open or close to create the best flow of cool air through your home.
- Let hot air out. Encourage your family to open the upper vents in your attic and make sure any lower vents are not blocked.
- Since hot air rises, open the upper part of double-hung sash windows and – in a two-story house – the upstairs windows.
- Let breezes into your home. If windows are blocked by shrubs or tree foliage, the bushes might need pruning.
- An exhaust fan in a window can push out warm air and pull in cool air. A window fan is more economical to run than an air conditioner. A window fan in an apartment or one-story house should be in a window on the warmest side; in a two-story house, put it in an upstairs window.
- Use ceiling fans if you have them. In the winter run them counterclockwise to force hot air downward. In the summer, run them clockwise to circulate cooled air.
- If you have central air conditioning, don't close off unused rooms or shut off vents. Rather than saving energy, this makes the system work harder.
- It may be easier to move yourself into a warm sunny room on a cold day, say to do homework or eat a snack, than it is to move that free solar heat to a cooler part of your home. And upholstered furniture, like a big armchair or sofa, will soak up the heat very nicely when placed in a sunny spot.
- Encourage your family to use storm doors and windows. Make sure the storm windows are fastened tightly and the doors are closed properly.
- When it's time to paint the outside of your home, suggest using light colors. Since South Carolina's climate tends to be warm, light-colored paint is a good choice because it reflects sunlight.

WATER HEATING CONSERVATION

- Use hot water wisely. Don't let water run while you go in the other room. Don't use hot water if cold or lukewarm will do. For example, run the garbage disposal with cool water, not warm.
- Try to get in the habit of taking a shower instead of a bath. Showers typically use less hot water. Water-saving shower heads will typically pay for themselves in a few months.
- Be on the alert for leaky faucets. A two-cent washer can save hundreds of gallons of water over the course of a year.
- Wash clothes in cold water when possible.

APPLIANCE CONSERVATION

- Cut back on the amount of water you use for boiling eggs, potatoes and other foods. The more water you use, the more energy is needed to make it boil or simmer.
- Use pots that are the same size as a burner, so that heat doesn't escape.
- Make sure pot and pan lids fit tightly. This keeps heat inside. It also makes the food cook faster.

- If you have a toaster oven or electric frying pan, use it. They use half the electricity of an electric oven.
- Every time you use a microwave, you save energy. Microwaves not only cook food in one fourth the time, they save 30-70 percent electricity.
- Avoid peeking in the oven. It not only makes a soufflé fall, it drops the oven's temperature 25-50°F every time it's opened.
- Periodically vacuum the condenser coils on the back or bottom of your refrigerator. (Unplug it first!) Dust acts as an insulator on the cables, making the refrigerator work harder.
- Refrigerators and freezers work best when they are full. Items, however, need to have space between them so that air can circulate.
- Don't place hot or uncovered foods in the refrigerator. It takes increased energy to cool hot foods. Uncovered foods will lose moisture to the refrigerator.
- Test to make sure the refrigerator and freezer seals are working by placing a dollar bill lengthwise along the edge and closing the door. If the dollar falls, your appliance needs to have the seal replaced. An airtight seal helps the appliance work efficiently.
- Utility companies suggest that you put petroleum jelly along refrigerator and freezer seals to make them last longer.
- Defrosting frozen foods in the refrigerator helps the refrigerator stay cool. It also uses less energy than microwave defrosting and, in the case of Thanksgiving turkey, is safer than defrosting on a counter top where bacteria might grow.
- A freezer with more than 1/4 inch of ice needs to be defrosted to save energy.
- Always wait until you have a full load to run the dishwasher, washer or dryer. Full doesn't mean overloaded. Overloading wastes energy and rarely gets the job done. On a sunny day, think about using the solar dryer – the clothes line.
- Turn off the TV, radio, computer or video game when they're not in use.
- If you have an "instant on" TV, part of the TV is actually on all the time. One way to really turn this type of TV off is to plug it into a socket that is controlled by a light switch and to use that light switch when you turn off the set.
- Encourage your family to pay attention to the yellow energy tags and labels when buying new appliances. Comparing tags is an excellent way to help your family make an energy-wise choice. The higher the efficiency level, the greater the savings as you use the appliance.

LIGHTING CONSERVATION

- Use lower watt bulbs in stairwells, closets and areas that don't require reading light.
- To make a room brighter, use one bulb of high wattage. For example one 100-watt bulb uses less energy than two separate 50 watt bulbs.
- Use energy-saver bulbs. These give as much light as conventional bulbs but use less energy.
- Encourage your family to use fluorescent bulbs. These bulbs are comparatively expensive to buy, but are long-lasting and extremely economical over the long run.
- Suggest using light-colored lamp shades. They reflect 50 percent more light than dark shades.
- Try placing a lamp in a corner of a room. Here, it has two surfaces to reflect off of rather than just one wall.

My Home Energy Conservation Proposal

STUDENT ACTIVITY SHEET

I suggest that my family look at these ways to save energy. I'm willing to do my part to see that these energy-savings ideas are practiced by my family.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

Visit **takeactionsc.org/curriculum** to download a printable copy.

Melt Down Tracking

STUDENT ACTIVITY SHEET

This experiment can give you a clue about how energy used for heating and cooling your home and school can be conserved.

1. Place the ice cube in the paper cup and wrap your insulation material around the cup. Wrap tightly so that the cup can still sit upright on your desk. Do not handle your cup too much. (Remember your hands are warm!)
2. Record on the chart below the time the experiment began. Your teacher will call this time for you.
3. Place your insulated cup in the area your teacher has set aside. (Remember temperatures vary around the class. It is important that all the cups are placed in the same location.)
4. Periodically check your cup to see how much of the ice has melted.
5. Record the progress of your ice cube. Record these stages:
   - **Started melting**;
   - **Melting some**;
   - **Mostly melted**; and
   - **Melted**.
6. Subtract the time your ice cube melted from the time the experiment began to find out how long it took your ice cube to melt.

Melt Down Tracking Record

START TIME	10 MINUTES	15 MINUTES	20 MINUTES	FINISH TIME

My ice cube was wrapped in _____. My ice cube melted in _____ minutes.

Visit **takeactionsc.org/curriculum** to download a printable copy.

Insulation Percentages

STUDENT ACTIVITY SHEET

As much as 15 percent of the heat in your home is lost through duct leaks, 20 percent is lost through doors and windows, and 10 percent is lost through ceilings, walls and floors.

1. During the winter, the Smiths used 40 million Btus of heat in their home. 16 million Btus of this heat was lost through the ceiling, walls, floors, windows, doors, and air leakage. How much of this lost heat was through the ceiling and roof?

   YOUR ANSWER: _____

   A. The family installed insulation in the attic that would cut the heat loss through the ceiling and roof to 25 percent. How many Btus would then be lost through the ceiling and roof?

      YOUR ANSWER: _____

   B. How many Btus would be saved by this insulation in the ceiling and roof?

      YOUR ANSWER: _____

   C. How many Btus would be saved over the next five years?

      YOUR ANSWER: _____

2. Last year the Martins used 38,000,000 Btus to heat their home. 15,200,000 Btus of this heat were lost through the ceiling, walls, floors, windows, doors, and air leakage. How much of this lost heat was through exterior walls and floors?

   YOUR ANSWER: _____

   A. After installing insulation in the walls, the heat loss was reduced to 23 percent. How many Btus would then be lost through the walls and floors?

      YOUR ANSWER: _____

   B. _____ How many Btus would be saved by installing this insulation in the walls and floors?

      YOUR ANSWER: _____

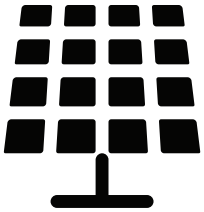
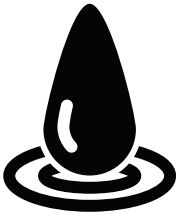
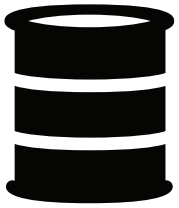
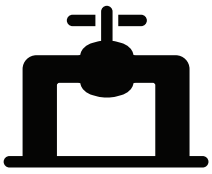
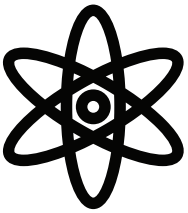
   C. _____ How many Btus would be saved over the next five years?

      YOUR ANSWER: _____

Visit **takeactionsc.org/curriculum** to download a printable copy.

Energy Icons Sheet

TEACHER RESOURCE

 SOLAR	 PROPANE
 HYDROPOWER	 COAL
 BIOMASS	 PETROLEUM
 GEOTHERMAL	 NATURAL GAS
 WIND	 NUCLEAR (URANIUM)

Visit **takeactionsc.org/curriculum** to download a printable copy.

What am I?

- In the United States, I produce 2% of energy consumption.
- People use my energy to heat homes and schools, heat water and generate electricity.
- I am not available all hours of the day.
- I am free to use, but you have to purchase and maintain my equipment.
- I can be converted into electricity by using photovoltaic cells.
- I do not pollute or damage the environment.

What am I?

- I supply 7% of the electricity in the United States depending on the amount of rainfall.
- Worldwide, I generate about 17% of all electricity.
- The United States is the fourth largest producer of me in the world. China is the largest.
- I am used in more than 2,500 locations in the United States.
- I do change the environment.
- My facilities may disturb wildlife and natural resources.
- I am limited to certain geographic areas.

What am I?

- I provide less than 5% of the energy used in the United States.
- I can be used to generate electricity.
- Burning me can produce air pollution.
- I get my energy from wood, garbage and agriculture waste.
- I absorb my energy from the sun through photosynthesis.
- I can be used to make a gas called methane.
- For thousands of years, I was the main source of energy to heat homes and to cook food.

What am I?

- I produce less than 1% of the energy used in the United States.
- I am found mostly in the western states and Hawaii.
- My energy comes from the Earth's core.
- My major use is the production of electricity.
- My first successful plant began operating at The Geysers in California in 1960. I am now in power plants in seven states.
- My name comes from the Greek words that mean "earth" and "heat."

What am I?

- I produce 8% of the electricity in the United States.
- I am caused by the uneven heating of the Earth's surface.
- Most of my electricity is from Texas, Iowa and Oklahoma.
- I produce noise pollution, but I do not cause air or water pollution.
- You will need at least 13 mph of me to convert my energy into electricity.
- Hilltops, open plains, shorelines and mountain gaps are good places to find me.

What am I?

- I provide the United States with less than 2% of its energy.
- I am colorless and odorless.
- I am a fossil fuel.
- I come from natural gas and petroleum wells.
- Under normal conditions, I am a gas. Under pressure, I become a liquid.
- I am mostly used in rural areas that do not have natural gas service.
- Many backyard cooks use me in the gas grill for barbecuing.

What am I?

- I generate 30% of the nation's electricity.
- I am the most abundant fossil fuel.
- The United States exports about 13% of me to other countries.
- I am burned to make electricity.
- I can pollute the air when burned.
- Wyoming, West Virginia and Kentucky are states that produce me.
- I am transported mostly by trains.

What am I?

- I provide 35% of the energy in the United States.
- I am a fossil fuel.
- Most of me is refined into gasoline.
- The United States is the world's top producer of me.
- My major use is for transportation.
- About 43% of me is imported from foreign countries.
- Texas produces more of me than any other state followed by North Dakota, Alaska and California.

What am I?

- About 34% of the energy used in the United States is made from me.
- I am a fossil fuel.
- I am colorless and odorless.
- I am the cleanest burning fossil fuel.
- More than 2.4 million miles of underground pipelines transport me across the United States.
- I heat most homes and schools in the United States.
- Texas produces the most of me followed by Pennsylvania, Oklahoma and Louisiana.

What am I?

- I provide 19% of the electricity generated in the United States.
- My energy comes from the nucleus (core) of an atom.
- Compared to other energy sources, I am a new way to produce energy. I was first used to make electricity in 1957.
- Using me does not pollute the air.
- My waste is radioactive. It can be dangerous.
- In 1970, South Carolina became the first state in the South to use me to make electricity. I now generate it at four facilities across the state.