

Energy Merit Badge On-line Workshop

There are two requirements that must be completed outside of the class at the museum. All requirements other than 1 and 4 will be completed in class.

**These activities should be completed before the class.
Please note that requirement #4 involves a 2-week home energy project !**

Bring all your work with you to the workshop at the Museum so that it can be checked and signed off by the instructor.

Requirement 1.1

“Find an article on the use or conservation of energy. Discuss with your counselor what in the article was interesting to you, the questions it raises, and what ideas it addresses that you do not understand.”

This is easy to do by using news providers on the Internet. To find recent articles, use the web sites such as the ones below. On each news page find the search box near the top and type in “energy”, “gasoline”, “alternative fuel”, or similar words. Look through the list of articles and find one that sounds interesting. There may be several listed on the same subject. You will probably need an article that is at least a page long to have enough information to work on. You will probably also want a news article rather than an editorial essay.

Print out the article and answer the questions on the next page. Bring the articles and your answers to the class at the Museum.

Web Sites:

<http://abcnews.go.com/>

Find the search box at the top of the page. Use the “ABC NEWS Results” section of the list after you do a search.

<http://www.cnn.com/>

Before you enter your words into the search box at the top of the page, click the button to search just the CNN site, not the entire web. Use the “Site Search Results” section of the list after you do a search.

<http://www.chron.com/>

Use the search box to the left near the top of the page.

Req. 1.1 Worksheet (At home, before you come to the class)
Questions to answer about your article.

Title of article:

Author (if given):

Source of article (what newspaper, website, or organization published it?):

Why was this article interesting to you?

What questions does this article raise?

What ideas does this article address that you do not understand?

Requirement 4

“Conduct an energy audit of your home. Keep a 14 day log that records what you and your family did to reduce energy use. Include the following in your report and, after the 14 day period, discuss what you have learned with your counselor.

- 1. List the types of energy used in your home such as electricity, wood, oil, liquid petroleum, and natural gas, and tell how each is delivered and measured, and the current cost; OR record the transportation fuel used, miles driven, miles per gallon, and trips using your family car or another vehicle.*
- 2. Describe ways you and your family can use energy resources more wisely. In preparing your discussion, consider the energy required for the things you do and use on a daily basis (cooking, showering, using lights, driving, watching TV, using the computer). Explain how you can change your energy use through reuse and recycling.”*

For Requirement 4, do the following **Home Energy Audit**. Use your results to find ways you can improve your family’s energy use habits and write them down. Then use the **Home Energy Log** to keep track of what you do for 2 weeks to save energy. If you find any problem spots in your home go to the “Energy Savings” section of Reliant Energy’s web site at: www.reliant.com You will need to enter your postal zip code to access this area. You can find information by topic under the “Topics” and “Projects” sections.

For Requirement 4.1, do the **Vehicle Log Worksheet**.

For Requirement 4.2, do the **Using Energy Wisely Worksheet**.

Req. 4 Audit Worksheet

(At home, before you come to the workshop)

Home Energy Audit

Take a look at how you use energy in your home and score your energy conservation habits from 1 to 10. The 8 topics you will check are some of the easiest things you can do to save energy in your home. There are many other ways to conserve energy, but many of them involve buying new appliances or remodeling your home.

1. Attic insulation

Take a look up in your attic if you can. The insulation you see keeps the heat from moving down into your home during the summer and keeps the house warmer in the winter. With most types of insulation used in Houston your insulation should be about 10 inches thick and should cover the entire floor of the attic. Score your insulation from 1 to 10.

10 = thick enough and covers the entire attic

8 = thick but some thin patches or holes

6 = only about 5" thick or large areas with no insulation

4 = large areas with no insulation and thin overall

2 = very little insulation

Score= _____ out of 10

2. Weather stripping and caulking

Weather stripping and caulking (the stuff that looks like glue around the windows) helps keep air from leaking out of your home. Inspect the seal around all of your doors and windows. Score the weatherproofing of the doors and windows from 1 to 10.

10 = doors and windows completely sealed and in good condition

8 = seals complete but a little worn out

6 = some spaces in seals or flattened weather stripping

4 = large spaces in seals around doors and windows

2 = light showing through door edges or air blowing through cracks

Score= _____ out of 10

3. Window coverings

Sunlight coming through windows will heat up your home. Blinds, drapes, and reflective film will reduce the amount of heat coming in. Check all your windows for light protection and give your home an overall score.

10 = All windows have good sunlight protection.

8 = All windows have some protection

6 = Most windows are protected.

4 = Many windows have no or little protection and let light in.

2 = No windows have protection

Score= _____ out of 10

4. Air conditioning

The air conditioner uses the around 60% of all the energy in your home. Keeping your home at a higher temperature in the summer will lower your energy bills. It is recommended that your thermostat is set at a minimum of 78 degrees. Score your temperature.

10 = higher than 78 °

8 = 78 °

6 = 76 °

4 = 74 °

2 = 72 ° or lower

Score= _____ out of 10

5. Fans

Fans help you feel cooler with a “wind chill effect”. This lets you be comfortable at a higher temperature, saving energy on your air conditioning. Give your home a score for the number of fans you have.

10 = A fan in every room

8 = A fan in most rooms

6 = A couple fans

2 = One fan

0 = No fans

Score= _____ out of 10

6. Light bulbs

There are many options for light bulbs. Compact fluorescent bulbs produce much more light with less energy than incandescent (regular) bulbs. Using one higher wattage bulb is better than using more than one lower wattage bulb. (One 100 watt bulb is better than two 60 watt bulbs which is better than three 40 watt bulbs). Judge the types of light bulbs you are using as best you can. Skylights brighten your home for free.

10 = All fluorescent lighting or some natural lighting.

8 = Mostly fluorescent bulbs.

6 = Some fluorescent bulbs or higher wattage bulbs instead of more low wattage.

4 = All incandescent bulbs.

2 = All incandescent bulbs with multiple low wattage bulbs.

Score= _____ out of 10

7. Water Heater

It takes more energy to heat your hot water to a higher temperature. Setting your water heater too high will waste energy. Most families can set their water heater thermostats at around 120 or 140 degrees. Check the setting of your water heater.

10 = 120 – 140 degrees (low)

6 = 140 – 160 degrees (med)

2 = 160 degrees (high) or higher

Score= _____ out of 10

8. Kitchen Appliances

Small kitchen appliances use less energy and don't heat up your home as much as large appliances. Microwave ovens, slow cookers, and toaster ovens use less energy than a full size oven or stove. Judge how often you avoid using full size appliances (going out to eat doesn't count!).

10 = Use small appliances to cook every meal.

8 = Use small appliances often.

6 = Use small appliances sometimes.

4 = Use small appliances every once in a while.

2 = Never use small appliances.

Score= _____ out of 10

To calculate your overall score, add up all your scores and divide by 80. If you could not answer all the questions (for example, you live in an apartment and cannot control the temperature of the hot water or cannot get to the insulation), add up your scores and divide by the total possible score. (70 for seven question, 60 for 6 questions, etc.)

Question 1 score =		
Question 2 score =		
Question 3 score =		
Question 4 score =		
Question 5 score =		
Question 6 score =		
Question 7 score =		
Question 8 score =	_____	
Total score =		÷ 80 =

Find your energy conservation rank:

0 - 4 Poor

4 - 6 Average

6 - 8 Good

8 - 10 Great energy conservation habits

Req. 4 Home Energy Log Worksheet

Records what you and your family did to reduce energy use. Examples: lights left on, doors or windows left open, TV left on, thermostat too high or low, etc.)

	Date	What energy problem did you find?	What did you do about it?
Day 1			
Day 2			
Day 3			
Day 4			
Day 5			
Day 6			
Day 7			
Day 8			
Day 9			
Day 10			
Day 11			
Day 12			
Day 13			
Day 14			

