

# ENERGY LITERACY SURVEY

A Broad Assessment of  
Energy-related Knowledge,  
Attitudes and Behaviors

HIGH SCHOOL ISSUE

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Developed by researchers at  
**Clarkson University**, Potsdam NY  
with funding by the National Science Foundation

# Energy Literacy Survey

The questions in this survey will ask you about what you know and think about energy issues, and about some of the personal choices you make. Please answer the questions truthfully and to the best of your ability.

**Keep in mind:** This is a survey, not a test. You will not get a grade, but your answers are very important because we need to understand what your whole class knows and thinks about energy. With that in mind, please do your best to answer each question as well as you can. If you don't know the answer, try to make your best guess. If you have absolutely no idea at all, skip the question and move on. Don't forget to also skip that line on the answer sheet.

Your parent/guardian has agreed to allow you to be part of this research, but you may choose whether or not you want to fill out this survey. By filling out the survey, you agree to be part of this research. Your participation is greatly appreciated!

## Directions

PLEASE USE A NUMBER 2 OR SOFT LEAD PENCIL

You should have received this survey booklet and an answer sheet for recording your answers. Please put all your answers on the answer sheet; do not mark in the test booklet.

On side 2 of the answer sheet, record your name in the space provided, last name followed by first name. Next, mark your sex (male/female) and birth date (year and month only). Fill in the circle that corresponds to your current grade level where it says "grade or education."

Under "identification number" copy the 9 digits provided by your teacher, and fill in the appropriate circles.

Begin recording your answers on side 1. It is important to fill in the answer sheet carefully using the number 2 pencil. Choose the **one best** answer for each question, and fill in the corresponding circle on the answer sheet. If you change your answer, be sure to completely erase your first answer. Do not make any stray marks outside the circles. Keep in mind that there is **only one answer for each question**.

Sample:

100. How many feet are there in a mile?

- A. 1760
- B. 4840
- C. 5280
- D. 6460
- E. Don't know

Response on the answer sheet:

100.    A   B   C   D   E  
         ○ ○ ● ○ ○

Fill in the circle for your answer completely!

There are four sections in the survey. Each section is different, so please read the directions carefully before starting each section. Complete the entire survey – you do not need to stop between sections. Feel free to ask questions of your teacher at any time.

## Thank You

**Section I.** Fill in the circle on your answer sheet for the letter of the answer that best indicates your response to the following questions. Be honest, remember - this is not a test!

1. How much do you feel you know about energy? (rate yourself as “expert” to “novice” or less, as described below)
  - A. A lot – expert
  - B. Quite a bit – informed
  - C. A “medium” amount – somewhat informed
  - D. Not much – novice
  - E. Nothing – not in the running
  
2. When it comes to energy use, how would you describe yourself?
  - A. High energy user
  - B. Moderately high energy user
  - C. Medium energy user
  - D. I try to save energy sometimes
  - E. I almost always try to save energy
  
3. Of the following choices, which **one** thing has contributed **most** to your understanding of energy issues and problems?
  - A. School
  - B. Books, newspapers, or magazines I have read on my own
  - C. Friends or family members (including parents)
  - D. Information from the internet
  - E. Television programs
  
4. How often do you talk to your family about ways you can save energy in and around your home? (for example, shutting off lights when they are not in use, turning down the heat, closing doors and windows)
  - A. A lot
  - B. A fair amount
  - C. Only a little bit
  - D. I may have mentioned something once or twice
  - E. Not at all

**Section II.** Please indicate **how you feel** about each statement below. There are no right or wrong answers. Read each statement carefully, then fill in the circle on your answer sheet for the letter that best describes how much you agree or disagree, using the following key:

- “A” represents “strongly agree”
- “B” represents “agree moderately”
- “C” represents “neither agree nor disagree”
- “D” represents “disagree moderately”
- “E” represents “strongly disagree”

5. Energy education should be an important part of every school’s curriculum.
6. I would do more to save energy if I knew how.
7. Saving energy is important.
8. The way I personally use energy does not really make a difference to the energy problems that face our nation.
9. I don’t need to worry about turning the lights or computers off in the classroom, because the school pays for the electricity.
10. Americans should conserve more energy.
11. We don’t have to worry about conserving energy, because new technologies will be developed to solve the energy problems for future generations.
12. All electrical appliances should have a label that shows the resources used in making them, their energy requirements, and operating costs.
13. The government should have stronger restrictions about the gas mileage of new cars.
14. We should make more of our electricity from renewable resources.
15. America should develop more ways of using renewable energy, even if it means that energy will cost more.
16. Efforts to develop renewable energy technologies are more important than efforts to find and develop new sources of fossil fuels.
17. Laws protecting the natural environment should be made less strict in order to allow more energy to be produced.
18. More wind farms should be built to generate electricity, even if the wind farms are located in scenic valleys, farmlands, and wildlife areas.
19. More oil fields should be developed as they are discovered, even if they are located in areas protected by environmental laws.

## Section II, continued

- “A” represents “strongly agree”
- “B” represents “agree moderately”
- “C” represents “neither agree nor disagree”
- “D” represents “disagree moderately”
- “E” represents “strongly disagree”

20. I believe that I can contribute to solving the energy problems by making appropriate energy-related choices and actions.
21. I believe that I can contribute to solving energy problems by working with others.

**Section III.** For the following statements, please select the choice that **best describes your behavior**. Be honest, there are no right or wrong answers. Read each statement carefully, then fill in the circle on your answer sheet for the letter that best describes how much you agree or disagree, using the following key:

- “A” represents “almost always” or “always”
- “B” represents “quite frequently”
- “C” represents “sometimes”
- “D” represents “not very often”
- “E” represents “hardly ever” or “never”

22. I try to save water.
23. I walk or bike to go short distances, instead of asking for a ride in the car.
24. When I leave a room, I turn off the lights.
25. I turn off the computer when it is not being used.
26. Many of my everyday decisions are affected by my thoughts on energy use.
27. My family turns the heat down at night to save energy.
28. I am willing to encourage my family to turn the heat down at night to save energy.
29. My family buys energy efficient compact fluorescent light bulbs.
30. I am willing to encourage my family to buy energy efficient compact fluorescent light bulbs.
31. I am willing to buy fewer things in order to save energy.

**Section IV.** For each of the following questions, choose the **one best** answer. Fill in the circle for the letter of the answer on your answer sheet.

32. Each and every action on Earth involves...

- A. Food
- B. Energy
- C. Sun
- D. Water
- E. Motion

33. The original source of energy for almost all living things is...

- A. Sun
- B. Water
- C. Soil
- D. Plant life
- E. Wind

34. Which of the following statements best **DEFINES** energy?

- A. A force that moves something
- B. Potential and kinetic
- C. The rate at which work is done
- D. The ability to do work
- E. Fossil fuels

35. All of the following are forms of energy **EXCEPT**...

- A. Chemical
- B. Heat
- C. Mechanical
- D. Electromagnetic
- E. Coal

36. Complete the following energy conversion for a battery-powered flashlight:

\_\_\_\_\_ energy → electrical energy → light energy

- A. Chemical
- B. Elastic
- C. Mechanical
- D. Sound
- E. Heat

37. The amount of ELECTRICAL ENERGY (ELECTRICITY) we use is measured in units called...

- A. Kilowatts (kW)
- B. Kilowatt-hours (kW-h)
- C. British Thermal Units (BTU)
- D. Volts (V)
- E. Horsepower (HP)

38. The amount of ENERGY consumed by an electrical appliance is equal to the power rating of the appliance (watts or kilowatts) ...
- A. Multiplied by the cost of electricity
  - B. Added to the cost of electricity
  - C. Multiplied by the time it's used
  - D. Divided by the time it's used
  - E. Added to the time it's used
39. How do you know that a piece of wood has stored chemical potential energy?
- A. It can be converted into other things such as paper and furniture
  - B. It is a stationary object
  - C. It was once a living thing
  - D. It releases heat when burned
  - E. Wood does not have stored potential energy
40. When you turn on an incandescent light bulb, which of the following energy conversions takes place?
- A. Electrical energy to radiant energy (light)
  - B. Chemical energy to radiant energy (light)
  - C. Electrical energy to radiant energy (light) and thermal energy (heat)
  - D. Chemical energy to radiant energy (light) and thermal energy (heat)
  - E. Electrical energy to radiant energy (light) and mechanical energy
41. What does it mean if an electric power plant is 35% efficient?
- A. For every \$100 invested in the production of energy, \$35 is made into profit
  - B. For every \$35 invested in the production of energy, \$100 is made into profit
  - C. For every 100 units of energy that go into the plant, 35 units are lost during energy transformations
  - D. For every 100 units of energy that go into the plant, 35 units are converted into electrical energy
  - E. For every 35 units of energy that go into the plant, 100 units of electrical energy are produced
42. It is impossible to...
- A. Build a machine that produces more energy than it uses
  - B. Convert chemical energy to heat energy
  - C. Measure the amount of heat energy in foods
  - D. Use ethanol to power an automobile
  - E. Save energy by reducing, reusing, and recycling products
43. The term "renewable energy resources" means ...
- A. Resources that are free and convenient to use
  - B. Resources that can be converted directly into heat and electricity
  - C. Resources that do not produce air pollution
  - D. Resources that are very efficient to use for producing energy
  - E. Resources that can be replenished by nature in a short period of time

44. Which of the following energy resources is **NOT** renewable?
- A. Solar
  - B. Biomass (wood, waste, plants, alcohol fuels)
  - C. Coal
  - D. Water (hydro) power
  - E. Geothermal
45. Renewable energy sources provided approximately what percentage of the total U.S. energy consumption at the end of 2007?
- A. Less than 2%
  - B. Between 2% and 15%
  - C. Between 15% and 45%
  - D. Between 45% and 75%
  - E. More than 75%
46. Most of the RENEWABLE ENERGY used in the United States comes from ...
- A. Solar
  - B. Water (hydro) power
  - C. Wind
  - D. Biomass (wood, waste, plants, alcohol fuels)
  - E. Geothermal
47. Many useful manufactured products are made out of which one of the following energy resources?
- A. Coal
  - B. Uranium
  - C. Petroleum
  - D. Natural Gas
  - E. Solar
48. Which is the most abundant fossil fuel found in the United States?
- A. Coal
  - B. Natural gas
  - C. Crude oil (petroleum)
  - D. Tar sands
  - E. Wood
49. Over the last 10 years, petroleum imports to United States from other countries have ...
- A. Steadily increased
  - B. Steadily decreased
  - C. Become more expensive
  - D. Both A and C
  - E. Both B and C

50. Which country provided the single largest volume of oil imported to the United States in 2007?
- A. Venezuela
  - B. Saudi Arabia
  - C. Canada
  - D. Iraq
  - E. Brazil
51. Which resource provides about 85% of the energy used in developed countries like the United States and Europe?
- A. Biomass (wood, waste, plants, alcohol fuels)
  - B. Water (hydro) power
  - C. Nuclear
  - D. Wind
  - E. Fossil fuels
52. Scientists say the single fastest and most cost-effective way to address our energy needs is to...
- A. Develop all possible domestic sources of oil and gas
  - B. Build nuclear power plants
  - C. Develop more power plants that use renewable energy sources
  - D. Promote energy conservation
  - E. Develop alternative fuel vehicles
53. The best reason to buy an ENERGY STAR® appliance is ...
- A. ENERGY STAR appliances are usually bigger
  - B. ENERGY STAR appliances cost more
  - C. ENERGY STAR appliances use less energy
  - D. ENERGY STAR appliances are more modern looking
  - E. ENERGY STAR appliances cost less
54. Some people think that if we run out of fossil fuels we can just switch over to electric cars. What is wrong with this idea?
- A. Most electricity is currently produced from fossil fuels (coal, oil, natural gas)
  - B. Switching to electric cars will make unemployment rates go up
  - C. It has been proven that it is impossible to build electric cars in great quantities
  - D. You can't use electricity to operate a car
  - E. There is nothing wrong with this idea
55. If a person travelled alone to work 30 miles every day and wanted to save gasoline, which one of the following options would save the **MOST** gasoline?
- A. Buying a car that gets 30 miles per gallon rather than one that gets 20 miles per gallon
  - B. Driving 55 miles per hour rather than 65 miles per hour
  - C. Driving 45 miles per hour rather than 65 miles per hour
  - D. Carpooling to and from work with one other person
  - E. All would save about the same amount of gasoline

56. Which of the following choices **ALWAYS SAVES** energy?
- A. Using portable electric heaters for added space in oil or gas heated homes
  - B. Buying a more fuel-efficient car and driving that instead of riding the bus
  - C. Leaving fluorescent lights on instead of turning off for a short period when not in use
  - D. Using your computer's screen saver in between use
  - E. Turning off the car engine when the car is stopped for 15 seconds or more
57. Which uses the **MOST ENERGY** in the average American home in one year?
- A. Refrigerating food and beverages
  - B. Washing and drying clothing
  - C. Heating and cooling rooms
  - D. Heating and cooling water
  - E. Lighting the home
58. Which uses the **LEAST ENERGY** in the average American home in one year?
- A. Refrigerating food and beverages
  - B. Cooking and preparing food and beverages
  - C. Heating and cooling rooms
  - D. Heating and cooling water
  - E. Lighting the home
59. Which of the following items uses the **MOST ELECTRICITY** in the average American home in one year?
- A. Lights
  - B. Refrigerator
  - C. Telephone
  - D. Television
  - E. Computer
60. Which resource provides **MOST** of the **ENERGY** used in the U.S. each year?
- A. Petroleum
  - B. Coal
  - C. Natural gas
  - D. Water (hydro) power
  - E. Nuclear energy
61. Most of the **ELECTRICITY** produced in the United States comes from ...
- A. Nuclear power
  - B. Burning petroleum
  - C. Burning coal
  - D. Solar energy
  - E. Water (hydro) power

62. Which of the following is **NOT** currently used to produce electricity?
- A. Dams on rivers
  - B. Geothermal energy
  - C. Burning coal
  - D. Nuclear fusion
  - E. The sun
63. One advantage to using nuclear power instead of coal or petroleum for energy is that...
- A. Nuclear power plants are not expensive to build
  - B. There is less air pollution
  - C. It is totally safe
  - D. The waste products are easy to store
  - E. Nobody objects to building new nuclear power plants
64. Many scientists say the Earth's average temperature is increasing. They say that one important cause of this change is...
- A. Acid rain
  - B. Rising ocean levels
  - C. The sun is moving closer to the earth
  - D. Increasing carbon dioxide concentrations from burning fossil fuels
  - E. Increasing carbon dioxide concentrations from nuclear power plants
65. Which of the following correctly describes how radioactive waste from nuclear power plants is **CURRENTLY** managed in the United States?
- A. It is stored on-site at the nuclear power plant
  - B. It is buried deep underground and left there
  - C. It is stored in the desert
  - D. It is burned
  - E. There is no waste from nuclear power plants
66. Which of the following energy-related activities is **LEAST** harmful to human health and the environment?
- A. Coal mining
  - B. Petroleum exploration and transportation
  - C. Burning fossil fuels to produce electricity
  - D. Manufacturing photovoltaic (solar) cells for generating electricity
  - E. Generating electricity with photovoltaic (solar) cells
67. Select the choice that makes the following statement **TRUE**: Renewable energy resources like wind and solar are **STILL HARMFUL** to human health and the environment because:
- A. Generating electricity with wind turbines and photovoltaic (solar) cells creates air pollution
  - B. It takes a lot of energy and material to manufacture wind turbines and photovoltaic (solar) cells
  - C. Wind turbines and photovoltaic (solar) cells are too expensive for most people
  - D. These renewable energy resources cause global warming
  - E. None of these statements are true – renewable energy resources are **HARMLESS** to human health and the environment

68. Which of the following statements is **FALSE**?

- A. People who live in countries that have large amounts of fossil fuel resources generally have a high standard of living
- B. A shortage of fossil fuels will generally cause more hardship for people with lower incomes than for people with higher incomes
- C. People with lower incomes generally spend a larger percentage of their income on energy than people with higher incomes
- D. Energy consumption in the United States is growing fastest in the transportation sector
- E. Buying fewer material goods will help save energy

69. Indicate which of the following statements is **FALSE**: Currently, there is a growing interest in biofuels like ethanol in the United States because ...

- A. Using ethanol instead of gasoline reduces the production of greenhouse gases
- B. Fossil fuels are becoming more and more expensive
- C. We are currently using more petroleum than can be developed from U.S. resources
- D. Demand for energy by the transportation sector is growing
- E. Cars that run on ethanol get better fuel mileage (miles per gallon) than cars that run on gasoline

**END**

**Thank You**

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This project is supported by the National Science Foundation, grant number DUE-0428127. This survey was developed using rigorous educational research methods by researchers at Clarkson University. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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