

1. Instructions

General Instructions

Thank you for agreeing to participate!

We are interested in how people read and respond to science messages. You will be asked to read a brief message and answer some questions.

Press Continue when you are ready to begin.

2. Science Message

On the next page, you will be asked to read a brief science article. Afterwards, you will be asked some questions about your beliefs and attitudes regarding this article and related topics. Please read the article carefully so that you can answer the questions.

Below is a brief article about a science topic. Please read it carefully and then press Continue when you are ready to answer questions about it. The continue button will appear after 90 seconds.

Climate change is a phenomenon widely accepted by scientists. Within only a few years, scientists have made substantial progress in predicting climate change and understanding its causes. It is now known that a recent increase in severe weather, including severe floods, superstorms, and tornadoes, is due to global climate change. In fact, it is likely that the recent Hurricane Sandy was such a storm. Scientists have also made major progress in pinpointing the causes of global climate change. The likelihood that climate change is due to human activity is now considered certain. Scientists point specifically to the increase in fossil fuel usage in manufacturing and transportation over the last century. This increase has been accelerating at an exponential rate, with greater and greater increases each year.

High Efficacy:

Fortunately, there are things that you can do to make a real difference. Simply lowering your thermostat in the winter and raising it in the summer can make a difference in your local environment. Similarly, using the washing machine only when it is full and skipping the dryer by using a clothesline saves substantial energy. Reducing waste by recycling, drinking tap water instead of bottled water, and using reusable plastic bags can also help. Most people are easily able to incorporate these changes into their everyday lives. In fact, the average person who begins regularly recycling later realizes that they don't notice it taking any more time or effort than throwing their bottles in the garbage. All of these actions can make a huge impact on the environment. Just recycling bottles over the course of a year can make a noticeable dent in your local landfill. By making the

simple changes outlined here, you can save over 6000 pounds of carbon emissions. This is a substantial saving for incorporating such easy changes.

Low Efficacy:

Unfortunately, there is not much that you can do to make a real difference. Small changes like moving the thermostat by a few degrees, using the washer and dryer less, and reducing waste will not make a real difference in your local environment. Most people find it inconvenient to incorporate these changes into their everyday lives. In fact, the average person who begins regularly recycling later realizes that they notice it taking more time and effort than simply throwing their bottles in the garbage. All of these actions will not make a huge impact on the environment. Just recycling bottles over the course of a year will not make a noticeable dent in your local landfill. By making the changes discussed here, you might save about 3 tons of carbon emissions, which is practically nothing compared to the over 33 billion tons of carbon emissions produced annually across the globe. The simple changes you might make at home will not have a meaningful impact on global climate change.

3. Negative Emotions and Efficacy

Instructions:

On the following pages, we will be asking you about your opinions and beliefs. Please read each question carefully and answer using the scale provided.

Items:

- How scary is global warming? [1 = *not at all scary*, 7 = *very scary*]
- How disgusting are carbon emissions? [1 = *not at all disgusting*, 7 = *very disgusting*]
- How severe is climate change? [1 = *not at all severe*, 7 = *very severe*]
- How much does climate change threaten you personally? [1 = *no threat*, 7 = *a lot of threat*]
- How effective is individual effort in combating climate change? [1 = *not at all effective*, 7 = *very effective*]

4. Climate Change Beliefs

Instructions: Below, we will be asking you about your opinions and beliefs. Please read each statement carefully and rate how much you agree or disagree on the scale provided.

Scale: [1 = *strongly disagree*, 4 = *neither agree nor disagree*, 7 = *strongly agree*]

Items:

- Scientific evidence points to a warming trend in global climate.
- Human activity has been the driving force behind the warming trend over the last 50 years.
- The release of CO₂ (carbon dioxide) from human activity (such as smoke stacks and car emissions) has played a central role in raising the average surface temperature of the earth.
- The likelihood that emissions are the main cause of the observed warming trend of the last 50 years is between 90 and 99%.
- Natural phenomena such as solar variations combined with volcanic activity are the real cause of the warming effect. [reverse scored]
- Humans have very little effect on climate temperature. [reverse scored]
- An increase in CO₂ (carbon dioxide) is directly related to an increase in global temperature.
- Global warming presents a serious threat to human life.

5. Energy Conservation Intentions

Instructions: Below, we will be asking you about your intentions. Please read each item carefully and rate how strongly you intend to take the action described in the next year.

Scale: [1 = *not at all*, 7 = *definitely*]

Items:

- I intend to replace light bulbs in my home with more energy efficient bulbs
- I intend to set my thermostat/heater no higher than 65° F in the winter
- I intend to set my thermostat/air conditioning no lower than 75° F in the summer
- I intend to use the washing machine only when I have a full load
- I intend to use a clothesline instead of a dryer when possible
- I intend to recycle at home
- I intend to buy recycled paper
- I intend to drink tap water over bottled beverages when possible
- I intend to use a reusable or recycled shopping bag instead of disposable bags
- I intend to drive less/not at all
- I intend to vote for politicians who support environmental initiatives
- I intend to write to my representatives about environmental concerns

6. Climate Change Moralization

Instructions: Next, you will be asked some questions about your opinions. Please read each statement carefully and rate how much you agree or disagree with it on the scale provided.

Scale: [1 = *strongly disagree*, 4 = *neither agree nor disagree*, 7 = *strongly agree*]

Items:

- Preventing global warming decreases suffering in others.
- Preventing global warming protects others' rights.
- By taking action against global warming, I can feel good about myself.
- Recycling is morally good.
- Using disposable shopping bags is morally wrong.
- Cutting down trees is morally wrong.
- Using excessive heat in one's home is morally wrong.
- Using too much energy is morally wrong.
- Reducing energy consumption is morally good.
- Putting recyclable goods in the regular trash is morally wrong.
- Using a clothesline instead of the dryer is morally good.

7. Climate Change Policies

Instructions:

Next, you will be asked about your support for several different policies. Please consider the policies carefully and decide whether you agree or disagree with them. You may be asked follow-up questions about some of the policies.

Do you support the following policies?

Scale: Yes/No

Items:

- A fee for each disposable plastic shopping bag used.
- A small rebate for each reusable shopping bag used.
- A small rebate for each reusable drinking cup used for a take-out beverage (e.g., coffee).
- A commuter tax for driving a car alone during rush hour (6 AM – 10 AM and 4 PM -8 PM).
- Tax credits for purchasing hybrid and electric vehicles.
- A fee for buying a car with a fuel efficiency less than 25 miles per gallon.

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- Extra paid time off for employees who carpool

For each item they endorsed, participants were asked a follow-up question:

- How much should the fee for using disposable shopping bags be? [*\$0.10, \$0.20, \$0.30, \$0.40, \$0.50, \$0.60, \$0.70, \$0.80, \$0.90, \$1.00*]
- How much should the rebate for using reusable shopping bags be? [*\$0.10, \$0.20, \$0.30, \$0.40, \$0.50, \$0.60, \$0.70, \$0.80, \$0.90, \$1.00*]
- How much should the rebate for using reusable drinking cups be? [*\$0.10, \$0.20, \$0.30, \$0.40, \$0.50, \$0.60, \$0.70, \$0.80, \$0.90, \$1.00*]
- How much should the commuter tax for using a car alone during rush hour be? [*\$0.50, \$1.00, \$1.50, \$2.00, \$2.50, \$3.00, \$3.50, \$4.00, \$4.50, \$5.00*]
- How much should the tax credit for purchasing hybrid and electrical vehicles be? [*\$100, \$200, \$300, \$400, \$500, \$600, \$700, \$800, \$900, \$1000*]
- How much should the fee for purchasing cars that get less than 25 miles per gallon be? [*\$100, \$200, \$300, \$400, \$500, \$600, \$700, \$800, \$900, \$1000*]
- How much extra time off should employees who carpool get? [*1 hour, 2 hours, 3 hours, 4 hours, 5 hours, 6 hours, 7 hours, 8 hours, 9 hours, 10 hours*]

8. Demographics

Instructions: Please answer the following demographic questions. As with all answers in this study, your answers to these questions are completely anonymous and cannot be used to identify you.

Items:

- Are you male or female? [*Male, Female*]
- What is your religious affiliation?
- What is your racial or ethnic identity?
- What is your age?
- How would you identify your political beliefs? Please use the scale below: [1 = *strongly liberal*, 7 = *strongly conservative*]
- Think of this scale as representing where people stand in the United States. At the top of the scale are those who are the best off — those who have the most money, the highest education, and the best jobs. At the bottom of the ladder are those who are the worst off — those who have the least money, the least education, and the worst (or no) jobs. The higher you are on the scale, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom. Where would you place yourself on this scale? [1 = *bottom*, 9 = *top*]
- What is the highest level of education you have completed? [*Less than high school, High school/GED, Some college, Bachelor's (B.A., B.S.), Master's (M.A., M.S.), Doctoral (Ph.D., J.D., M.D.)*]

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- What is your yearly household income? [Less than \$10,000, \$10,000 - \$19,999, \$20,000 - \$29,999, \$30,000 - \$39,999, \$40,000 - \$49,999, \$50,000 - \$59,999, \$60,000 - \$69,999, \$70,000 - \$79,999, \$80,000 - \$89,999, \$90,000 - \$99,999, More than \$100,000]

9. Exit Questionnaire

Instructions: Great! You have now completed the experimental portion of this study. It is important to note that there is strong consensus in the scientific community that climate change is a severe threat to human society and human life. But there are things that everyone can do to reduce its impact. For more information about this threat and what you can do to reduce the effects of global warming, please visit <http://www.climate.gov/>. We just have a few more questions that we would like you to answer....

Items:

- In as much detail as possible, please describe what you think the purpose of this study may be. If you are not sure, please give your best guess.
- Do you have any additional thoughts or comments about the study?

10. Debriefing

Thank you for completing the study. Below is a debriefing sheet with information about the purpose of the study. On the next page you will receive your confirmation code. You must enter the confirmation code into Mechanical Turk to receive payment. Please do not exit this study until you receive the completion code.

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The study in which you participated today is part of a project that aims to learn about the causes of peoples' attitudes and beliefs about climate change. Previous research has found that knowledge contributes to an understanding of climate change and that education increases peoples' understanding of distinctions between climate and weather. However, we are interested in understanding how social and emotional factors influence attitudes towards climate change and willingness to act to prevent climate change. Thank you for participating! Please do not discuss the details or hypotheses of this study with any other students as they may be potential participants, and knowing the purpose of the study beforehand could affect the results. If you are feeling distressed as a result of this study and would like to talk to someone, please call 1-800-273-TALK to be connected to a mental health crisis line in your area. Finally, if you would like any further information or if you have any further questions, please contact Dr. Jesse Preston at jlp@cyrus.psych.uiuc.edu.

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References for Further Reading

Lombardi, D., & Sinatra, G. M. (2012). College Students' Perceptions About the Plausibility of Human-Induced Climate Change. *Research in Science Education*, 42, 201–217.

Sinatra, G. M., Kardash, C. M., Taasobshirazi, G., & Lombardi, D. (2011). Promoting attitude change and expressed willingness to take action toward climate change in college students. *Instructional Science*, 40, 1–17.