



Storytelling Techniques to STEM Research

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Introductions

- What type of stories do you like to read, watch or listen to?
- What is your research focus?
- What is one thing you would like to learn about today?



Workshop Focus

1

Effective science communication

- Why, who and how
- Workshop your study

3

Planning Communication

- Story Development
- Apply

2

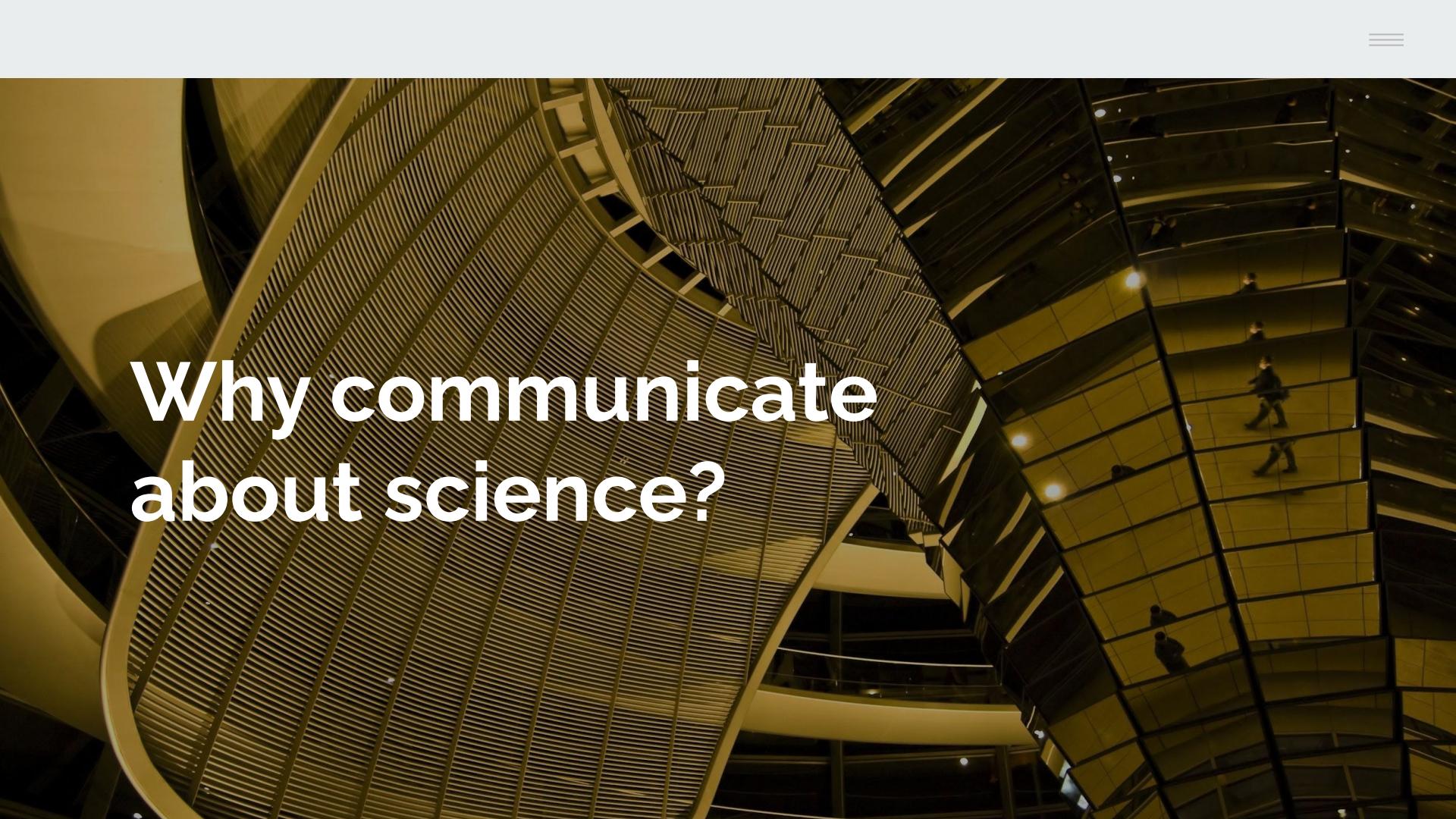
Visualizing science

- Principles
- Tools

4

Communicate

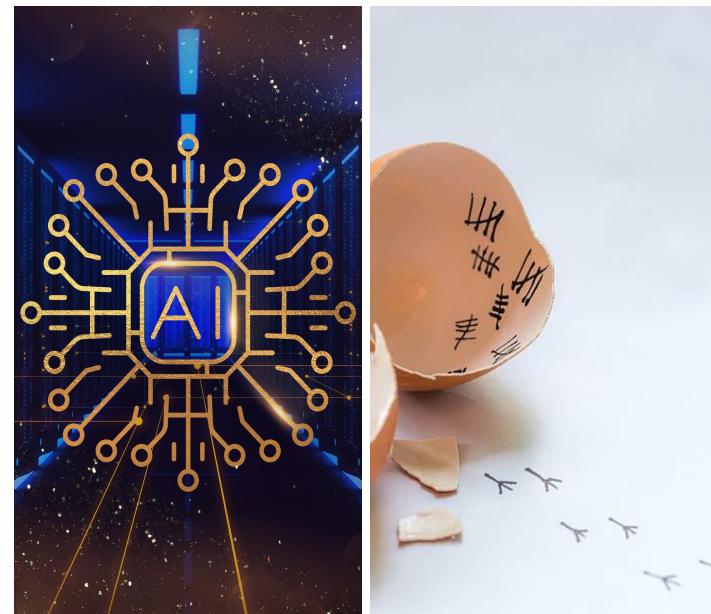
- Share your story
- Peer feedback



Why communicate
about science?

Communication Strategies

- What is at stake?
 - Articulate for a regular person the “drama”
 - *problem/solution*
- Discovery approach
 - What is your research question?
 - How did you go about answering it?
- Rescue approach
 - How will your research solve a real problem?
 - Emphasize the scientific solution that inspire hope and action
- Mystery approach
 - Emphasize on the unknown
 - Narrating the process rather than the outcome





Developing Stories

Step 1

So What?

Identify the take-home message you want to communicate

Step 2

Story Arc

Select your communication strategy

Step 3

Story Scale

Define the story parameters - timeliness or significance

Storytelling techniques allow scientists to transform their knowledge, experiences, and insights for non-scientific audiences

- Stories need to be customized for target audiences

Getting your story out

Translating science for non-scientists is a process and pathways can differ based on your skills

- 01 | [oral stories](#)
- 02 | [press releases](#)
- 03 | [social media posts](#)
- 04 | interactive presentations
- 05 | public presentations/interviews





Let's Workshop your Study

- Identify your audience
- What is the point your research study
- Pick a story arc strategy
- Define the scale of your story

How to communicate with your audience



0
1

Policy Makers & Funders

Connect your research to politician/funder interests

Compelling Visual(s)

Media and Influencers

Social media friendly graphics

Sound-bite friendly quotes



0
2



0
3

General Public

No jargon

Connect your research to real-world implications

HATS Principles & Effective Integration of Visuals

H

HEADINGS

Promote easy navigation

A

ACCESS

Promote the finding and understanding of information

T

TYPOGRAPHY

Promote the ease of reading and clear levels of information hierarchy

S

SPACE

Promote effective document design

EFFECTIVE DATA VISUALIZATION



Visual is placed within proximity to the text and vice versa

Graphics reinforce the main argument

Color and composition choices are logical

Annotation and context is provided to guide the audience

Ethical Data Visualization



Use credible data – information must be reliable and verifiable, attribution should be given whenever possible, dates should be included.



Transparent analysis – avoid working with assumptions, focus on what the source data actually shows



Responsible design – pay attention to the hierarchy of importance of visual properties and best labeling practices, including colors, which bring up issues of cultural meaning to colorblindness

5. Balding speeds up

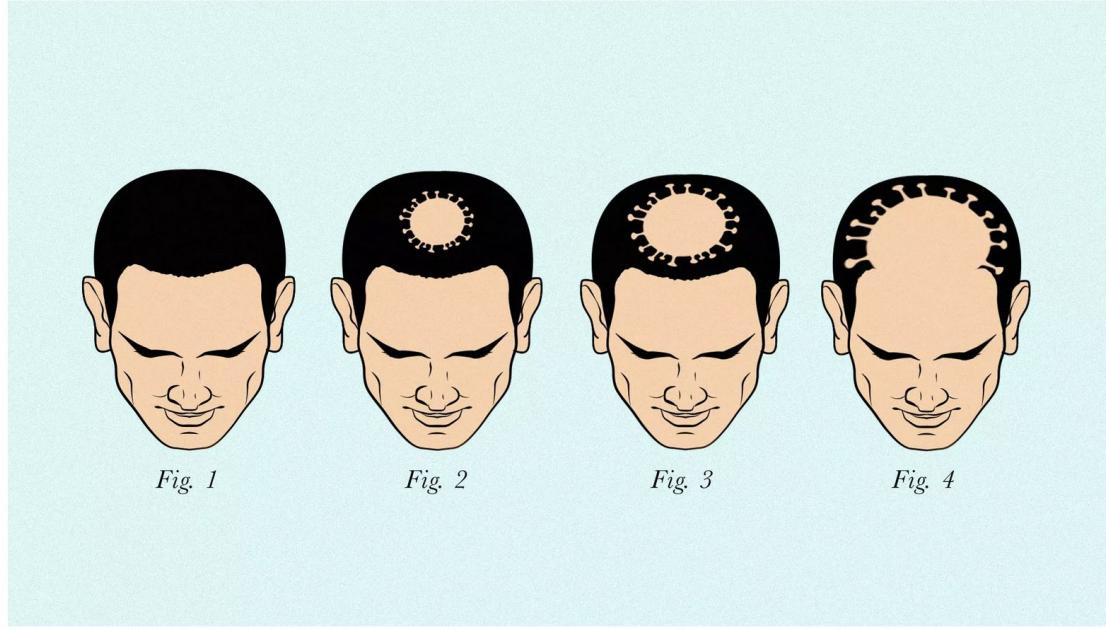


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Illustration: Shoshana Gordon/Axios

Unfortunately, it's not just your Zoom camera angle, men — you really are losing your hair, Nathan writes.

What's happening: Male-pattern baldness has “accelerated” during the pandemic, the Wall Street Journal [reports](#), citing “some dermatologists.”

Scientific American

Mind

Space & Physics

Health & Medicine

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April 2022



HEALTH & MEDICINE
February 2022

TYPES OF VISUALIZATION



CHARTS

- *Pie charts are good for representing a distribution of a whole unit (100%)
- *Bar charts are best used for comparison across different categories
- *Fever charts or line graphs illustrate trends



MAPS

- *Locator maps allow for depiction of study site or location of action
- *Geological maps can be used to show land is zoned, school districts, land use
- *Statistical maps can be used to connect numerical data with geographical locations



ILLUSTRATIONS

- *Passive illustrations involve illustrations with accurate labels
- *Active illustrations can be multi-layered and/or use visual cues to imply motion/action



NETWORK GRAPHS

- *Effective for showing relationships in the data
- *Nodes – central organizing data should be highlighted with bright colors
- *A clear glossary should be included to explain the context and connections between the nodes

Visualization Tools

<https://infogram.com/>

<https://dashboard.visme.co/>

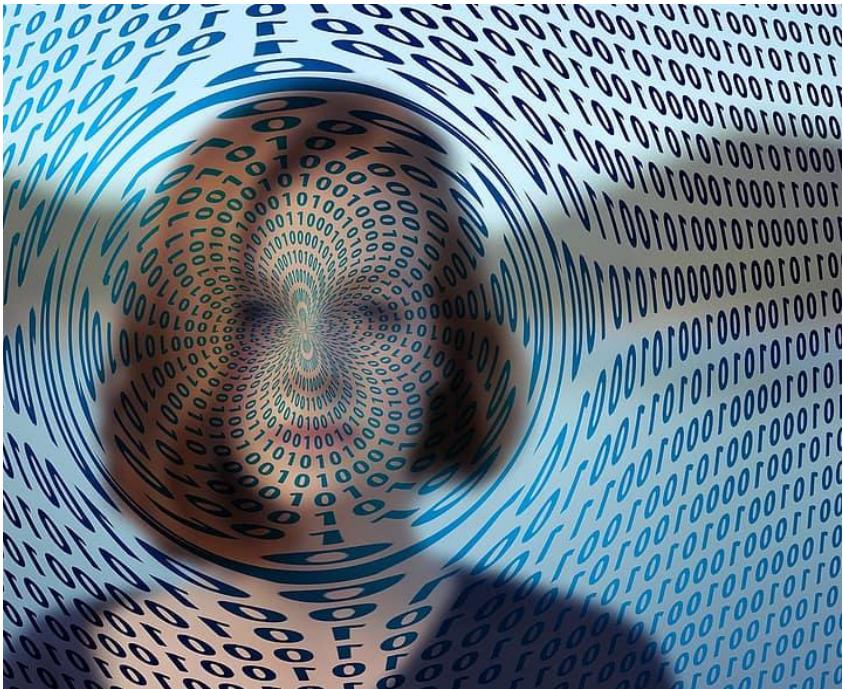
<https://flourish.studio/>

<https://www.datawrapper.de/>

<https://www.canva.com/> - good for infographics

<https://piktochart.com/>

<https://unsplash.com/> - free images





The Math Behind Social Distancing



Published 3 years ago on March 28, 2020

By **Marcus Lu** Graphics/Design: **Clayton Wadsworth**



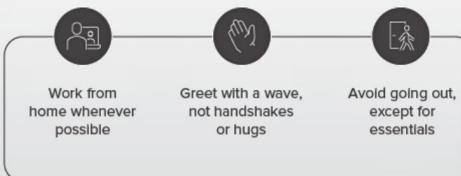
THE MATH BEHIND SOCIAL DISTANCING

Social distancing measures can play a critical role in controlling the spread of pandemics, but **only if carried out properly**.

WHAT IS IT?



WHAT CAN YOU DO?



Source: Government of Canada

Scientists measure the Intensity of an Infectious disease by its reproduction number (R_0).

R_0 : the average number of people a sick person will infect

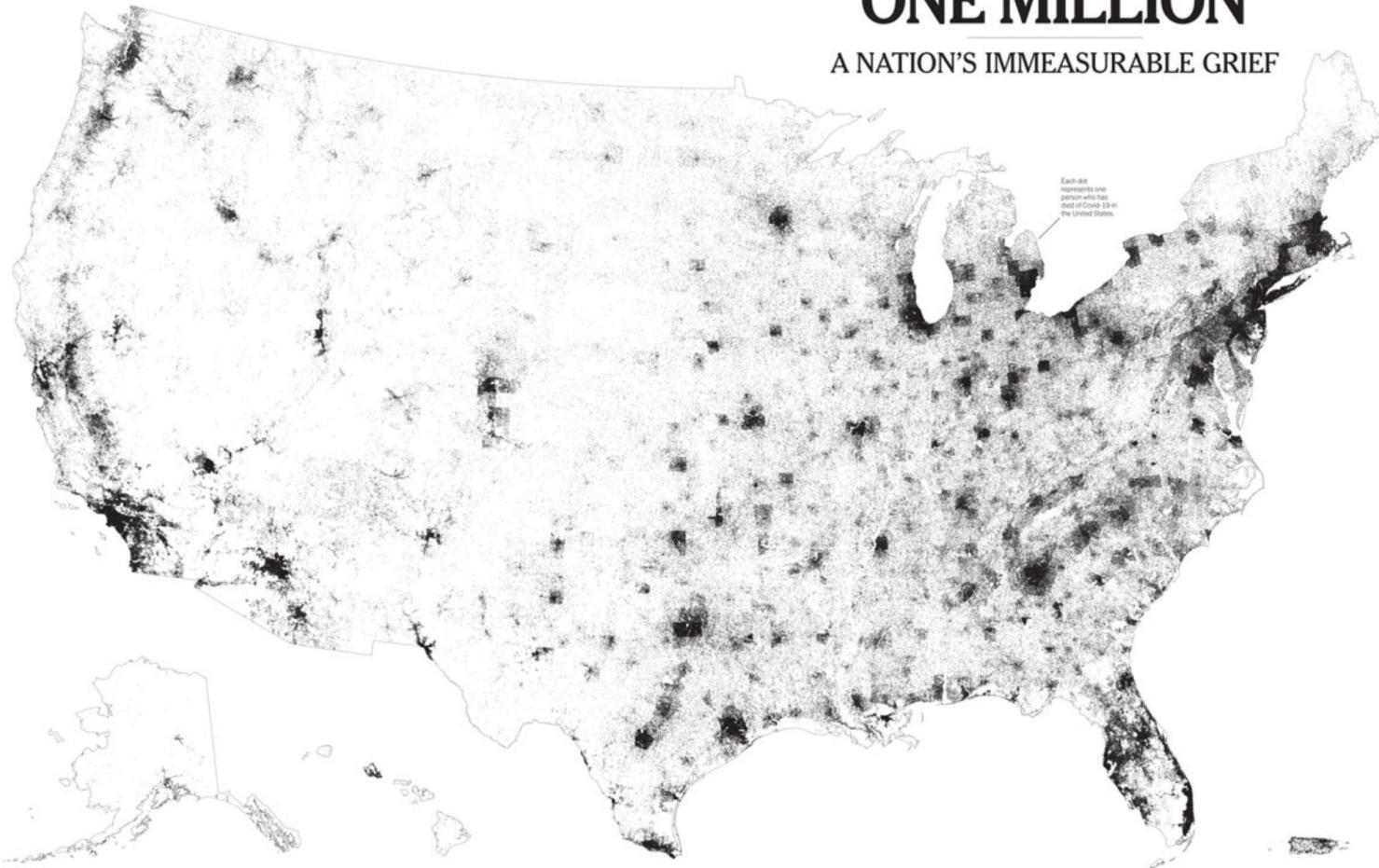


For **COVID-19**, this has been estimated at **2.5**

Source: ISGlobal

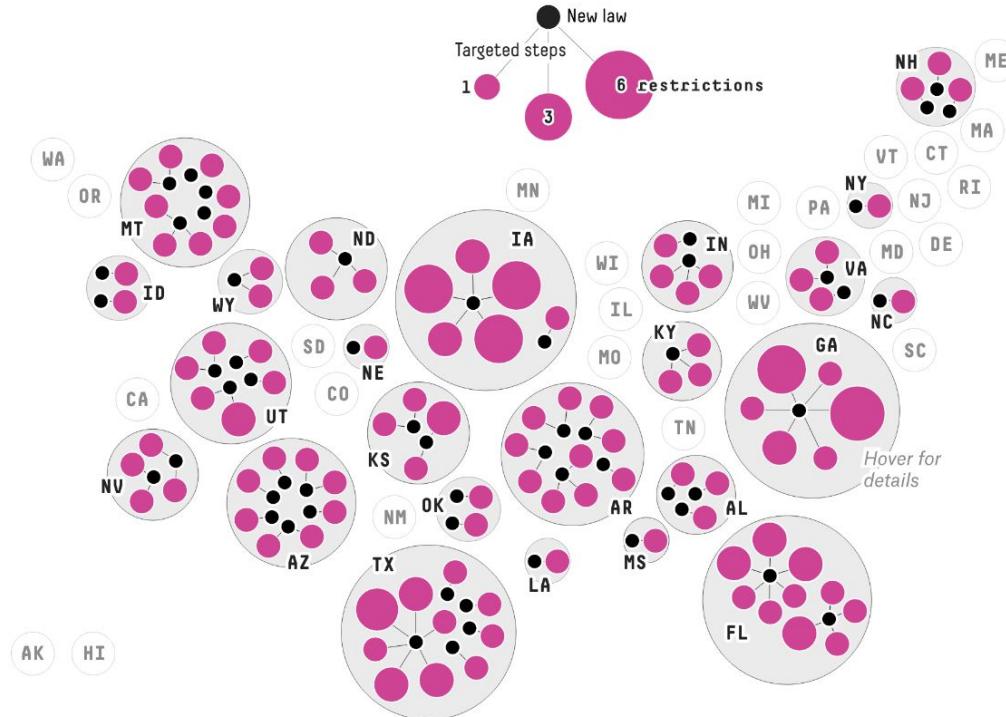
ONE MILLION

A NATION'S IMMEASURABLE GRIEF



Trump's "Big Lie" fueled a vast amount of voting restrictions

The number of steps in the voting process targeted by restrictive voting laws passed since 2020,
sized by the number of restrictions affecting each step





Story Promotion Planning

Compelling Title

Draft an engaging title that captures the significance of your project

Audience Selection

Messages must be customized based on the audience and communication platform

Click Send/Post

Send your story out!

Step 1

Step 2

Step 3

Step 4

Step 5

Hero Image

Create or find a stock image that can represent your project in an interesting way

Message Creation

Use your selected story arc to craft your message

Visualize your project

You have 15 minutes to create a story to share with your selected audience.





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Thank you for your attention.

