



Home Energy Audit

Contents

Energy Audit Video Lesson	3
Energy Audit at Home Activities	4
Lighting Audit	4
Lighting Investigation	5
Lighting Calculator	6
HVAC Audit	7
HVAC Investigation	8
HVAC Calculator	13
Appliance Audit	14
Scavenger Hunt: Energy Stars	15
Scavenger Hunt: Energy Vampires.....	16
Program Presentation	19

Energy Audit Video Lesson



emPowered at Home Energy Audit Instructions

Review the Home Energy Audit Instructions at https://www.ase.org/sites/ase.org/files/empowered_at_home_-_energy_audit_instructions.pdf.




If the Google items linked in the instructions don't work for you, use the worksheets below and the accompanying Excel file to complete your audit.



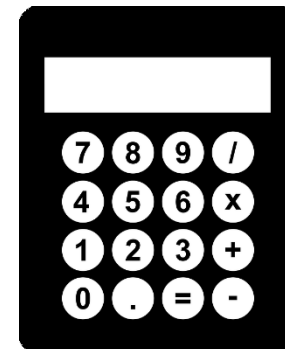
Lighting Audit

Lighting Investigation

It's time to conduct a lighting audit of your home! Count the number of light bulbs in your household. Pay attention to if the bulbs are incandescent, CFL, or LED lights. Be sure to look in every room, including bathrooms, closets, garage and outdoor lighting.

Room	# of incandescent bulbs 	# of CFL bulbs 	# of LED bulbs 	Total # of light bulbs in each room
Kitchen				
Living Room				
Bedroom #1				
Bathroom #1				
Add up the total # of incandescent, CFL, and LED bulbs				

Lighting Audit Calculator



Use the Lighting Audit Calculator to determine how much money your family can save by switching to more efficient bulbs and ensuring that all lights are turned off when leaving a room.

Step 1: Open the Excel file accompanying this document to access the lighting calculator.

Step 2: Watch the short instructional video in the top left-hand corner to learn how to use the calculator.

Step 3: Insert data from your findings on page 4 of this packet.

Step 4: Share your findings with your family.



HVAC Audit

HVAC Investigation

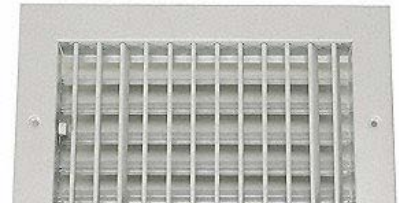
The biggest user of energy in most homes is the Heating, Ventilation and Air Conditioning (HVAC) system. Of course, this varies from home to home, so one of the first things you'll do is explore what kind of systems and controls you have. But whatever kind of HVAC you have, using it efficiently will help lower your energy costs and make your home safer and more comfortable.

1. Exploring Your HVAC System

Look around your home. You may have more than one type of HVAC system. Check all that apply.

Central HVAC system

This type of system blows warm and cold air through ducts and out vents, like the one pictured here.



Mini Split (or "Ductless") System

These are similar to central HVAC systems, but the air comes out of wall- or ceiling-mounted air handlers instead of vents.



Radiator

Radiator Heating. This is a traditional heating technology that uses heated water--generated in a separate boiler--to warm your home.



Baseboard Heater

This form of heating runs along the bottom of walls (the "baseboards") and often use electricity to heat a room.



○ **Space Heater**

These small units sit on the floor and use electricity to heat a room.



○ **Window Air Conditioner**

Window Air Conditioner. These units typically sit in a windowsill and are used to cool a room.



○ **Portable Air Conditioner**

These are similar to window air conditioners, but are made to sit on the floor.



○ **Ceiling Fans**

These fans help push warm air from the ceiling down in the winter; and can help keep cool air down in the summer.



○ **Floor Fans**

These can help keep you cool by moving air across your skin, and can also create cross-breezes that push hot air out and bring cool air in.



2. HVAC Controls

Does your HVAC system have a thermostat? This allows you to set the temperature you want your room or home to be.

- Yes
- No

If you do have thermostat, is it manual or programmable?

- Manual Thermostats**
These let you choose the temperature you want your HVAC to heat and cool to, but doesn't let you change that temperature over time.
- Programmable Thermostats**
These let you choose different temperatures for different times of day.



If you have a thermostat, what temperature is it set to heat to?

What temperature is your thermostat set to cool to?

3. Saving Energy on HVAC!

Now that you know what type of HVAC equipment you have, it's time to learn how to use it efficiently.



Temperature Settings

One of the best ways to reduce your HVAC energy use is to adjust your temperature settings. Every degree you dial back on your thermostat saves you about 3% on your energy bill, which adds up quickly. The U.S. Department of Energy recommends warming your home to 68 degrees in the winter and cooling your home to 78 degrees in the summer. The exact temperature you choose is up to you and your family. It's important that everyone be comfortable or the changes you make probably won't last.

Use the HVAC Calculator (on page 13) to figure out how much energy you can save by adjusting your home temperature by a few degrees. Share your recommendations with your family – then describe your findings and what your family decides to do in the space below.

Check all of the strategies below you and your family plan to use.

Change your filters!

If you have a Central or Mini Split system, you need to clean or change the filters regularly. Dirty filters will make your system work harder and waste energy. Clean filters also mean you'll be breathing cleaner air.



Keep doors and windows closed when the HVAC is on!

This sounds simple, but people often accidentally leave windows open, or leave the door open when entering and leaving the home. This wastes a lot of energy.



Look for leaks!

Spaces under doors or cracks along windows are common problems. Your fingers and toes can tell if cold or hot air is coming in--and the solution can be as simple as a towel.



○ **Try passive heating and cooling!**

This is the opposite of "keeping doors and windows closed" and should be used in the opposite situation--when you're trying to warm or cold air OUT of your house. For instance, in the summer you might open your window in the evening to let hot air out and cool air in. Then in the morning, close them to keep the cool air in. Anytime you can use the outside temperature to make your house more comfortable, you will save energy and money.

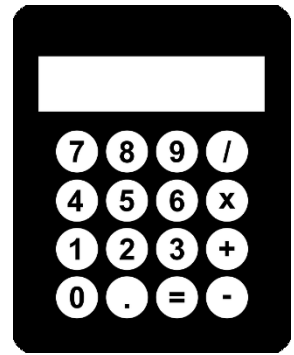


○ **Watch your windows!**

There are many types of windows--from "single pane" windows (made up a single layer of glass or vinyl) to double- or triple-pane windows. The more layers, the more insulated they tend to be. If your windows are single pane, closing the curtains can help insulate your home.



HVAC Audit Calculator



Use the HVAC Audit Calculator to determine how much money your family could save by raising their thermostat in the summer and lowering it in the winter.

Step 1: Open the Excel file accompanying this document to access the HVAC calculator.

Step 2: Enter the number of hot and cold months per year in your region. This should add up to 12.

Step 3: Enter the temperature your family sets your thermostat at for cooling in the summer and heating in the winter.

Step 4: Share your findings with your family.



Appliance Audit

Scavenger Hunt: Energy Stars

Let's identify some of the great (and not-so-great) appliances in your home.

ENERGY STAR Appliances

The US Environmental Protection Agency's ENERGY STAR Program helps you save money, protect the environment, and be energy efficient. ENERGY STAR certified appliances have undergone extensive testing and are proven to use less energy than a standard model, while still providing excellent performance.

Founded in 1992, ENERGY STAR has saved US homes and businesses nearly 4 trillion kilowatt-hours of electricity, reducing greenhouse gas emissions by over 3 billion metric tons. That is equivalent to the yearly emissions of over 600 million cars! Homes that use ENERGY STAR certified products save an average of \$575 per year.

For more information, please follow this link: <https://www.energystar.gov>

What appliances in your home have the ENERGY STAR label (shown below)? Check all that apply.



Appliance	Do you have this ENERGY STAR appliance in your home?
Dishwasher	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Refrigerator	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Freezer	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Clothes Washer	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Clothes Dryer	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Water Heater	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
HVAC Unit	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Dehumidifier	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Air Purifier	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Television	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Other:	Yes: <input type="checkbox"/> No: <input type="checkbox"/>



Scavenger Hunt: Energy Vampires

Now that you've found the most energy-efficient appliances in your home, let's look for a few that waste energy.



Energy vampires – appliances that use energy even when they're turned off – are everywhere, and they cost Americans more than \$3 billion per year! You can stop them by unplugging them or by plugging them into a power strip that you can turn off when the appliance is not in use.

However, just because you can unplug an energy vampire doesn't mean that you should. Unplugging your brother's computer or your parents' coffee maker might annoy them and make them less likely to follow your sustainability tips. Before you unplug something, explain what energy vampires are and why you want to unplug them, then ask permission.

Find the energy vampires in your home and determine whether you can and should unplug them!

Energy Vampire	Number in Your Home	Can you unplug it?	Should you unplug it?
<p>Phone Charger</p> 			
<p>Desktop Computer</p> 			

Energy Vampire	Number in Your Home	Can you unplug it?	Should you unplug it?
<p data-bbox="107 139 321 167">Laptop Computer</p> 			
<p data-bbox="107 573 285 600">Game Console</p> 			
<p data-bbox="107 976 275 1003">Coffee Maker</p> 			

Energy Vampire	Number in Your Home	Can you unplug it?	Should you unplug it?
<p data-bbox="107 139 142 164">TV</p> 			
<p data-bbox="107 578 243 602">Microwave</p> 			
<p data-bbox="107 979 191 1003">Other:</p>			
<p data-bbox="107 1229 191 1253">Other:</p>			