

# Communicating Science

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Kayla Arnold, Administrative Associate  
OFFICE FOR RESEARCH AND GRADUATE EDUCATION  
*November 2018*

**CFAES**



**THE OHIO STATE UNIVERSITY**

COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

# Objectives

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- Understand how we communicate
- Learn tips for better communication
- Learn ways to share your research

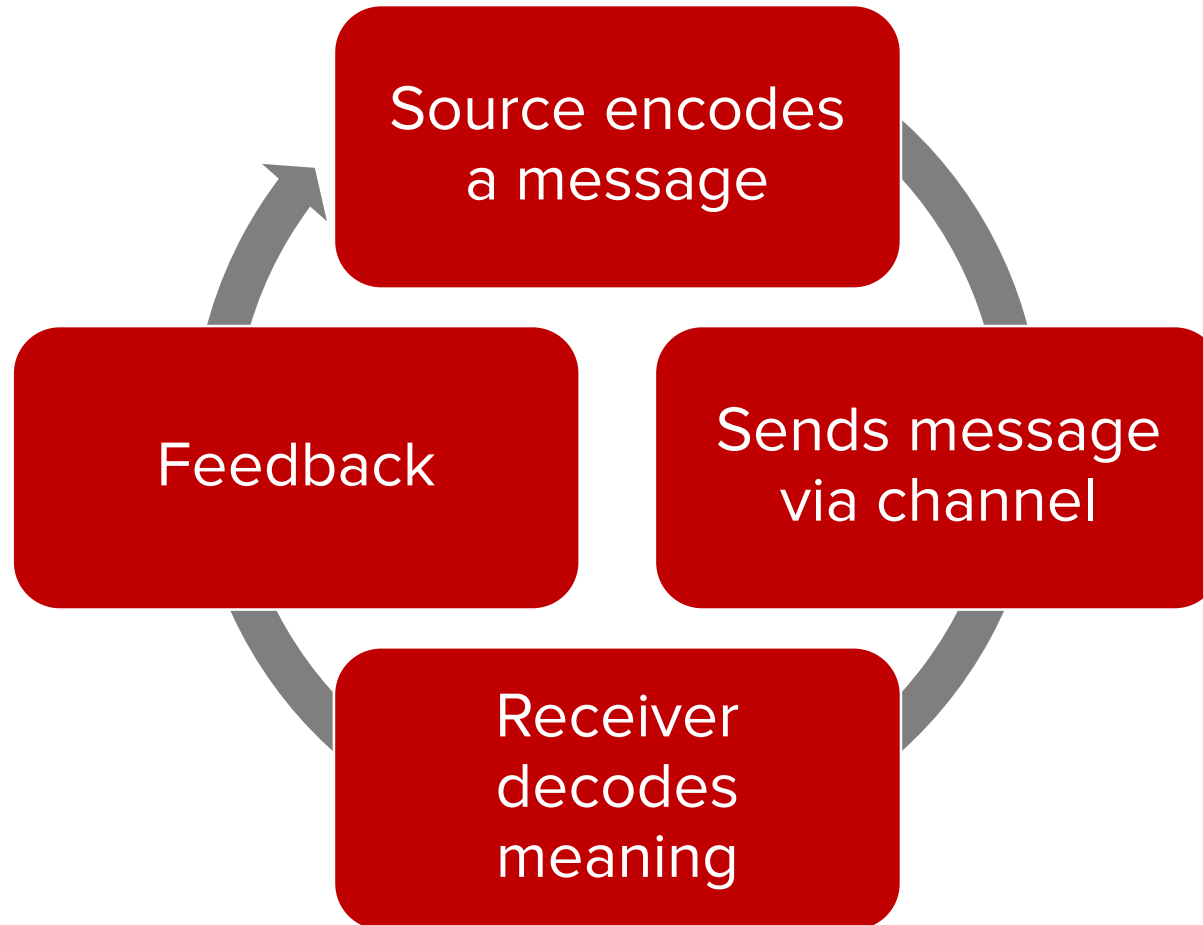
# Why do we communicate science?

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- Share findings
- Increase appreciation for science
- Increase knowledge of a specific issue
- Influence behavior, opinions, or policy preferences
- Engage with diverse groups

# How do we communicate?

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# The Three “Cs” of Good Communication

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- Be Clear
- Be Concise
- Make your audience Care



**“This is  
too long!”**

Clear

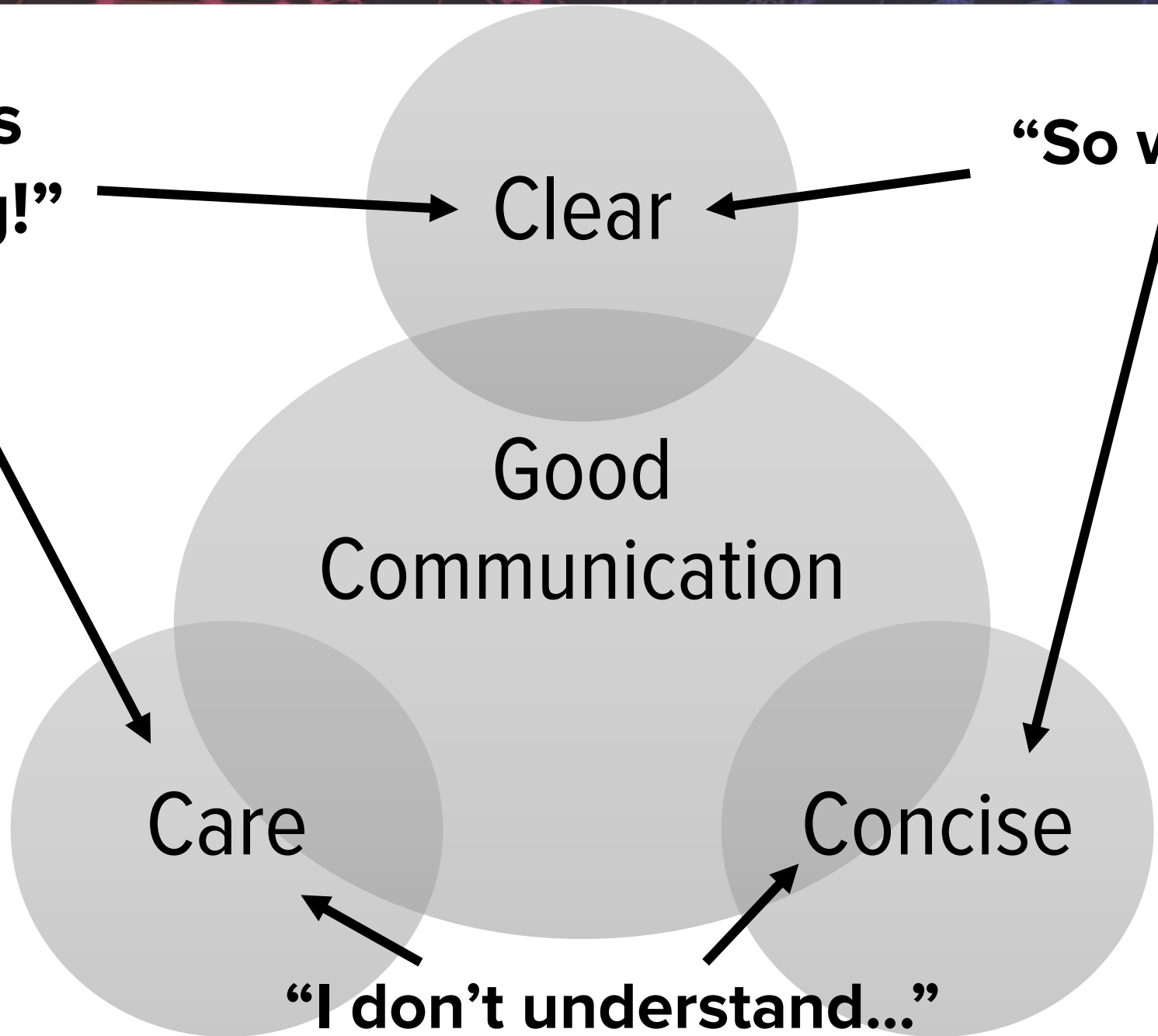
**“So what?”**

Good  
Communication

Care

Concise

**“I don’t understand...”**



# Be CLEAR

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*“The single biggest problem in communication is the illusion that it has taken place.”*

*George Bernard Shaw*

# Before you start... Plan

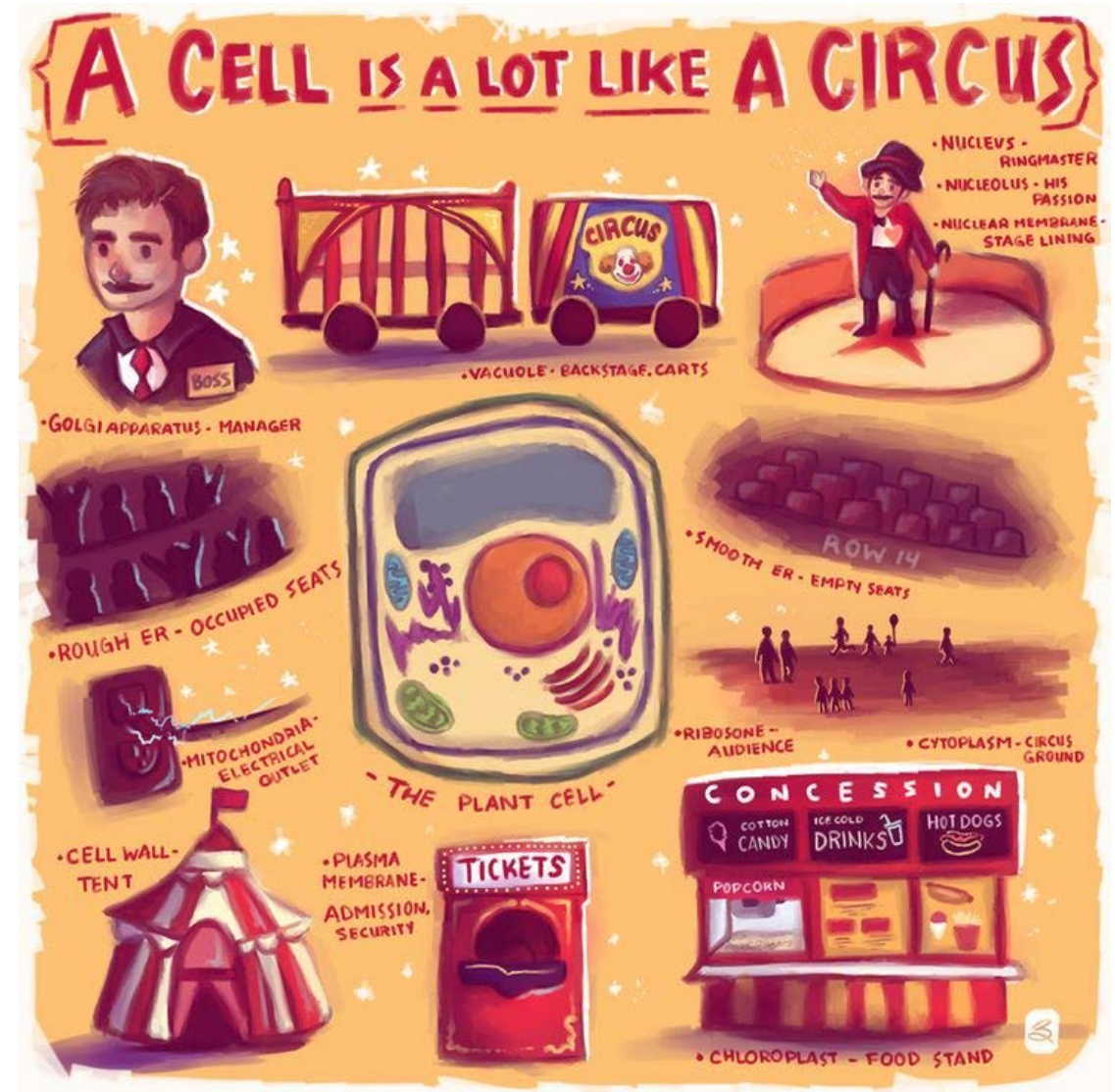
- Who is your audience?
  - Age
  - Education level
  - Culture
  - Geographic location
- What is the goal of this communication?
  - How will it be used?
- What type of medium will you use?
- Write an outline





# Keep it simple

- **Don't** use jargon or acronyms unless you define them first
- **Do** use metaphors or analogies when they assist in understanding
- **Do** use numbers and be explicit
- **Do** use white space to break up text



# Be **CONCISE**

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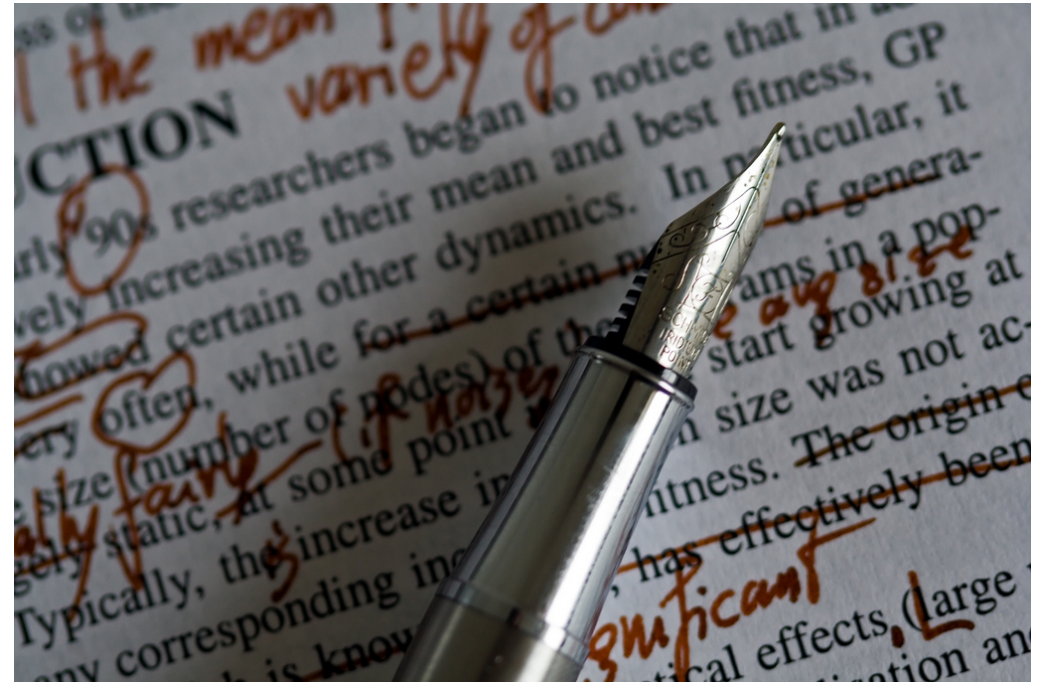
*“The ability to simplify means to eliminate the unnecessary so that the necessary may speak.”*

*Hans Hoffman*

# Keep it short!

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- **Don't** include unnecessary information
- **Don't** get bogged down with details
- **Do** tailor the length to the medium
- **Do** revise!



*“If it is possible to cut a word out, always cut it out.”*

*George Orwell*

# Make people CARE

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*“The key to high-quality communication is trust, and it's hard to trust somebody that you don't know.”*

*Ben Horowitz*

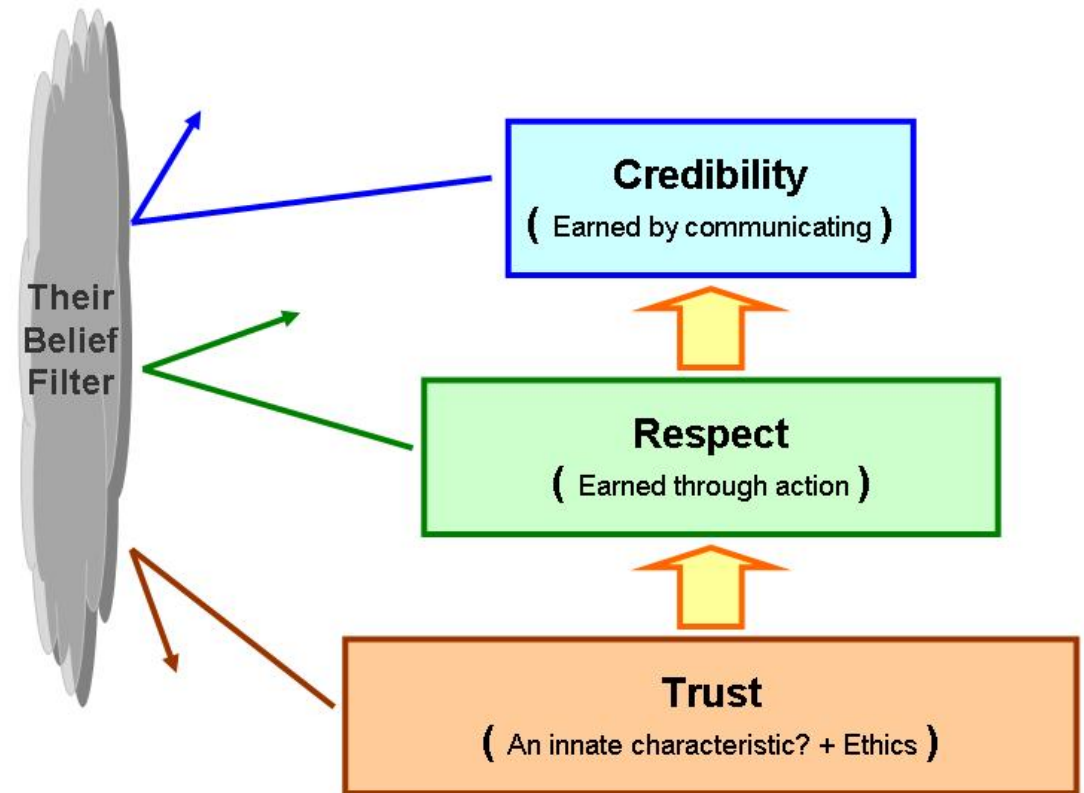
# Establish credibility

- This is perceived by the audience
- Academic credentials are less influential than they used to be

It is all in the  
mind of the  
'other person'



## Building Credibility





# How to establish credibility

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- Dynamic Appeal – Be passionate! Share your message with confidence and show enthusiasm.



# How to establish credibility

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Group Membership –  
Mention relevant groups that  
the audience might relate to.



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# How to establish credibility

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**Expertise** – Don't oversimplify, but share details relevant to the presentation and audience at their level.





# How to establish credibility

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**Authority** – Mention you are in a position of power or that you have consulted with one.



"WE COLLABORATE. I'M AN EXPERT, BUT NOT AN AUTHORITY, AND DR. GELPIS IS AN AUTHORITY, BUT NOT AN EXPERT."

# How to establish credibility

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Trustworthiness – Show transparency. Stress the values that are important to your audience, demonstrate knowledge of any pitfalls or concerns regarding the topic.



# Limit Hedging

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- i.e. “X will happen under these circumstances.”

“It is generally agreed that these new technologies will transform everyday life.”

VS.

“These new technologies will transform everyday life.”

# Sharing your Research

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*“Share your knowledge. It’s a way to achieve immortality.”*

*Dalai Lama*

# Channels

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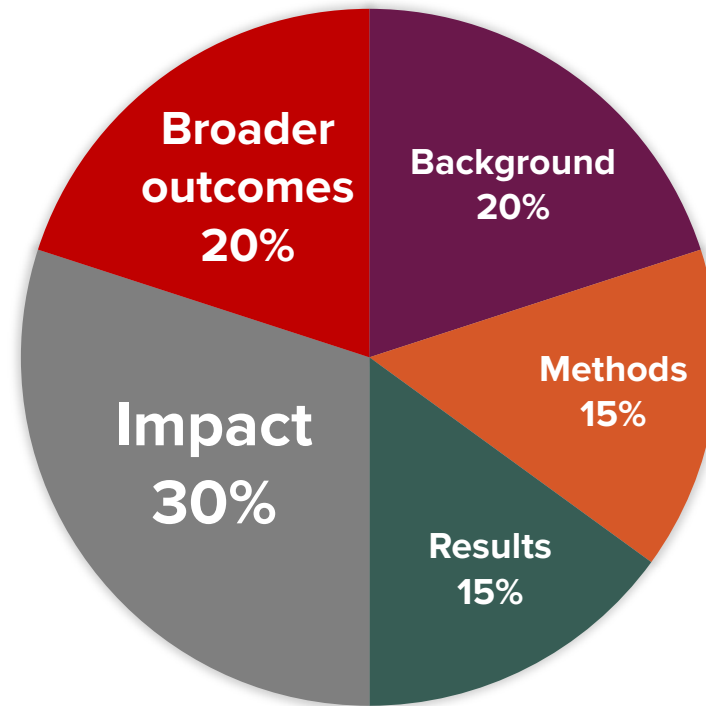
- Conversations
- Impact statements
- Articles
- Social Media
- Books
- Newspapers
- ...and many others!

# Writing Impact Statements

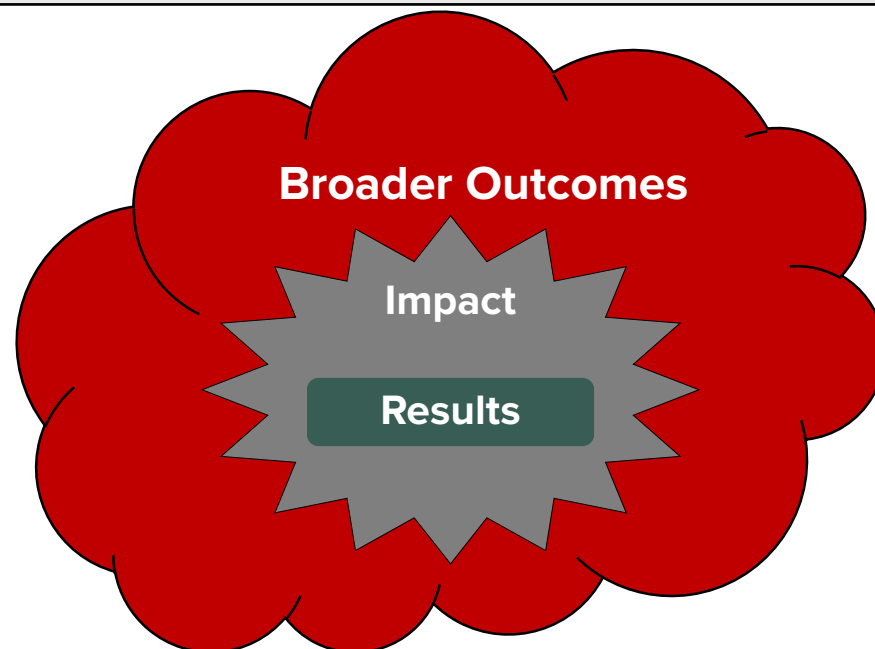
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- Focus on the big picture
- Keep it relevant
- Mention
  - **Stakeholders**
  - **Populations/ groups**
  - **Geographic regions**
  - **Funding source**

IMPACT STATEMENT



Outputs/ Results	Impact	Broader Outcomes
Measured results	Change in Knowledge, Action or Condition	Societally relevant outcomes, economic impact
Immediate	Short-term	Long-term
266 people attended a series of workshops on composting	Participants in the workshop have reduced household waste by 20% through composting	The community as a whole is now producing less trash, which is saving the city \$\$



# Examples of Impact Statements/ Exercises

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Take some time to look over the examples provided and identify some positive and/or negative aspects of each with regards to scientific communication.



# Social Media

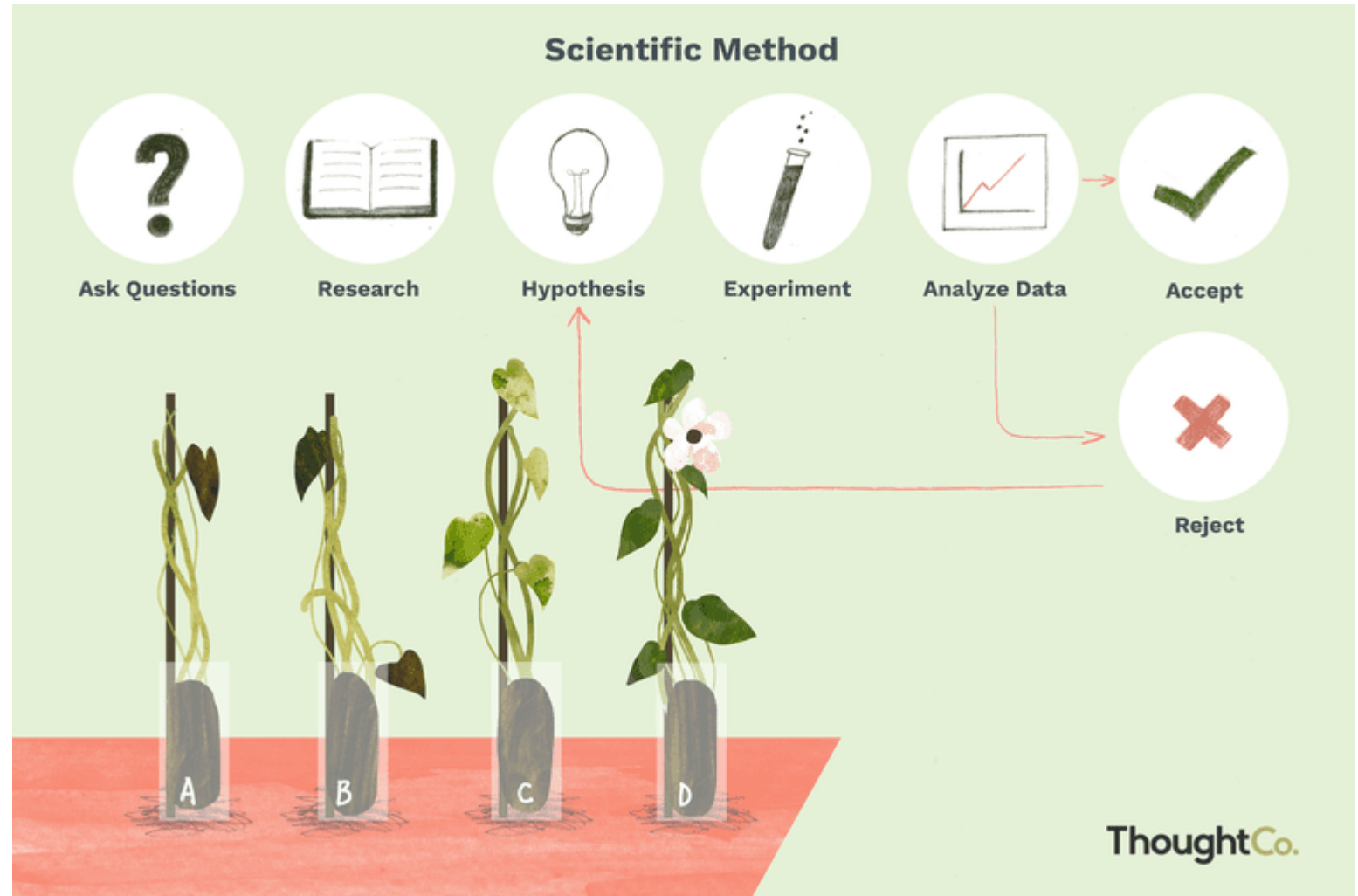
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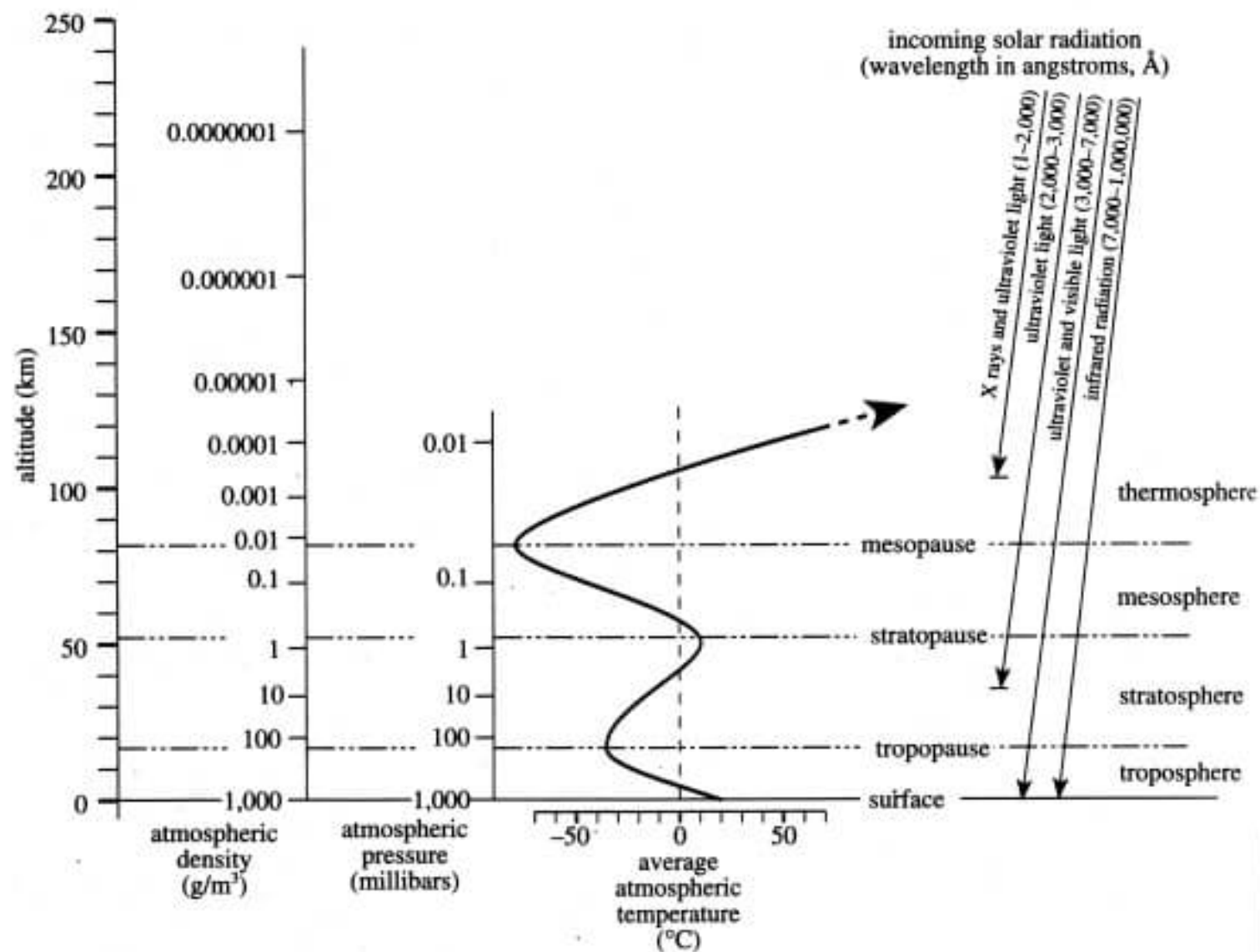
- Fast way to reach a broad audience
- Quick feedback
- Always mention funding source!



# Using graphics

- Keep graphics clean and simple
- Utilize white space
- Should be able to stand alone

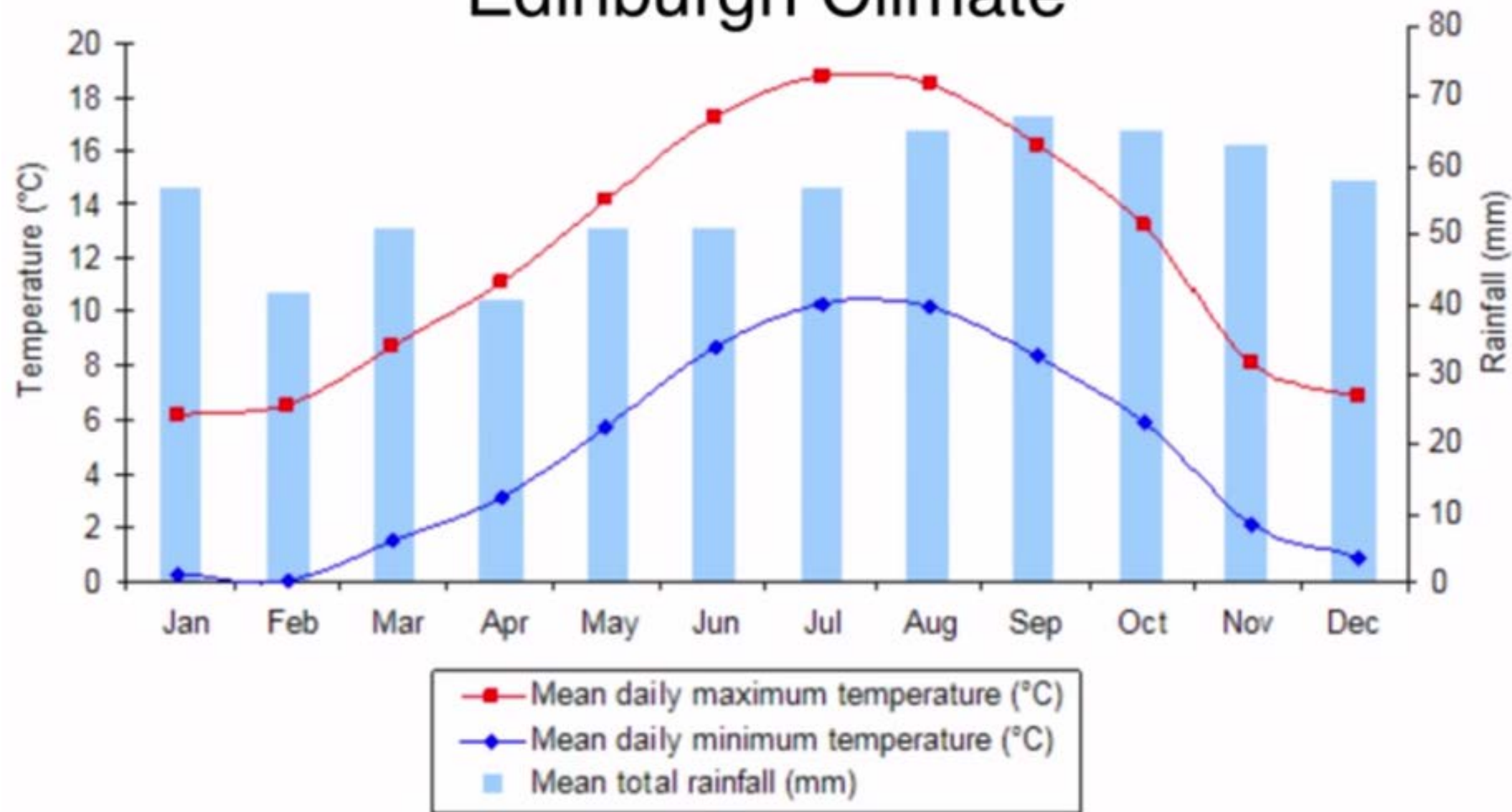


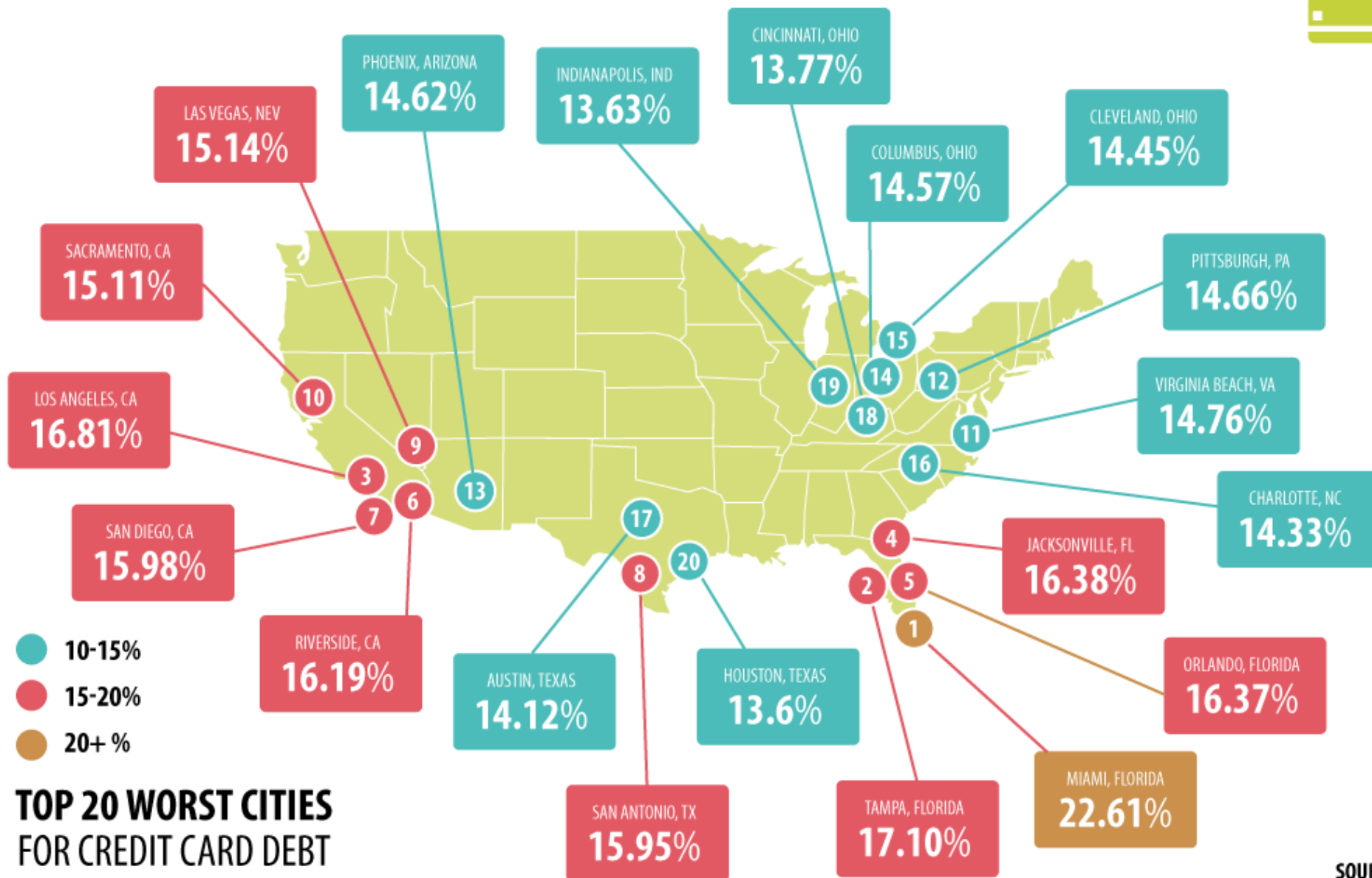


Note:  $1 \text{ \AA} = 1 \times 10^{-10}$  meters.

Figure adapted from Arthur Strahler, *The Earth Sciences*. ©1963 by Harper and Row.

# Edinburgh Climate





## TOP 20 WORST CITIES FOR CREDIT CARD DEBT

% OF INCOME OWED TO CREDIT CARD COMPANIES

SOURCES:  
FORBES.COM

[HTTP://WWW.CREDITCARDS.COM/CREDIT-CARD-NEWS/CREDIT-CARD-INDUSTRY-FACTS-PERSONAL-DEBT-STATISTICS-1276.PHP](http://www.creditcards.com/credit-card-news/credit-card-industry-facts-personal-debt-statistics-1276.php)





**The Broader Impacts Guy** added 4 new photos.

January 17 · 🌐

Brynn Daves, Assistant Vice President for Student Affairs and Assistant Dean of Students helps to benefit society in many ways! Brynn facilitates SafeRide, a free transportation service for OU students. She also benefits others by helping host Community Dialogue Workshops. These workshops cover a variety of topics like classism, sexism, racism, and ableism. To keep up with the latest on these workshops go to Orgsync, <https://orgsync.com/1587.../events/2055604/occurrences/4904837>, and look up Community Dialogue Workshops!



**NIFA** @USDA\_NIFA · Mar 16

DYK: Pure maple syrup contains 20 beneficial compounds that play an important role in human [#health](#). A [@universityofri](#) researcher is investigating how it may help protect the body's immune system. This story and more in our 2017 Annual Report: [bit.ly/2tDkp6j](http://bit.ly/2tDkp6j) [#NIFAImpacts](#)



↻ 4

♡ 11



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**Multistate Research Fund Impacts** @MRFImpacts · Mar 22

By studying plants' natural adaptations to heat, researchers at land-grant universities are able to breed crop varieties that require less water [#TheAnswerIsInNature](#) [#WorldWaterDay](#) [#NatureBasedSolutions](#) [#MRFImpacts](#) [#LGUimpacts](#)



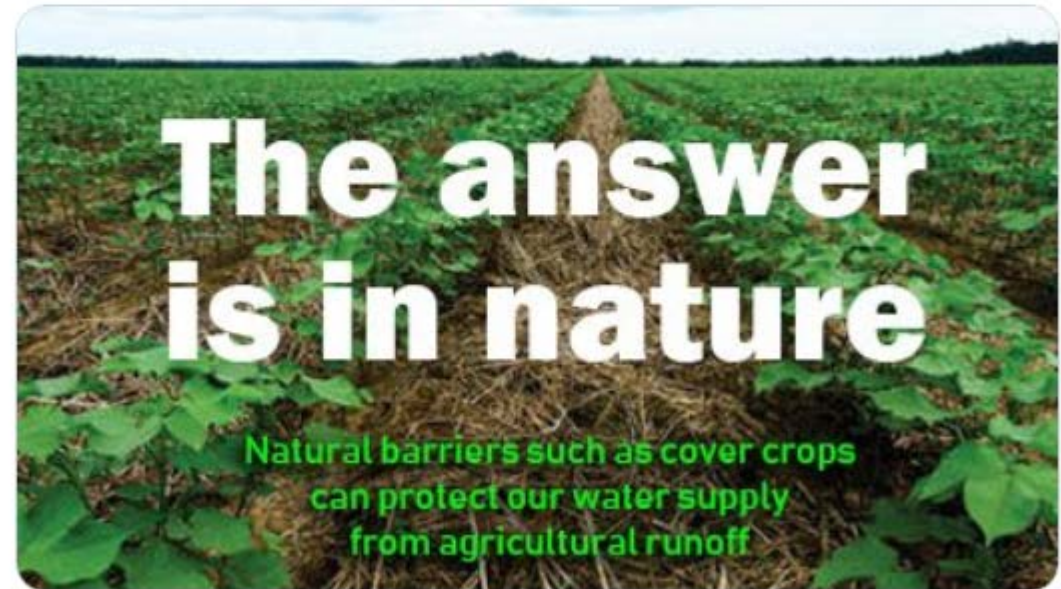
↻ 1

♡ 3



**Multistate Research Fund Impacts** @MRFImpacts · Mar 22

Multistate Research Projects are using natural solutions like cover crops, vegetated ditches, and wetlands to greatly reduce the effects of runoff and minimize water pollution [#WorldWaterDay](#) [#TheAnswerIsInNature](#) [#NatureBasedSolutions](#) [#MRFImpacts](#)



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## Can you write for The Conversation?

“To be published by The Conversation you must be currently employed as a researcher or academic with a university or research institution. PhD candidates under supervision by an academic can write for us, but we don’t currently publish articles from Masters students.”

### THE CONVERSATION

Academic rigor, journalistic flair

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#### Arctic warming



A pod of narwhals (*Monodon monoceros*) in central Baffin Bay. Narwhals are the most vulnerable animals to increased ship traffic in the Arctic Ocean. Kristin Laidre/University of Washington

**As Arctic ship traffic increases, narwhals and other unique animals are at risk**

### Monthly audience

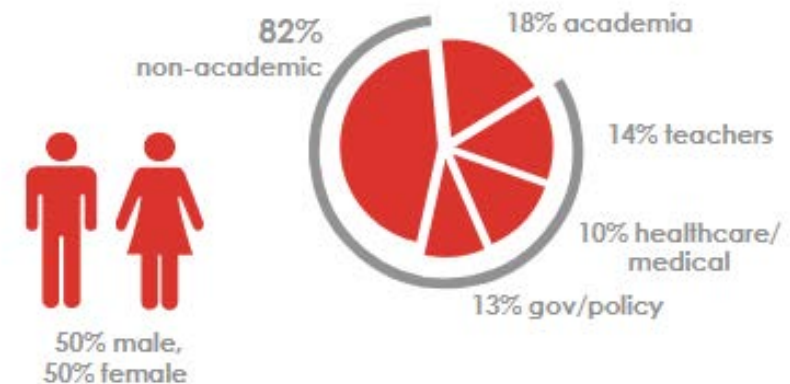
**10.6**  
million  
Users

on site

**37**  
million  
reach

through  
republishing

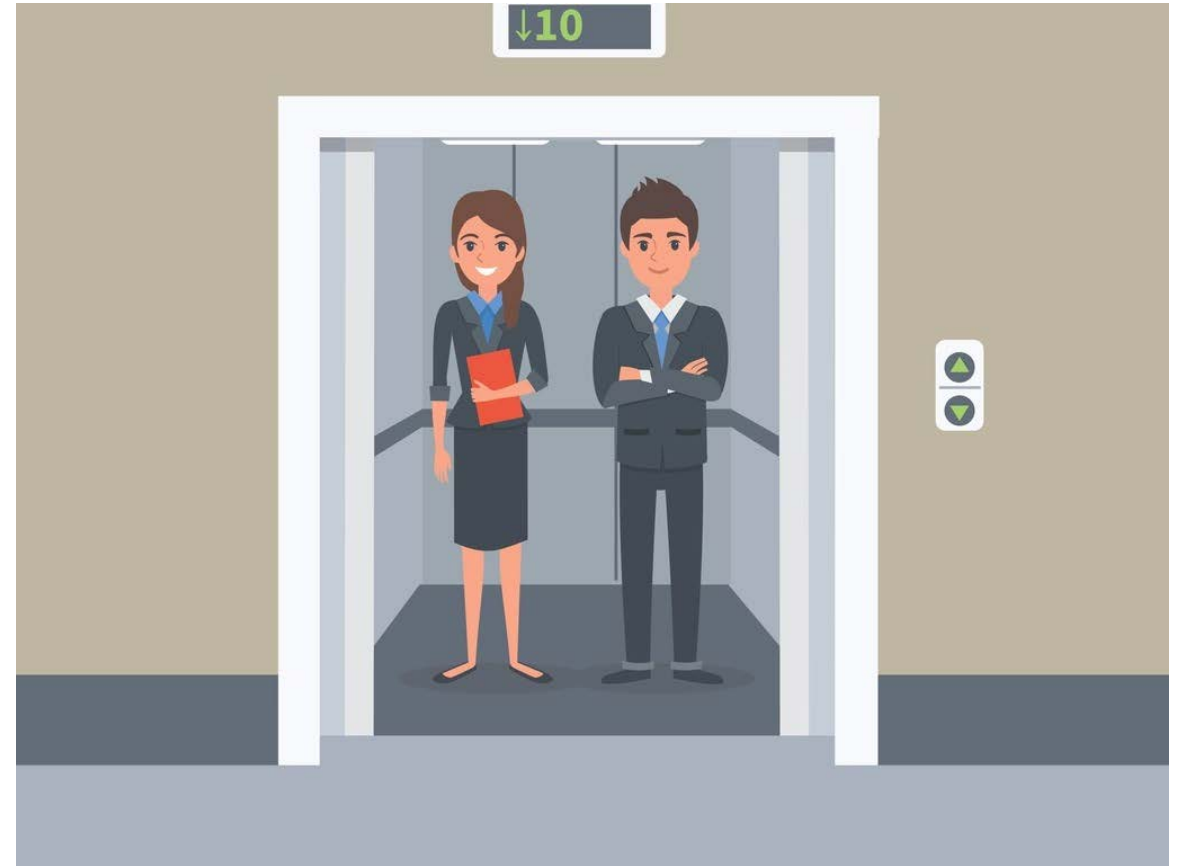
### Our readers



# Practice Your Elevator Speech

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- Communicate your research in 5 minutes or less
- Discuss what you do in 30 seconds to 1 minute





“Broader engagement isn't a luxury, **it's absolutely necessary** if we want to boost understanding of, and support for, scientific research...

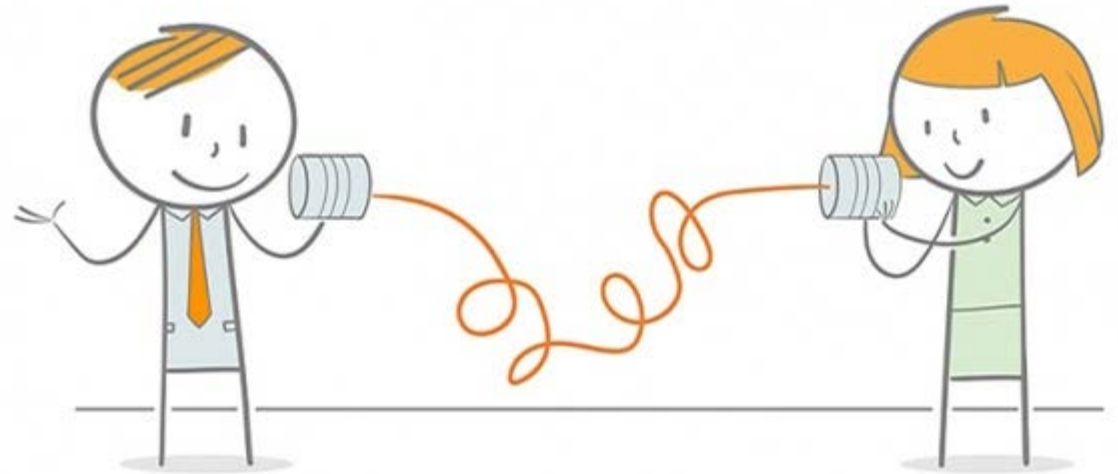
**The public isn't reading published research papers, and the media often needs help making sense of them.** If you want to maximize the impact of your research, you need to **share it broadly and make it understandable.”**

*– Kirk Englehardt, Vice Chancellor for Marketing and Communications at the University of Tennessee at Chattanooga*

# Remember:

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- Be Clear
  - Keep it simple
- Be Concise
  - Keep it short
- Make your audience Care
  - Establish credibility



I will effectively  
communicate with others.

I will effectively  
communicate with others.

I will effectively  
communicate with others.



# Kayla Arnold

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Administrative Associate

Office of Research and Graduate Education

College of Food, Agricultural, and Environmental Sciences

208 Research Services, 1680 Madison Avenue, Wooster, OH 44691

330-263-3637 Office

[arnold.1065@osu.edu](mailto:arnold.1065@osu.edu) [grants.cfaes.ohio-state.edu](http://grants.cfaes.ohio-state.edu)

## References

Anderson, Paul V. (2014). *Technical Communication: A Reader Centered Approach*. Boston, MA: Wadsworth, Cengage Learning.

National Academies of Sciences, Engineering, and Medicine. (2017). *Communicating Science Effectively: A Research Agenda*. Washington, DC: The National Academies Press.

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