

# Does the Ozone Hole cause Global Warming?

**Dr. Carsten Braun**

Geography and Regional Planning

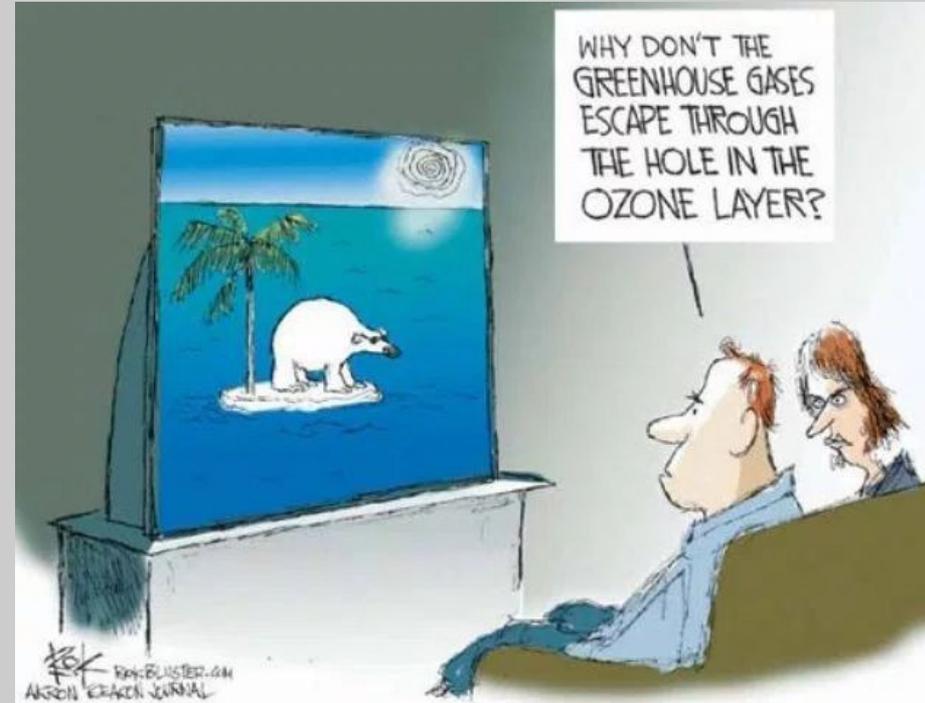
Environmental Science

Westfield State University

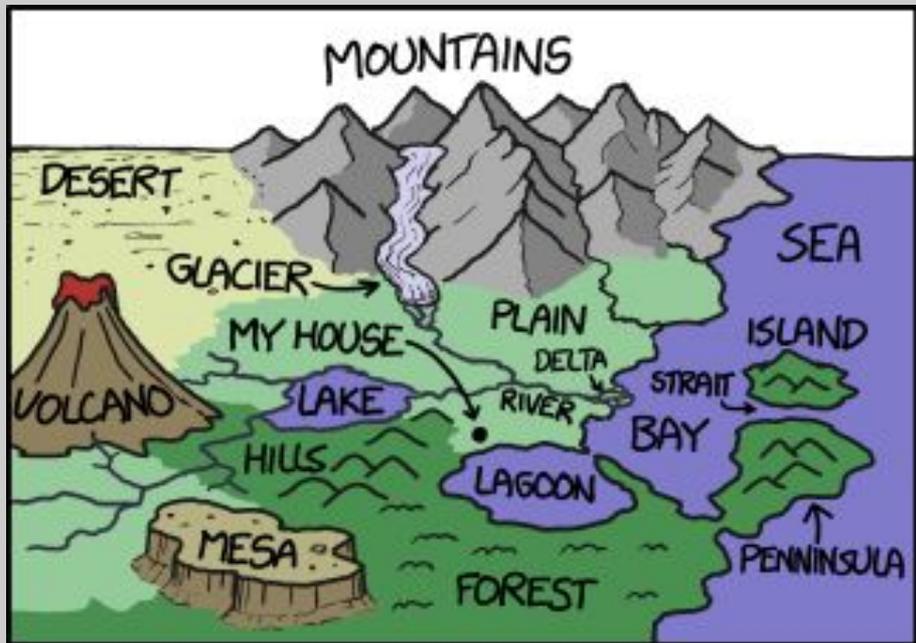
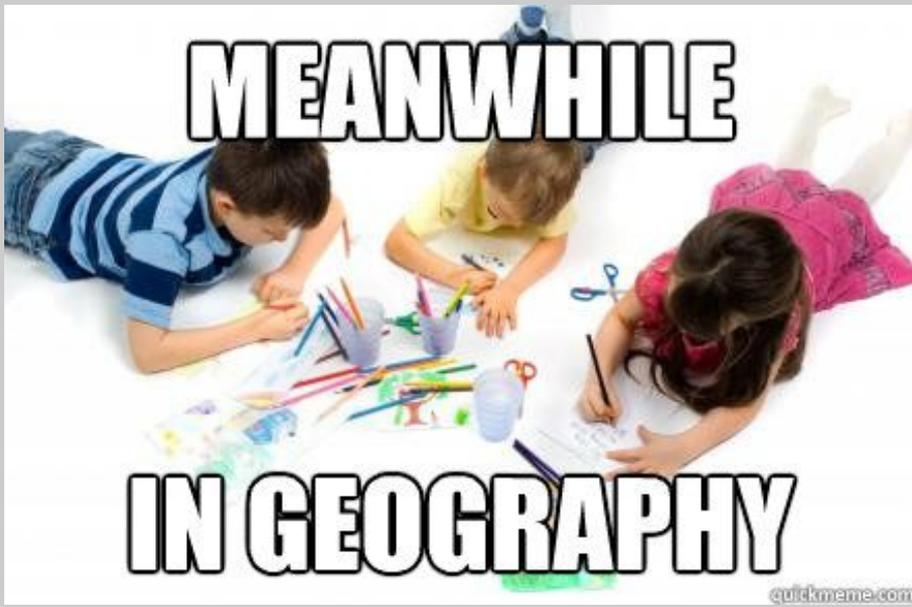
[cbraun@westfield.ma.edu](mailto:cbraun@westfield.ma.edu)

[carstenbraun.us](http://carstenbraun.us)

- [Abstract and Context](#)
- [The Ozone Briefing \(handout\)](#)



# Physical Geography: The Dreaded Gen-Ed Lab Science Requirement.



IF I COULD LIVE ANYWHERE, I WOULD CHOOSE THE EXAMPLE MAP FROM GEOGRAPHY BOOKS THAT EXPLAINS WHAT EVERYTHING IS CALLED.



# When Liberal Arts Education Meets Higher Education Reality.

## Difficult Audience.

- I don't want to be here.
- I did not chose to be here.
- I don't like science (and math).
- I'm not good at science (and math).
- This will lower my GPA.
- I took geography in high school - boring.
- This distracts from my major(s), athletics, honors studies, etc.
- How does this help me get a job?

## Difficult Logistics.

- 1st and 2nd-Year Students.
- Lecture (3 \* 50 minutes, 48 students) with 3 lab sections (100 minutes, 16 students) per week.
- Standard seminar classroom.
- No TA.
- Institutional mentality: maximum enrollment at minimum cost.
- Student mentality: requirement to 'check-off' with minimum effort.

# The Presidential Ozone Briefing.

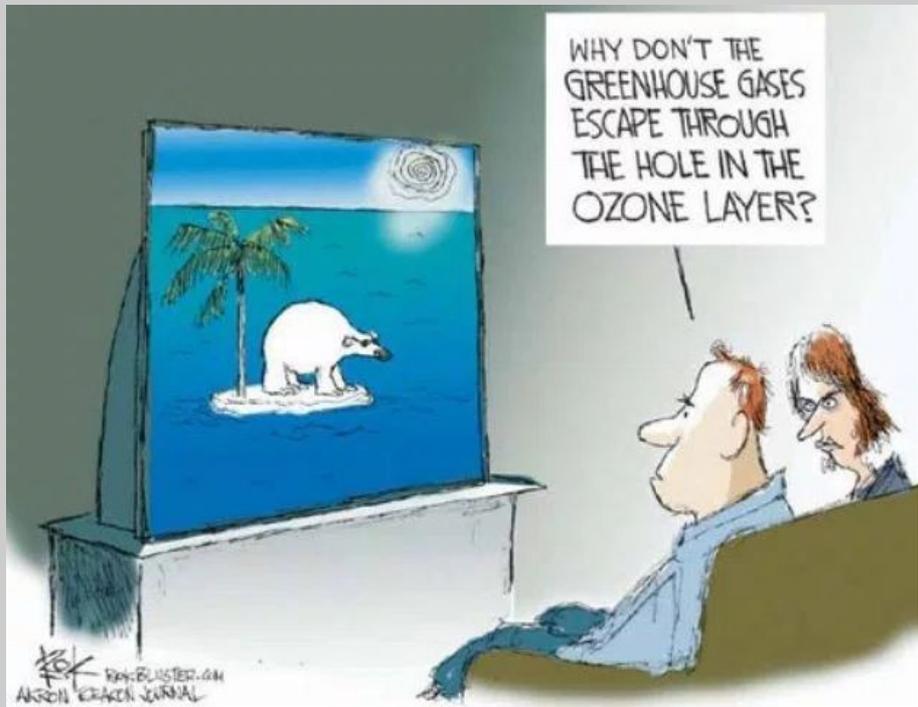


The President asks: **Does the ozone hole cause global warming?**

You have to prepare a briefing paper for the President who demands his briefings in a specific 6-page format:

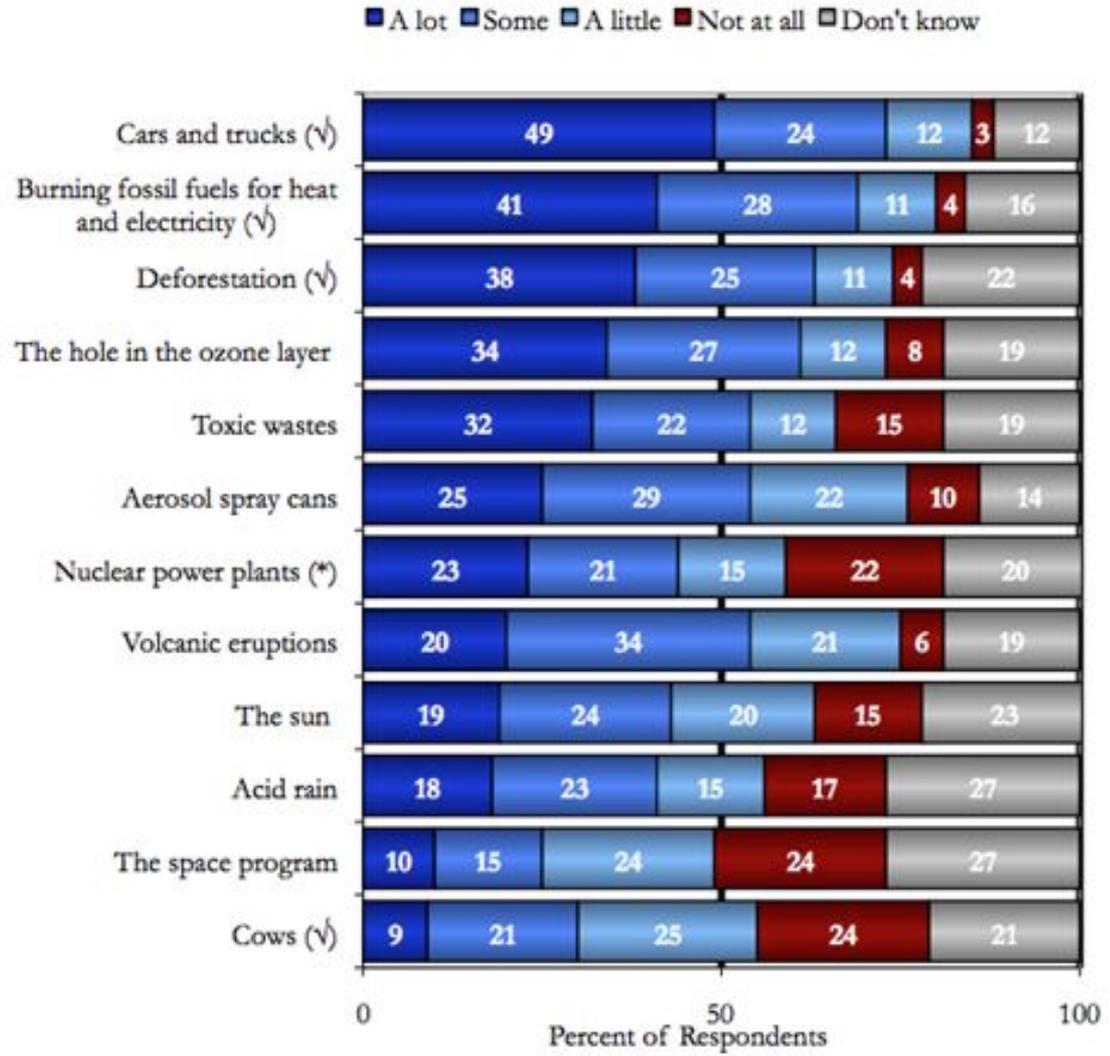
- |           |                                                             |
|-----------|-------------------------------------------------------------|
| Page 1    | Title Page.                                                 |
| Page 2    | The answer in 250 words or less.                            |
| Page 3    | A useful figure to illustrate and explain the issue.        |
| Page 4    | A second useful figure to illustrate and explain the issue. |
| Page 5, 6 | Annotated bibliography of at least five reliable sources.   |

# Does the ozone hole cause global warming?



# Does the ozone hole cause global warming?

Q26. How much does each of the following contribute to global warming?<sup>3</sup> (order of items randomized)



# Does the ozone hole cause global warming?

## Ozone and Global Warming.

1. The ozone hole does not cause global warming.
2. Global warming does not cause the ozone hole.
3. There is good ozone and bad ozone.
4. There are indirect connections between ozone and global warming.

## Indirect Connections.

1. Bad ozone is a strong greenhouse gas and public health issue.
2. The impact of the good ozone on global warming is negligible.
3. CFCs and HFCs are destroying the good ozone and are also very strong greenhouse gases.
4. Car exhaust is a direct greenhouse gas and creates bad ozone.
5. The Montreal Protocol created an unintended climate change 'bonus'.
6. The Montreal Protocol could be a template for solving international environmental problems.

# The Presidential Ozone Briefing: Goals.

## Primary Goals.

- The ozone hole does not cause global warming.
- Introduction to library resources.
- Follow instructions to deliver a professional product on-time.
- **Ask for help (be proactive).**

## Secondary Goals.

- (Online) source evaluation.
- Effectively use figures to support an argument.
- Create a proper annotated bibliography.
- **Ask for help (be proactive).**

# The Presidential Ozone Briefing: Organization.

## **Week 1 / Lab 1: Library Session.**

- Source evaluation and library resources facilitated by our instructional librarians.
- Handout and discussion of the briefing assignment.
- Due next week / lab: a printed draft of the briefing.

## **Week 2 / Lab 2: 'Regular' Lab.**

- CRAP Test for source evaluation.
- Basic document formatting.
- Free software.
- Figures: formatting, useful figure captions, using figures to support and illustrate an argument, etc.
- Annotated bibliography.
- Due date and instructions for the final product.

# The Presidential Ozone Briefing: CRAP Test.

## Information Evaluation Rubric ... C.R.A.P. Test ....

| Criterion                                                                                                                                         | Poor ..... 0 points                                                                                        | Fair ... 1 point                                                                                                                    | Good ..... 3 points                                                                                               | Excellent ... 5 points                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Currency</b><br>When was it published?<br>When was the last update?<br>How recent do you need it to be?                                        | No date indicated, no updates shown, information is out of date.                                           | Published date is shown, but not updated in a long time.                                                                            | Update is shown but is slightly out of date.                                                                      | Updates are shown, regular and current.                                                                                                                                                                                                                                                         |
| <b>Reliability</b><br>What kind of information is included?<br>How complete is this information?                                                  | Information is difficult to understand, and may include errors, with incomplete or inaccurate information. | Has grammatical and spelling errors.<br>Consistent line of thought, information is superficial.                                     | Easy to understand, has some spelling and grammar errors, information is current and accurate.                    | No errors, clear concise, well written, information is current, accurate and relevant. An in-depth understanding of the related issues shows the author's familiarity with the subject. Links to or from are also reliable. Has a bibliography. Information can be verified from other sources. |
| <b>Authority</b><br>Who wrote the information?<br>What are their credentials?<br>Who is the publisher / sponsor?                                  | No author is identified<br>No publisher                                                                    | Author is identified, but no credentials are given, no contact details given. The publisher is not reputable.                       | Author is identified, contact details given, credentials are valid.<br>The publisher is identified and reputable. | Author and publisher are clearly identified, respected and reliable. Able to confirm legitimacy of the author and content.                                                                                                                                                                      |
| <b>Purpose</b><br>Why has the person or organisation created this resource?<br>Is it fact, opinion or propaganda?<br>Is it biased or stereotyped? | Information is presented with emotive words, unbalanced views or questionable facts.                       | Contains some questionable content with a few emotive words. The content is the opinion of the author with little support of facts. | Facts are presented free from bias, information is thorough.                                                      | Facts are presented free from bias, information is thorough, multiple viewpoints are given. Purpose is clearly identifiable as educational with an intended audience.                                                                                                                           |

## Personal Evaluation of the Information source

| Criterion                                         | Poor... 0                                                       | Fair... 1                                       | Good... 3                                                            | Excellent... 5                                                       |
|---------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Relevancy</b> : How much use will it be to me? | The information has no relevancy for what I need to find out    | There is a little bit of information I can use. | I will be able to use some of the information to answer my question. | Most of the information I will be able to use to answer my question. |
| <b>Appropriate</b> : How much can I understand?   | All of the words and content are too hard for me to understand. | There are a number of words I don't understand. | There are only a few words and phrases I don't understand.           | I am able to understand all the content and words.                   |

# The Presidential Ozone Briefing: Some Considerations.



- Flexible in terms of organization, logistics, timeline, etc.
- Clearly-defined criteria for success.
- Allows for multiple revisions until perfect. Or not.
- Flexible in terms of topics, for example:

*Is fracking harmful to the environment and/or people?*

*Are GMOs safe to eat?*

*What is CRISPR and (how) should we use it?*

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