

Energy Efficiency and Conservation Project

Name _____

Parent Signature _____

Overview

Global warming, ocean acidification, and loss of natural resources may seem like big and confusing ideas. However, there are many small yet important things we can do as individuals, families, and citizens to help not only save the environment but save money as well.

During this project you will:

- Examine your current energy use.
- Develop a plan to be more energy efficient.

Part I

You will begin by doing a Home Energy Audit (separate sheet). The audit is something you can do with friends or family in your home.

Due 4/10

Part II

After completing your audit you will report your results and ways to reduce energy use in your home. Your report will be in the form of a paper, slideshow, or video.

Due 4/24

Paper

Your paper will detail in written format (with some data tables or lists) the results of your audit. Paragraphs will explain short term and long term actions you can take to conserve energy based on your results.

Requirements

- Typed and turned in on Google Classroom
- About 1 page, 12 or 14 normal font
- Reference any resources (websites) used
- (see Paper Rubric for details)

Slideshow

Your slideshow will document the results of your Home Energy Audit. Pictures from your home will be used to justify your recommendations for changes.

Requirements

- Well designed with at least 10 slides using Google Presentation.
- Turned in on Google Classroom
- Pictures from your home documenting energy use.

- Reference any resources (websites) used
- see Slideshow Rubric for details

Video

Your video will consist of a tour of your home's energy efficiency and areas in need of improvement. How can you save on your electric bill?

Requirements

- Title Screen with name and video title
- End Credits with the names of participants and resources (websites) used
- 5 minutes of video
- Shared/Turned in on Google Classroom




Home Energy Audit

Ever wonder how your home uses energy? And how your energy usage affects the environment and global climate change? Here's a way to find out!



Instructions:


- 1) Please go around your home and find the items on the chart below.
- 2) Answer the questions and figure out how many points your home scores for energy efficiency.
- 3) Tally the points, calculate how energy efficient your home is.
- 4) Create a plan for making your home ever more energy efficient (your paper, slideshow, or video)

This activity takes about 30-60 minutes. If you cannot answer some of the questions, skip them and move on. Ask an adult at home for help on the harder questions and for Part 2 (furnace, air conditioner, hot water heater, windows and water).

Indoor Lighting	Calculation	Number of Points	Points
<p>Incandescent (INC) light bulbs  Number of incandescent bulbs in home? _____</p> <p>Compact fluorescent light bulb (CFL) and LED bulbs.  Number of CFLs in home. _____</p> <p>Light Emitting Diode bulbs (LED)  Number of LEDs in home. _____</p>	$\frac{\text{(Number of CFL and LED bulbs)}}{\text{(Total number of light bulbs)}} \times 100$ <p>= _____ % CFL & LED bulbs in home</p>	<p>2 points for 90-100% CFL and LEDs 1 point for 50-89% CFL and LEDs</p>	<p>_____/2</p>
<p>Other Lighting: Do you have a skylight or solar tube? <input type="checkbox"/>yes <input type="checkbox"/>no</p>		<p>1 point if yes</p>	<p>_____/ 1</p>
Outdoor Lighting			
<p>Does your porch light have a motion sensor to turn it off and on? <input type="checkbox"/>yes <input type="checkbox"/>no</p>		<p>1 point if yes</p>	<p>_____/ 1</p>

Plug Load

Computers How many computers do you have in the house? _____ Number of desktops _____ Number of laptops _____ How do you leave them overnight? <input type="checkbox"/> on <input type="checkbox"/> off	2 points if computers are off overnight 1 point if fewer than 3 computers	_____/3
TVs Total number of TVs in home? _____ Main TV Energy Star? <input type="checkbox"/> yes <input type="checkbox"/> no OLED <input type="checkbox"/> yes <input type="checkbox"/> no 	2 points if 2 or fewer 1 point if more than 2 1 point if Energy Star 1 point if OLED	_____/2 _____/2
Music, DVDs, BluRay, and Games <input type="checkbox"/> Stereo <input type="checkbox"/> Game Console <input type="checkbox"/> DVD/BR Which of the following do you also use with your main TV? <input type="checkbox"/> DVR <input type="checkbox"/> other	1 point if you are using 3 or less of these items	_____/1
Smart Strip  Do you use Smart strips with your computers and TV? <input type="checkbox"/> yes <input type="checkbox"/> no Do turn off the strip when not in use or use a "vampire" strip? <input type="checkbox"/> yes <input type="checkbox"/> no	1 point for each yes	_____/2

Appliances	Number of Points	Points
Refrigerator/Freezer (main one) Energy Star <input type="checkbox"/> yes <input type="checkbox"/> no	1 point if energy star	_____/1
Refrigerator/Freezer #2 (if you have one) Energy Star <input type="checkbox"/> yes <input type="checkbox"/> no	1 point if energy star 1 point if no second refrigerator/freezer	_____/1
Dishwasher Energy Star <input type="checkbox"/> yes <input type="checkbox"/> no	1 point if energy star	_____/1
Washing Machine Does your family own a washing machine? <input type="checkbox"/> yes <input type="checkbox"/> no Energy Star <input type="checkbox"/> yes <input type="checkbox"/> no  High Efficiency Washer <input type="checkbox"/> yes <input type="checkbox"/> no	1 point if energy star 2 points if high efficiency	_____/2
Dryer Does your family own a dryer? <input type="checkbox"/> yes <input type="checkbox"/> no Energy Star <input type="checkbox"/> yes <input type="checkbox"/> no	1 point if energy star	_____/1

Air Heating	Number of Points	Points
Heater/Furnace If central heat: Do you have a heater? <input type="checkbox"/> yes <input type="checkbox"/> no What type of fuel runs it? <input type="checkbox"/> natural gas <input type="checkbox"/> electricity <input type="checkbox"/> oil If yes, what type? <input type="checkbox"/> Central heat <input type="checkbox"/> Space heaters Can it be programmed? <input type="checkbox"/> yes <input type="checkbox"/> no	1 point if you don't have a heater 1 point if natural gas 1 point if heater can be programmed	_____/3

Air Cooling		Number of Points	Points
Air Conditioner (A/C) Do you have an air conditioner? Can it be programmed? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> yes <input type="checkbox"/> no If so, what type? <input type="checkbox"/> Central A/C <input type="checkbox"/> Wall units		1 point if you do not have A/C or 1 point if A/C can be programmed	____/ 1
Ceiling Fans (not exhaust fans) Do you have ceiling fans? <input type="checkbox"/> yes <input type="checkbox"/> no		1 point if fans available	____/ 1
Hot Water Heater			
Is the hot water heater energy star? <input type="checkbox"/> yes <input type="checkbox"/> no Is it a tankless hot water heater? <input type="checkbox"/> yes <input type="checkbox"/> no Are the water pipes insulated? <input type="checkbox"/> yes <input type="checkbox"/> no Is the tank insulated? <input type="checkbox"/> yes <input type="checkbox"/> no		2 points for tankless. 1 point for energy star 1 point for insulation	____/ 2
Windows			
Do you have energy star windows? <input type="checkbox"/> yes <input type="checkbox"/> no Note: Energy star windows have 2 layers.		2 points if all windows are energy star. 1 point if some are.	____/ 2

Water Conservation		Number of Points	Points
Showers Low flow showerheads? <input type="checkbox"/> yes <input type="checkbox"/> no		1 point if low flow	____/ 1
Sinks Low flow faucets? <input type="checkbox"/> yes <input type="checkbox"/> no Aerator present? <input type="checkbox"/> yes <input type="checkbox"/> no		1 point for aerator or low flow	____/ 1

Solar Panels		Number of Points	Points
Do you have a solar panels? <input type="checkbox"/> yes <input type="checkbox"/> no		2 points if you have solar panels	____/2

Your home's energy efficiency score	Calculation	Number of Points	Points

Highest possible number of points = How many total points did your home earn? _____	$\frac{(\text{Number of points in your home}) \times 100}{33}$ =(home energy efficiency) _____%	My home is _____% energy efficient	_____ / 33
---	---	--	------------

For extra credit attach the Energy Efficiency report sent to your home from National Grid showing how you compare to your neighbors. Pictures accepted.

Energy Efficiency

Name _____

Paper Rubric

Completion of Audit **Due Date: Monday 4/10** _____ / 10

Math and data are correct.

Completed on time.

Paper

Proper spelling and grammar _____ / 5

Paper is turned in on Google Classroom _____ / 5

Size 12 or 14 font and appropriate black font style.

Turned in on **Due Date: Monday 4/24**

Important information has been included

Explanation of purpose: _____ / 5

Why is conserving energy important?

What is the importance of the home energy audit?

What was discovered during the audit?

Actions to improve your home's energy efficiency (based on your audit)

3 or more short term

_____ / 5

2 or more long term _____ / 5

Written in your own words _____ / 5

References Page _____ / 5

2 sources in MLA format

Length _____ / 5

1.5 pages double spaced

TOTAL _____ / 50 = _____



Energy Efficiency Project

Name _____

Slideshow Rubric

Completion of Audit **Due Date: Tuesday 4/11** _____ / 10

Math and data are correct.
Completed on time.

Slideshow

Proper spelling, grammar, and graphic design _____ / 7

Design: Contrast, Repetition, Alignment, Proximity

Slideshow is turned in on Google Classroom on time _____ / 5

Due Date: Tuesday 4/25

Important information has been included

Explanation of purpose: _____ / 5

Why is conserving energy important?

What is the importance of the home energy audit?

What was discovered during the audit?

Actions to improve your home's energy efficiency (based on your audit)

3 or more short term

_____ / 5

2 or more long term

_____ / 5

Pictures from home included _____ / 5

References Slide _____ / 5

2 sources in MLA format

Length _____ / 3

At least 6 slides

TOTAL _____ / 50 = _____



Energy Efficiency Project

Name _____

Video Rubric

Completion of Audit **Due Date: Monday 4/10** _____ / 10

Math and data are correct.

Completed on time.

Video

Video has a logical order and makes sense. _____ / 7

No "dead air" with no talking/content.

Video has been edited.

Video is turned in on Google Classroom on time.

_____ / 5

Turned in as .avi, .mp4, .wmv file, or link to video

Due Date: Monday 4/24

Important information has been included

Explanation of purpose: _____ / 5

Why is conserving energy important?

What is the importance of the home energy audit?

What was discovered during the audit?

Actions to improve your home's energy efficiency (based on your audit)

3 or more short term

_____ / 5

2 or more long term

_____ / 5

Footage of home included.

_____ / 5

References in credits

2 sources in MLA format

_____ / 5

Length

At least 5 minutes in length.

_____ / 3

TOTAL _____ / 50 = _____

