

Climate Literacy Survey – Version III

FILE COPY

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

This survey is being administered as part of project that has received full approval by the Clarkson University Institutional Review Board (IRB# 10-24)

Keep in mind: This is a SURVEY, not a test. Your answers are very important because we need to understand what people know and think about climate change issues. With that in mind, please do your best to answer each question as well as you can. If you absolutely don't know the answer, choose the "I don't know" answer choice where available.

Your complete answers on this survey, including the personal information at the beginning, will help us with our research on climate literacy. There are different sections on the survey, and some have very different answer choices, so be sure to read each section carefully before answering. Complete the entire survey – you do not need to stop between sections. Feel free to ask any questions at any time. Thank you for your help!

For questions about this survey, please contact:

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Before we get started, consider the following list of environmental problems. Which do you consider to be the MOST important problem facing the United States today?

Air pollution
Water pollution
Loss of species to extinction
Destruction of ecosystems
Overpopulation
Toxic waste
Climate change
Urban sprawl
Smog
Acid rain
Rain forest loss
Ozone depletion

Section 1. 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. (8) How much do you feel you know about global climate change?
 - 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. (5) 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. (3) Of the following choices, which one thing has contributed most to your understanding of global climate change?
 - A. School
 - B. Internet, Books, newspapers, or magazines I have read on my own
 - C. Friends or family members (including parents)
 - D. Scientific publications
 - E. Television programs

4. (7) How convinced are you that global warming is happening?
 - A. Completely convinced
 - B. Mostly convinced
 - C. Not so convinced
 - D. Not at all convinced
 - E. I don't know

5. (8) If global warming is happening, do you think it is caused mostly by human activities, or caused mostly by natural changes in the environment?
- A. Mostly by human activities
 - B. Mostly by changes in the natural environment
 - C. Caused equally by human activities and the natural environment
 - D. Global warming is not happening
 - E. I don't know
6. (7) When do you think global warming will start to have serious impacts on people around the world?
- A. Now – it's already having serious impacts
 - B. Within 10 years
 - C. Within my lifetime
 - D. Not within my lifetime, but it will seriously impact future generations
 - E. Never

Section 2. [0] (questions 7 through 11) Please indicate how serious you consider global warming to be a threat to each of the following, using the following answer choices:

- A. Urgent
 - B. Very Serious
 - C. Somewhat serious
 - D. Not very serious
 - E. No threat at all
7. Plants and animals
8. People in other countries
9. People in the United States
10. Your local community
11. You and your family

Section 3. For questions 12 through 16, please indicate to what extent you agree with each statement, using the following answer choices:

- A. Strongly agree
 - B. Somewhat agree
 - C. Neither agree nor disagree
 - D. Somewhat disagree
 - E. Strongly disagree
12. (2) Life on earth will continue without major disruptions only if we take immediate and drastic action to reduce global warming.
13. (4) I believe I can take actions that will help reduce global warming.
14. I believe that, by working with others, we can take actions that will help reduce global warming.
15. (3) The actions of a single person won't make any difference in reducing global warming.

16. (3) The actions of a single country like the United States won't make any difference in reducing global warming.

Section 4. (questions 17 through 20) How do you feel about each of the following possible ways for the federal or state governments to reduce global warming? Use the following answer choices:

- A. Strongly favor
- B. Somewhat favor
- C. Neither favor nor oppose
- D. Somewhat oppose
- E. Strongly oppose

17. (4) Requiring automakers to increase the fuel efficiency of cars, trucks, and SUVs to 35 miles per gallon, even if it meant a new car would cost up to \$500 more to buy.

18. (4) Requiring electric utilities to produce at least 20% of their electricity from wind, solar, or other renewable energy sources, even if it costs the average household an extra \$100 per year.

19. (2) Increasing taxes on electricity so people use less of it.

20. (2) Increasing taxes on gasoline so people either drive less or buy cars that use less gas.

Section 5. For questions 21-33, please note how often you currently do each of the activities described, when the situation arises. Use the following answer choices:

- A. Almost always or always
- B. Quite frequently
- C. Sometimes
- D. Quite rarely
- E. Hardly ever or never

21. Walk or bike to go short distances, instead of driving or asking for a ride in the car

22. (1) Avoid consuming pre-packaged, single serving sized snacks and drinks

23. (1) Choose to buy fewer things in order to reduce global climate change

24. (2) Buy compact fluorescent light bulbs instead of incandescent bulbs

25. (3) Turn off your computer when you are done with it

26. (3) Turn off the lights when you leave the room

27. (1) Turn down the thermostat or air conditioner to save energy

28. (1) Use both sides of paper

29. (2) Recycle or return glass bottles, cans, paper, and plastic containers

30. (2) Reuse old bags or use a re-useable bag when shopping

31. [0] Bring a re-usable cup to cafes, eateries, etc.

32. (1) When making a purchase, how often does item packaging affect the choices you make about the goods that you buy? (i.e., bulk packaging vs. individual item wrapping)

33. (0) When you buy groceries, how often do you make it a point to buy products that are locally grown or produced? (e.g., products grown or produced within 200 miles of your residence)

Section 8. 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.

34. (9) The difference between weather and climate is:

- A. Weather is a day-to-day event while climate is a consistent pattern over a year or longer.
- B. Weather is local, but climate is global.
- C. Weather is predicable but climate is not.
- D. Weather includes more variables like moisture and wind while climate just focuses on temperature and precipitation.
- E. I don't know.

35. (2) Which of the following is the most abundant greenhouse gas?

- A. carbon dioxide (CO₂)
- B. water vapor (H₂O)
- C. methane (CH₄)
- D. oxygen (O₂)
- E. ozone (O₃)

36. (7) Which of the following is the greenhouse gas that we are most concerned about when we think of global warming?

- A. carbon dioxide (CO₂)
- B. water vapor (H₂O)
- C. methane(CH₄)
- D. oxygen (O₂)
- E. ozone (O₃)

37. (7) Earth's atmosphere is warmer than it would be without a greenhouse gas effect. Energy at which wavelength is absorbed by the atmosphere and mainly causes this temperature increase?

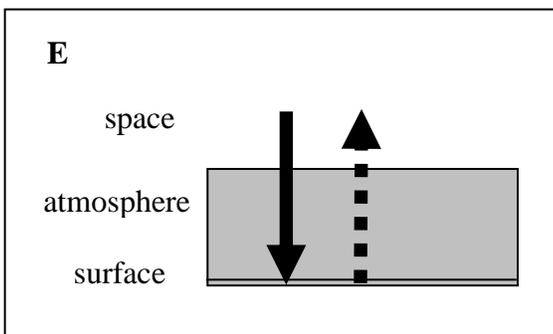
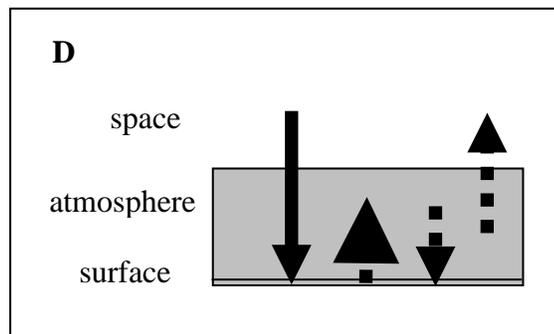
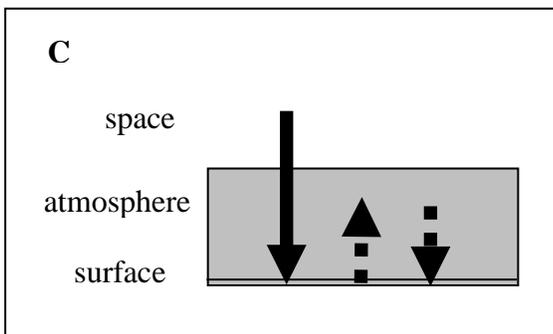
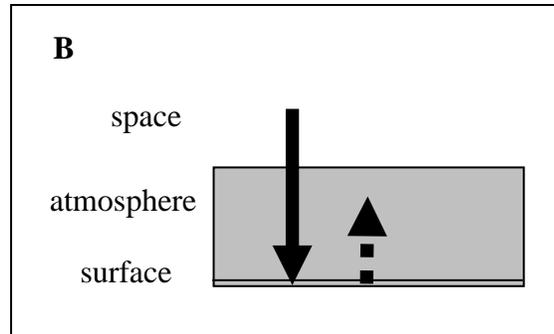
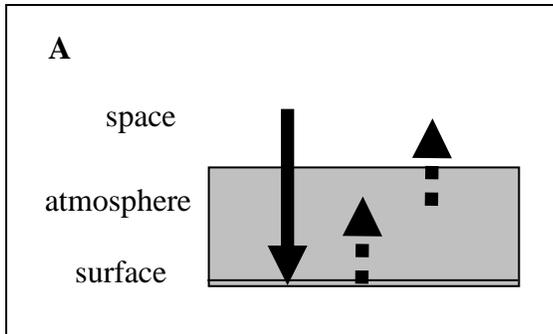
- A. radio
- B. infrared
- C. visible
- D. ultraviolet
- E. x-ray

38. (6) Which of the following is a primary characteristic of greenhouse gases?

- A. They can destroy certain molecules in the atmosphere.
- B. They bend and magnify sunlight entering the atmosphere.
- C. They can trap certain molecules in the atmosphere.
- D. They absorb moisture from the atmosphere.
- E. They absorb energy at certain wavelengths but not all.

39. (3) Which of the following most strongly affects Earth's overall surface temperature?
- A. Heat released by factories and other industrial activities
 - B. The destruction of the ozone layer allowing more sunlight into the atmosphere
 - C. The flow of different forms of energy through the atmosphere
 - D. Air pollution trapped in the atmosphere by gases
 - E. Sunlight being magnified and focused by gases in the atmosphere
40. (5) Which of the following best describes the relationship between the greenhouse effect and global climate change?
- A. The greenhouse effect and global climate change are the same thing.
 - B. An increase in the greenhouse effect may be causing global climate change.
 - C. Global climate change may be causing an increase in the greenhouse effect.
 - D. The greenhouse effect and global climate change are likely unrelated.
 - E. There is no definite proof that either the greenhouse effect or global climate change exist.
41. (6) If human civilization had never developed on Earth, would there be a greenhouse effect?
- A. Yes, the greenhouse effect is caused by naturally occurring gases in the atmosphere.
 - B. Yes, the greenhouse effect is caused by plants giving off gases during photosynthesis.
 - C. No, the greenhouse effect is caused by humans burning fossil fuels and releasing pollutants.
 - D. No, the greenhouse effect is caused by humans depleting ozone in the atmosphere.
 - E. No, there is no conclusive evidence that the greenhouse effect exists.
42. (5) Which of the following countries is the single greatest contributor to greenhouse gas emissions?
- A. United States
 - B. India
 - C. Russia
 - D. China
 - E. I don't know

43. (2) Each diagram below shows Earth's surface, the atmosphere, and outer space. The solid arrow represents incoming energy from the Sun that is absorbed by the surface. The dashed arrow represents energy that is radiated or given off by the surface and atmosphere. The thickness of the arrow roughly represents the amount of energy. Select the diagram that best represents the transport of energy among Earth's surface, the atmosphere, and outer space.



Section 9. Questions 44 through 46 have more than one answer – **choose all that apply.**

44. [0] Which of the following services does NASA (National Aeronautics and Space Administration) provide with respect to global climate change? (choose all that apply)
- A. Disseminates educational programs and materials
 - B. Satellite measurements of earth and atmospheric observations
 - C. Modeling and predicting change in Earth's atmosphere and climate
 - D. Provides the general public with access to data
 - E. I have no idea

45. [0] How do you think information on global climate change is collected? (choose all that apply)
- A. ground measurements
 - B. cell phones
 - C. satellites
 - D. ocean sensors
 - E. I have no idea
46. [0] Which agencies collect data on global climate change? (choose all that apply)
- A. NASA
 - B. DOE
 - C. NOAA
 - D. EPA
 - E. NCAR

Section 10. True/False – for questions 47 through 51, choose the letter that corresponds to the answer to the best of your knowledge.

A = I am sure it's true
B = I think it's true
C = I think it's false
D = I am sure it's false
E = I don't know

47. (1) The Earth's climate has remained pretty much the same for millions of years.
48. (1) Global warming is happening because too many of the sun's rays get to the earth.
49. (1) Global climate change is accelerated by the melting of snow and ice covered surfaces.
50. (1) Melting of snow and ice from land areas will likely result in rising sea levels.
51. (0) Melting of snow and ice from Earth's oceans will likely result in rising sea levels.

Section 11. (questions 54 through 59) Please indicate to the best of your knowledge which of the following is a cause of global climate change. Use the following answer choices:

A = I'm certain that it is a cause of global climate change
B = I think it is a cause of global climate change
C = I don't think it's a cause of global climate change
D = I'm certain that it's NOT a cause of global climate change
E = I don't know

52. Burning fossil fuels
53. Nuclear power generation
54. The ozone hole in the upper atmosphere
55. Livestock production
56. Dumping trash into our oceans
57. Waste rotting in our landfills
58. Radioactive waste from nuclear power plants

59. Agricultural use of chemical fertilizers

From the list above, which do you consider the most important cause of global climate change?

Section 12. (questions 60 through 65) Indicate to what extent you think each of the following statements describes a real and possible consequence of global climate change. Use the following answer choices:

A = I'm certain that it is a real and possible consequence of global climate change

B = I think it is a real and possible consequence of global climate change

C = I don't think it's a real and possible consequence of global climate change

D = I'm certain that it's NOT a real and possible consequence of global climate change

E = I don't know

- 60. More people will get skin cancer.
- 61. There will be food shortages in many parts of the world.
- 62. There will be more deserts in the world.
- 63. Island nations will disappear due to sea level rise.
- 64. There will be more and larger storms in many parts of the world.
- 65. The extinction rates of Earth's plant and animal species will increase.

Section 13. (questions 66 through 74) Which of the following actions will help reduce or slow down climate change? Select from the following answer choices:

A = I'm certain that it will reduce global climate change

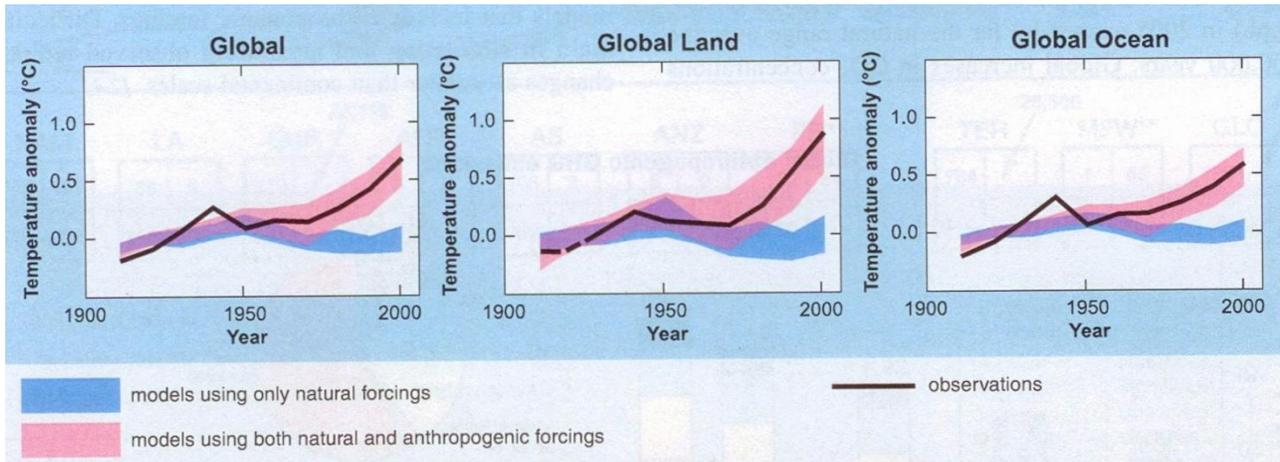
B = I think it will reduce global climate change

C = I don't think it will reduce global climate change

D = I'm certain that it will NOT reduce global climate change

E = I don't know

- 66. Building more nuclear power stations instead of coal power stations
- 67. Planting more trees in the world
- 68. Making more of our electricity from renewable energy resources
- 69. Recycling more
- 70. Not wasting electricity
- 71. Fertilizing the oceans to make algae grow
- 72. Reducing air pollution from toxic chemicals
- 73. Changing lifestyles to reduce consumption
- 74. Limiting the use of aerosol spray cans



75. Refer to the IPCC figure above (Intergovernment Panel on Climate Change, Summary for Policymakers, Figure SPM.4) that plots observed and modeled data. What does this graph tell you about the relationship between recent changes in global temperatures and natural processes?

END

Thank You

Many items included in this questionnaire were adapted from other in-use, previously used, or draft surveys that measure to knowledge, attitudes, beliefs, values, and behaviors related to global climate change. Items were adapted from the following sources, with permission:

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