

Changing Minds

- **Claim:** statement that answers the original question
- **Evidence:** data, e.g. from an experiment
- **Reasoning:** explanation that connects the claim to the evidence

What makes opinions different from evidenced claims...

UNFOUNDED OPINIONS



- can be about values
- have not been carefully vetted
- are not based on evidence

EVIDENCE-BASED CLAIMS AND REASONING



- **Claim:** statement that answers the original question
- **Evidence:** raw data, results from data experiments; looking for countervailing evidence, not just supporting
- **Reasoning:** explanation that connects the claim to the evidence

Why is cholera killing some but not others?

Remember the answers of the Londoners: Were those opinions or evidence-based claims?

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How is 2020s different than 1850s?

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How is 2020s different than 1850s?

2022: We have the “germ theory of disease”.

1854: No established scientific theory explaining how diseases spread.

Why is cholera killing some but not others?

Should we be explaining or arguing? It depends...

How is 2022 different than 1854?

2022: We have the “germ theory of disease” - VETTED
EVIDENCE

1854: No established scientific theory explaining how diseases
spread - OPINIONS WITH SOME EVIDENCE BUT NO
RIGOROUS TESTING

Anatomy of a good argument

- Clearly state the question/problem
- State your claim
- Provide data and visuals (evidence)
- Explain your reasoning
- Provide a critique of the alternative explanation(s) including:
 - How it may not be supported by the data
 - How the data that supports it is not good

Persuade the Londoners

- Develop a poster to make your argument
- Mentors will revert back to their 19th Century selves and will be supporters of different versions of the airborne theory
- Londoners will meet individually with each group and rotate between posters every 3 minutes.

Directions

- Each group will be give the following:
 - Printouts of data and visualizations from the notebooks
- Advice
 - The poster is just a visual aid.
 - Sketch the layout of your poster beforehand
 - Present your argument clearly and concisely
 - Be prepared to counter arguments from the Londoners:
 - Have data and the appropriate reasoning ready
 - Find the flaws and weaknesses in their arguments