

The FLICC Framework of Science Denial

vEGU21 – EOS3.2 – Climate Literacy

BÄRBEL WINKLER

JOHN COOK




The background of the slide features a dark blue gradient. Overlaid on this are several interlocking gears of different sizes, rendered in a slightly lighter blue. A faint, light-colored world map is also visible in the background, centered behind the text.

The antidote to fake news ...
... is a little bit of fake news.

BEHOLD,
CO₂ IS PLANT
FOOD!

HEY!
YOU'RE HIDING ALL THE
NEGATIVE IMPACTS IN
YOUR SLEEVE!

Beware
the
hoax!

The background of the slide features a dark blue gradient. Overlaid on this are several interlocking gears of different sizes, rendered in a slightly lighter blue. A faint, stylized world map is also visible in the background, particularly on the right side. The text is centered and reads:

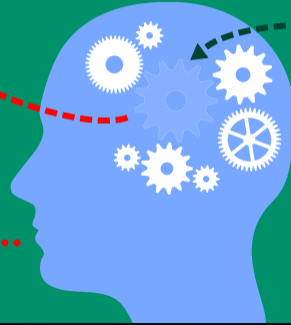
Elements of a successful debunking

3 ELEMENTS TO AN EFFECTIVE DEBUNKING

FACT

Replace the myth with a factual alternative that meets all the causal requirements left by the myth. Ideally, the fact is more compelling and memorable than the myth.

**Fight
Sticky
Myths...**



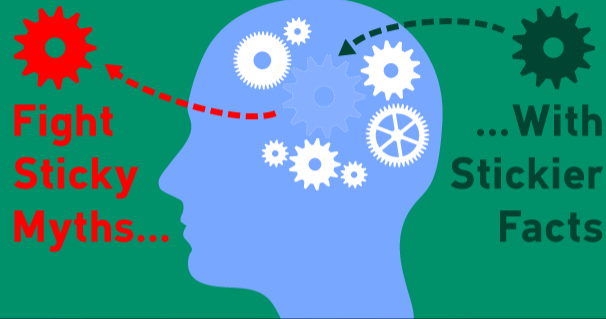
**...With
Stickier
Facts**

**THE
GOLDEN
RULE OF
DEBUNKING**

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FACT

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**THE
GOLDEN
RULE OF
DEBUNKING**

MYTH/MISCONCEPTION

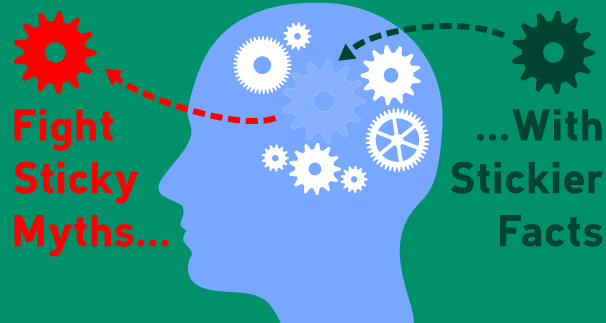
Mentioning the myth risks a familiarity backfire effect. Here are three techniques to reduce the risk of a backfire effect:

- Emphasise the fact rather than the myth
- Warn people before mentioning the myth
- Explain the myth's fallacy

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MYTH/MISCONCEPTION

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FALLACY

Explain the technique used by the myth to distort the fact. This enables people to reconcile the fact with the myth.



Fake Experts



Logical Fallacies



Impossible Expectations



Cherry Picking



Conspiracy Theories

The 5 techniques of science denial (FLICC)

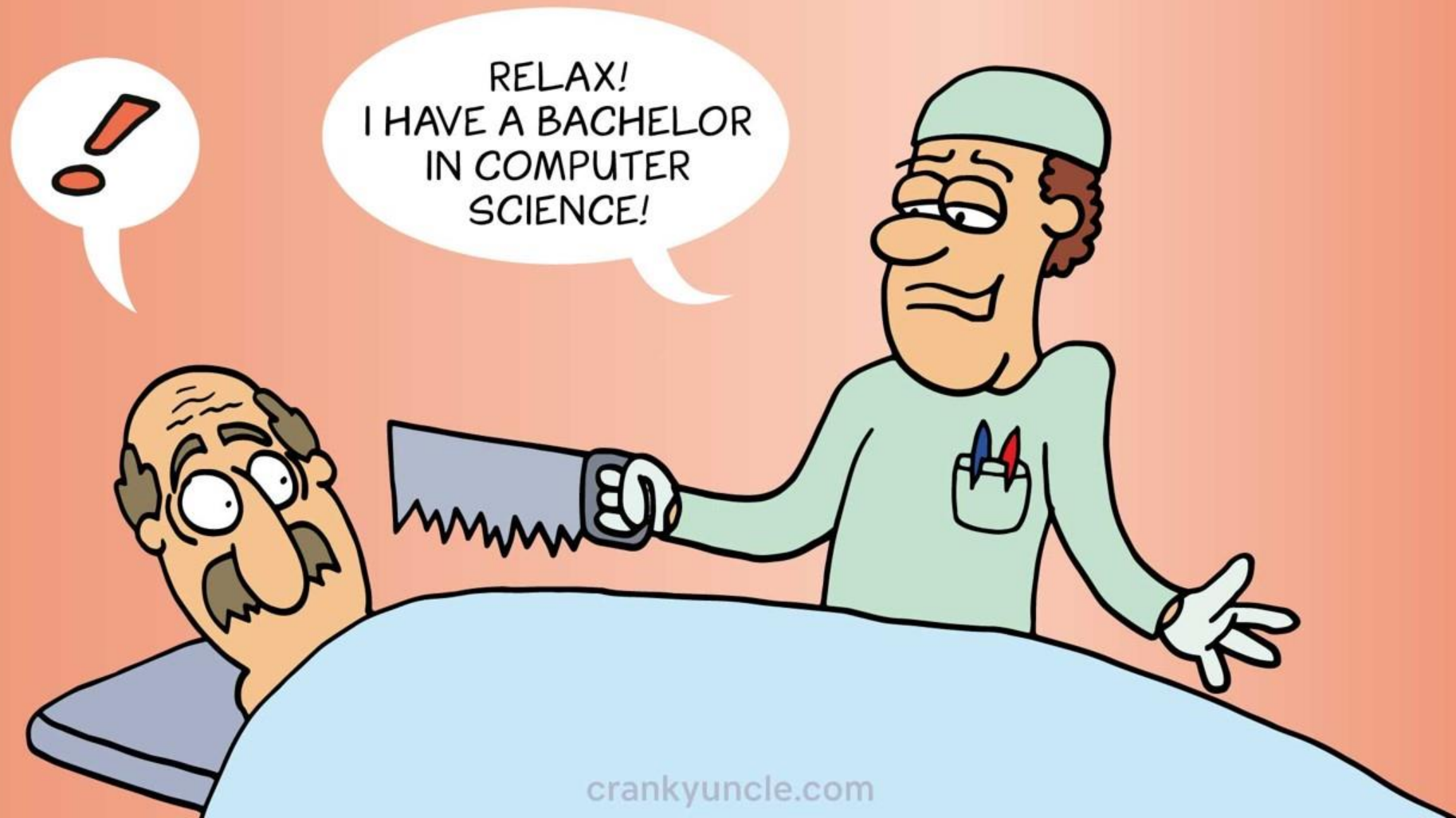


The 5 techniques of science denial (FLICC)



**Fake
Experts**





Global Warming Petition Project

*31,487 American scientists have signed this petition,
including 9,029 with PhDs*

Petition

We urge the United States government to reject the global warming agreement that was written in Kyoto, Japan in December, 1997, and any other similar proposals. The proposed limits on greenhouse gases would harm the environment, hinder the advance of science and technology, and damage the health and welfare of mankind.

There is no convincing scientific evidence that human release of carbon dioxide, methane, or other greenhouse gases is causing or will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere and disruption of the Earth's climate. Moreover, there is substantial scientific evidence that increases in atmospheric carbon dioxide produce many beneficial effects upon the natural plant and animal environments of the Earth.

Signatures

As infectious disease epidemiologists and public health scientists we have grave concerns about the damaging physical and mental health impacts of the prevailing COVID-19 policies, and recommend an approach we call Focused Protection.

concerned citizens

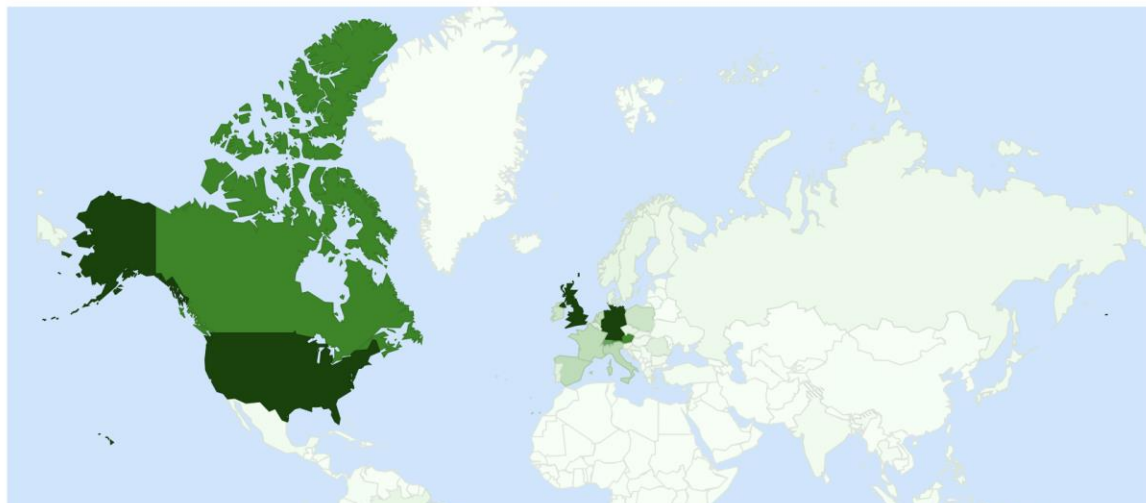
727,141

medical & public health scientists

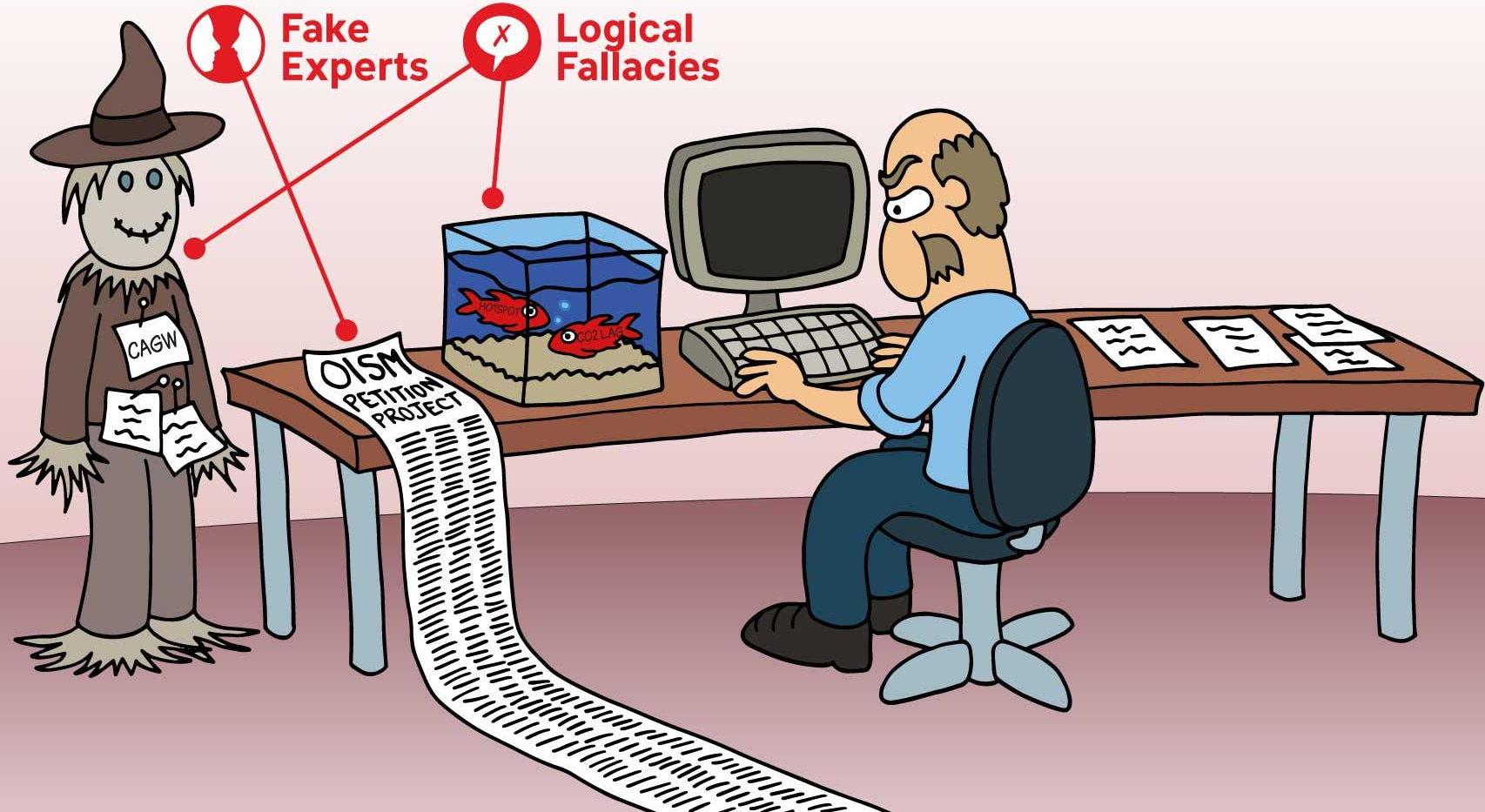
13,290

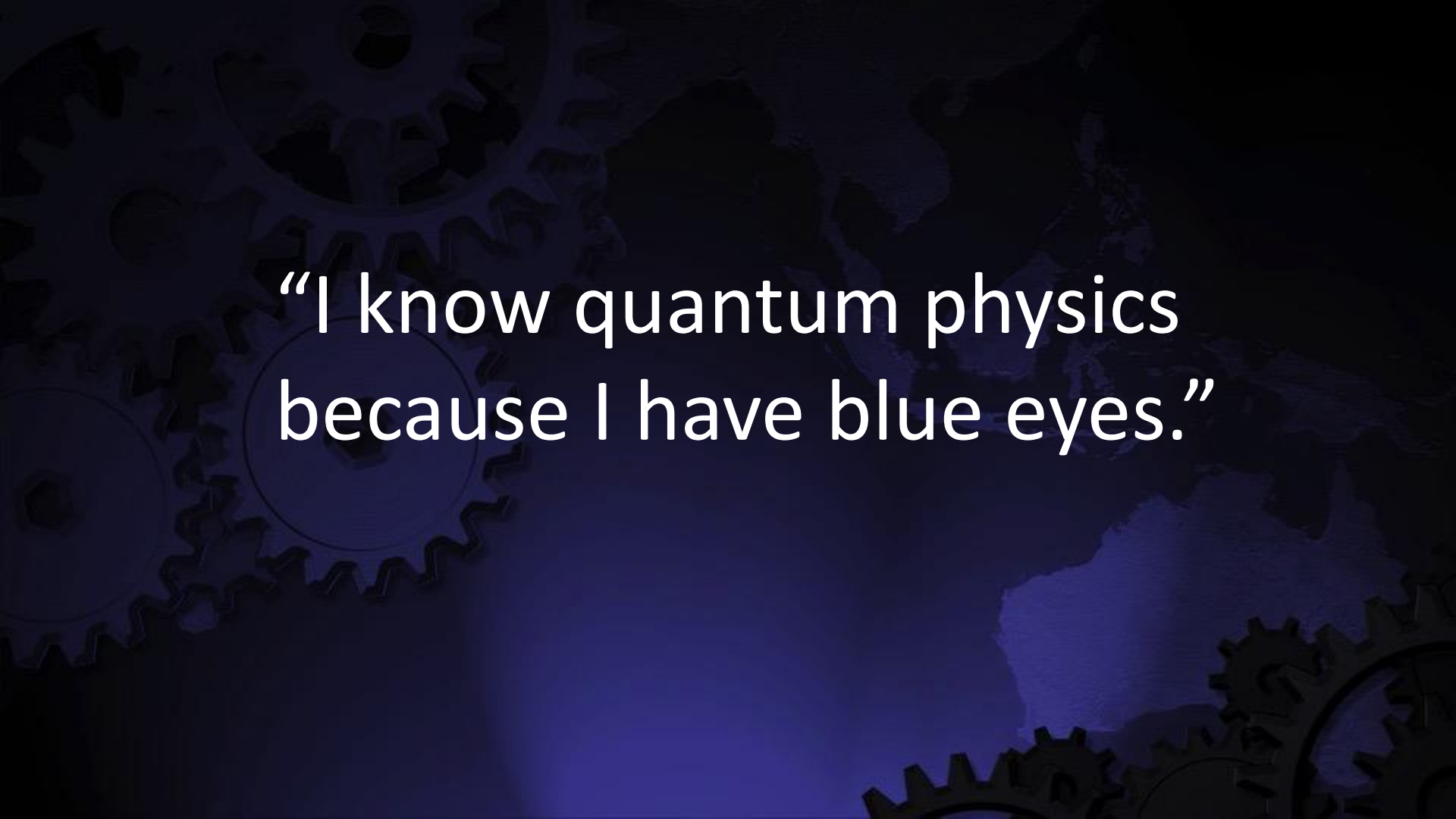
medical practitioners

40,199



The 5 techniques of science denial (FLICC)



The background of the slide is a dark blue gradient. Overlaid on this are several interlocking gears of different sizes, some of which are semi-transparent. A faint world map is also visible in the background, centered behind the text.

“I know quantum physics
because I have blue eyes.”

One of the
reasons why
the climate is
changing...



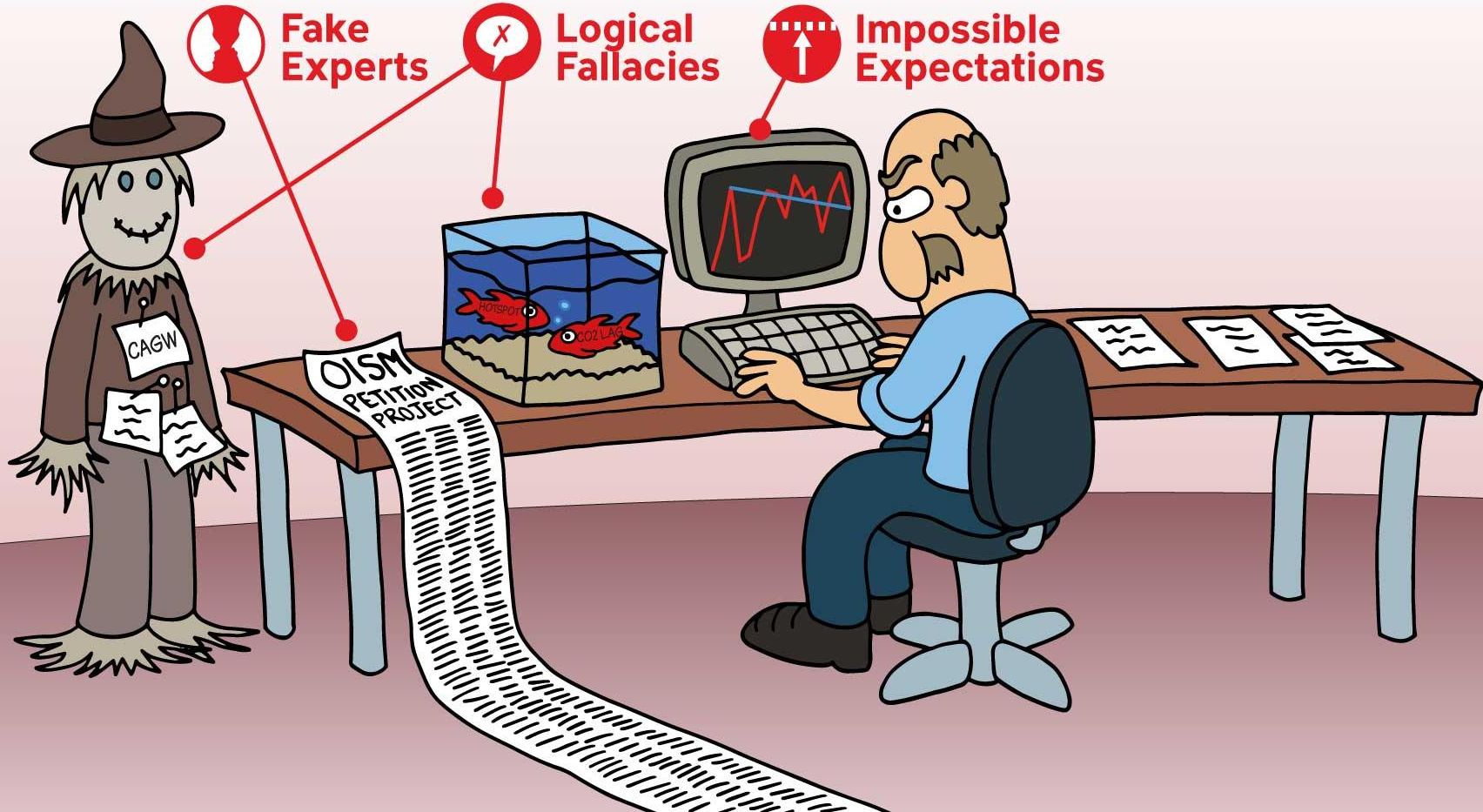
...is climate
has always
been
changing.

This person
died of
natural
causes...



...because
people have
always died of
natural causes.

The 5 techniques of science denial (FLICC)

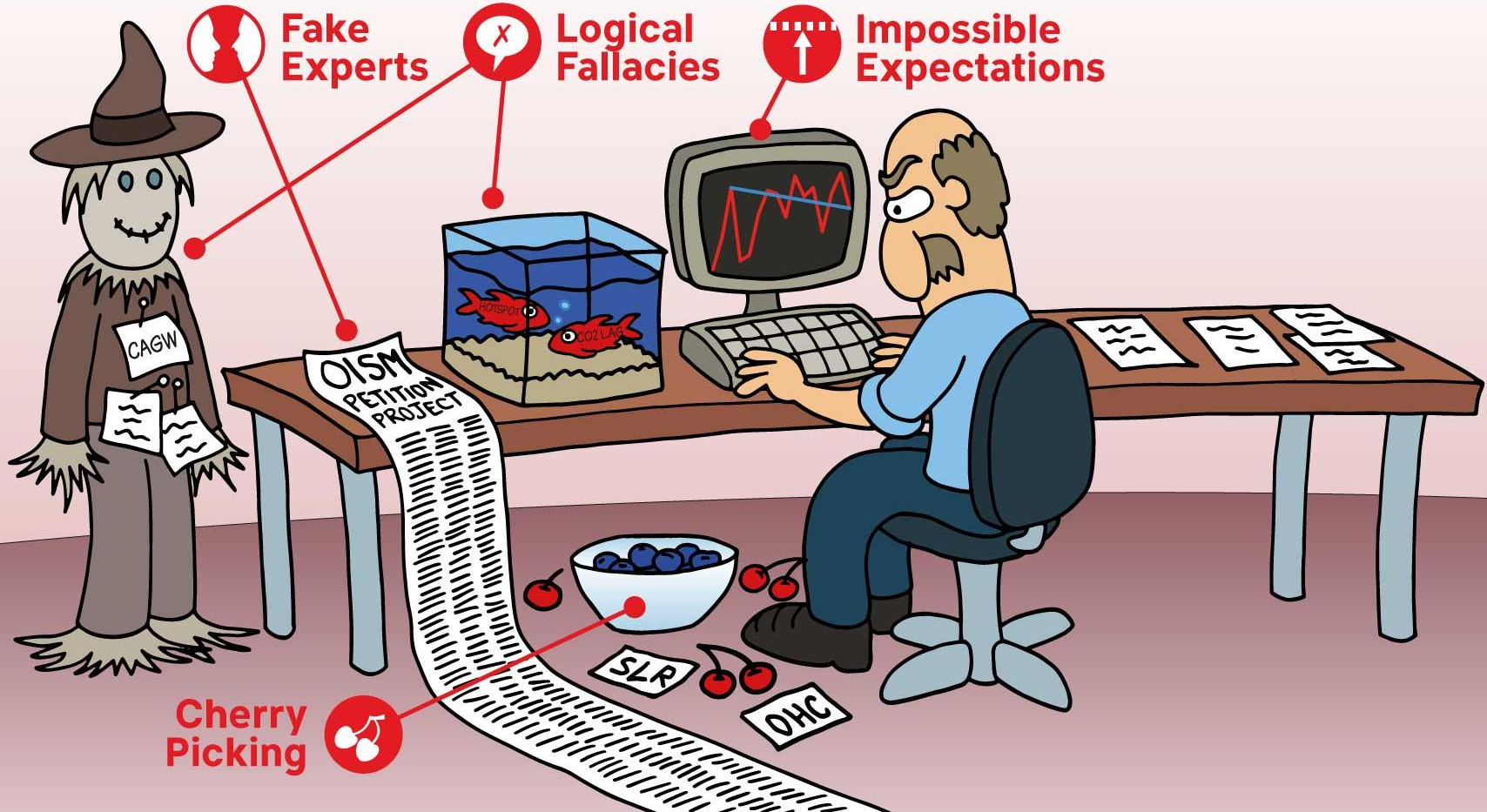


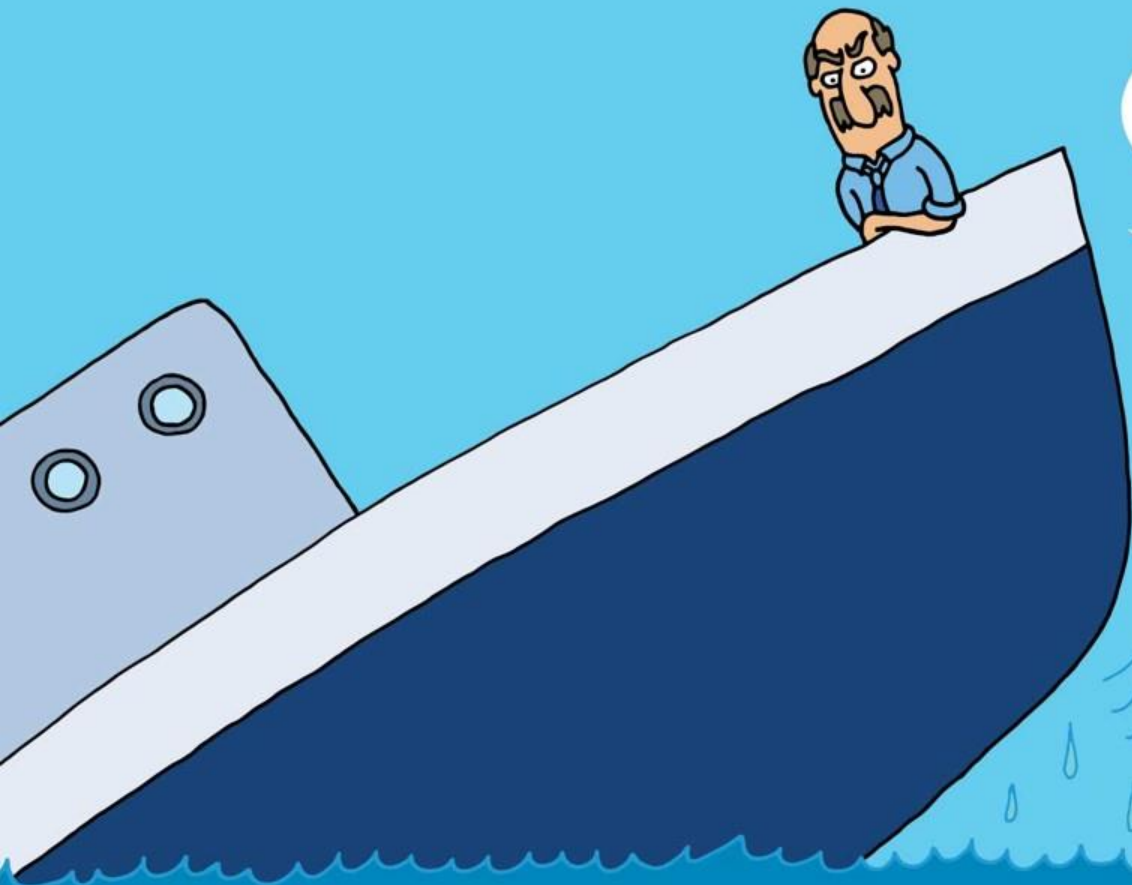


**You'll hit the ground
in 12 to 15 seconds.**

**Get back to me when
you have more certainty!**

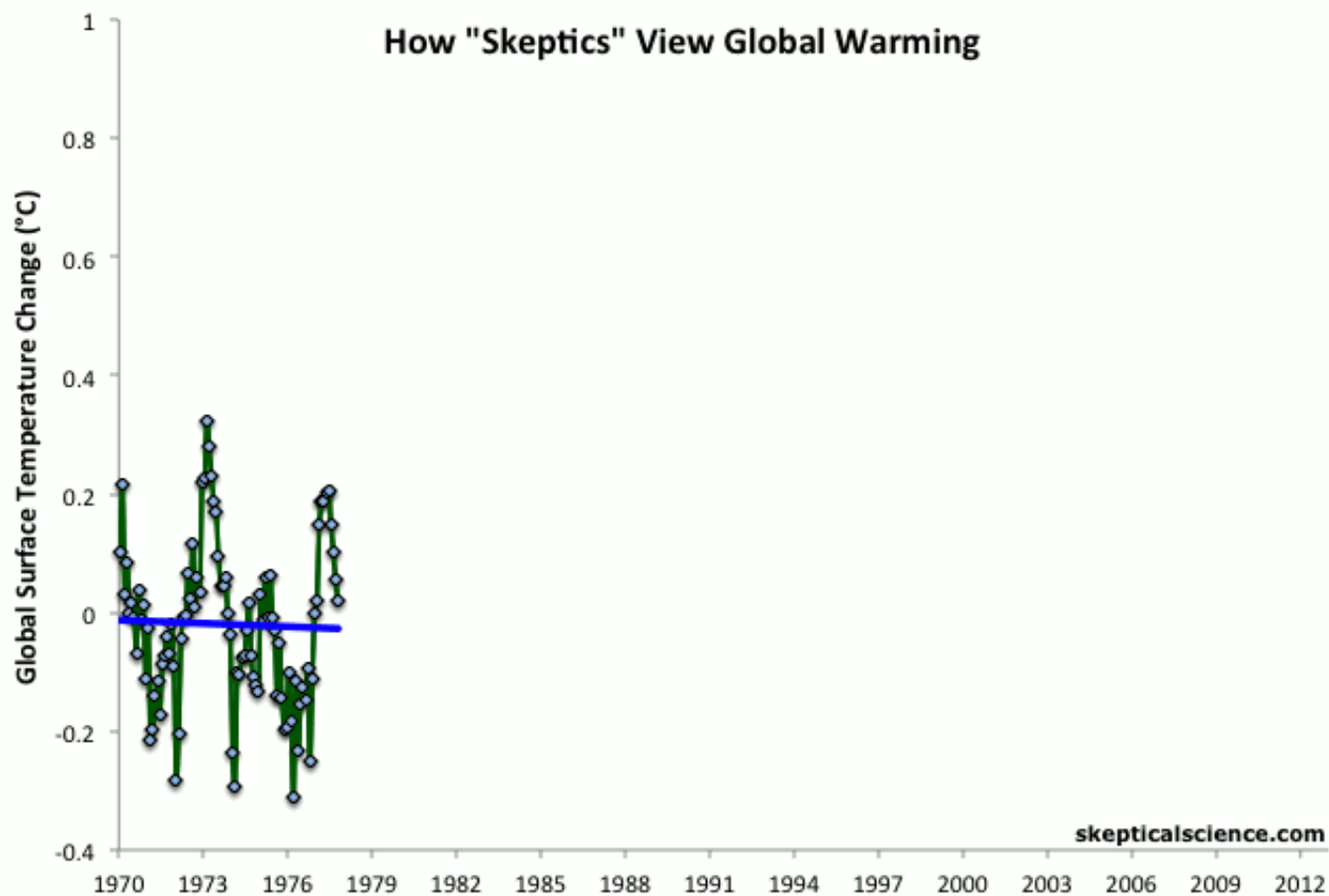
The 5 techniques of science denial (FLICC)



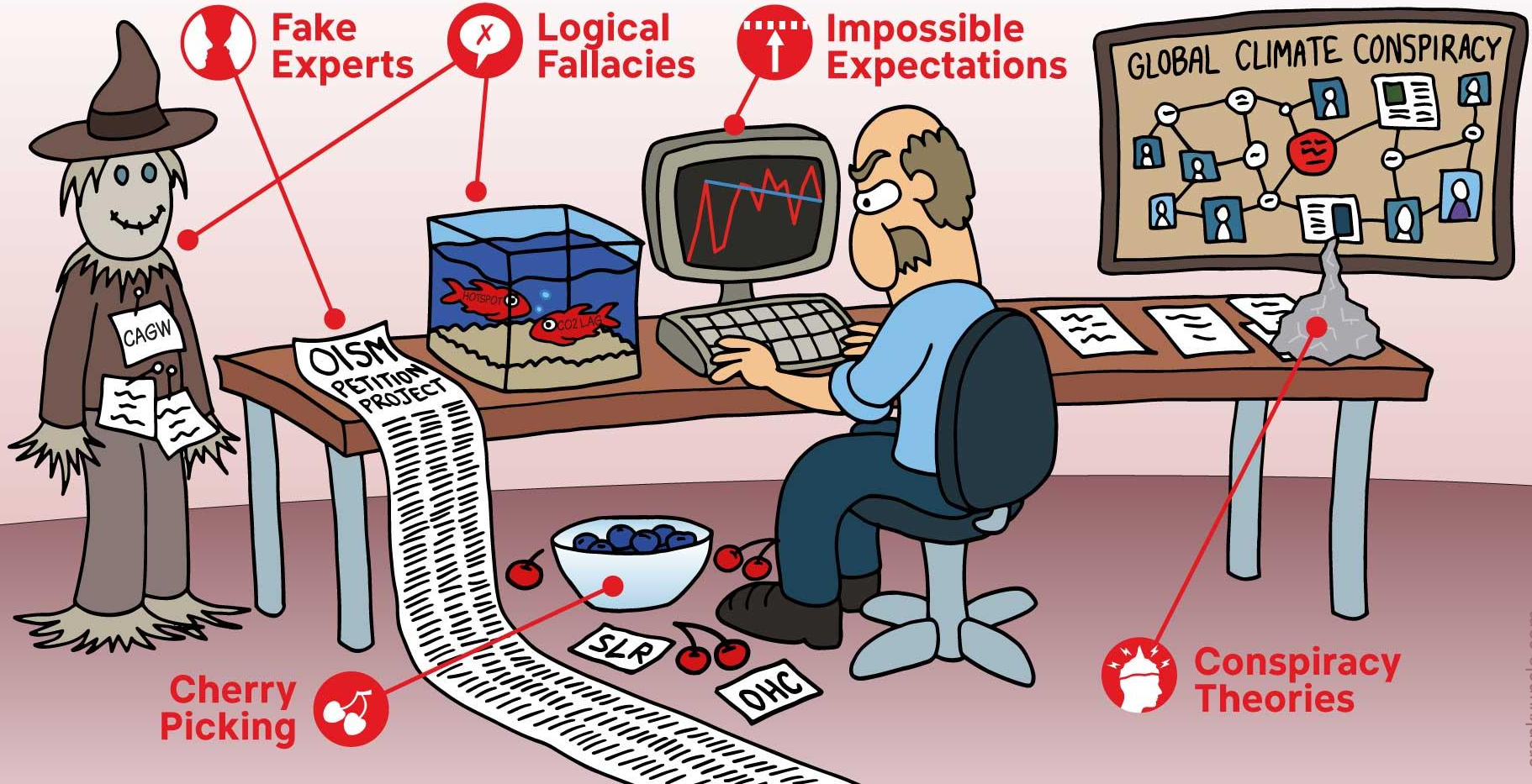


WHAT DO
YOU MEAN WE'RE
SINKING? I'M MOVING
UPWARDS!

How "Skeptics" View Global Warming



The 5 techniques of science denial (FLICC)





Donald J. Trump 

@realDonaldTrump



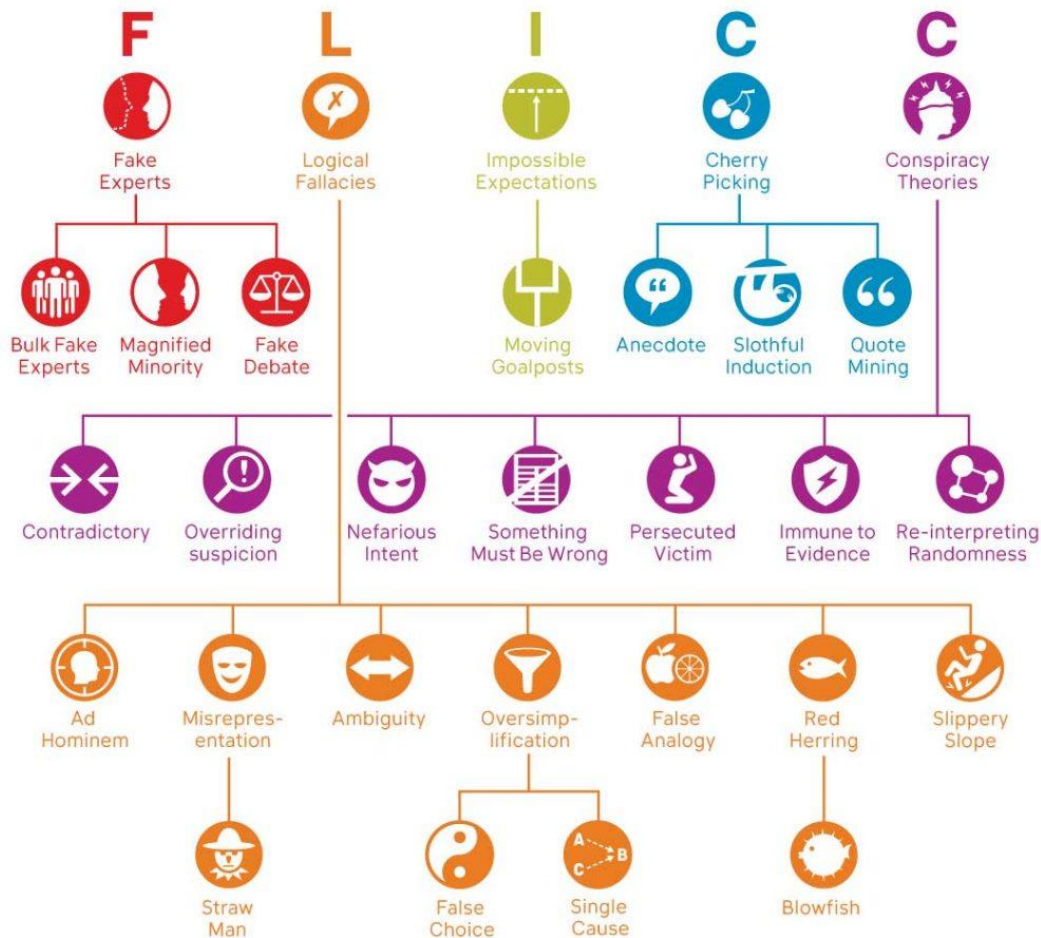
The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.

2:15 PM · Nov 6, 2012 · [Twitter Web Client](#)

96.7K Retweets **64.7K** Likes



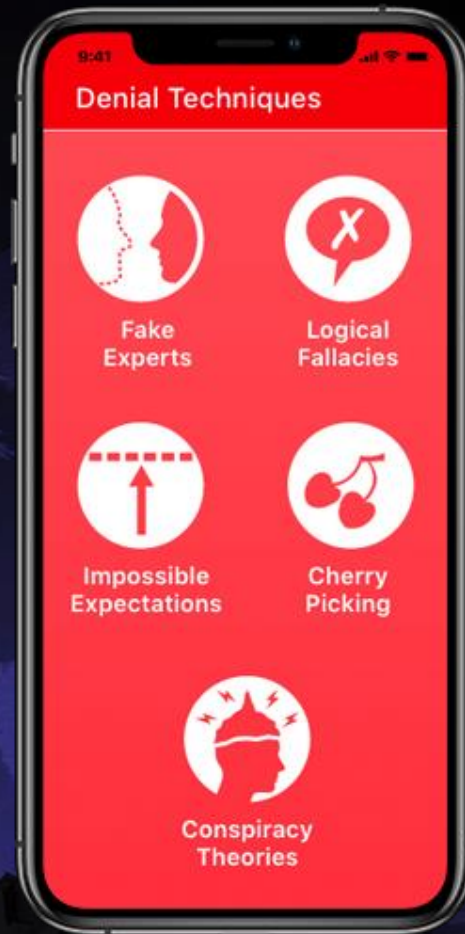
Techniques of Science Denial



Challenges of inoculation

1. Psychological: critical thinking is hard!
2. Structural: how to reach siloed communities.
3. Social: climate change is tribal.

<https://crankyuncle.com> – code EGU21



<https://crankyuncle.com> – code EGU21



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Challenges of inoculation

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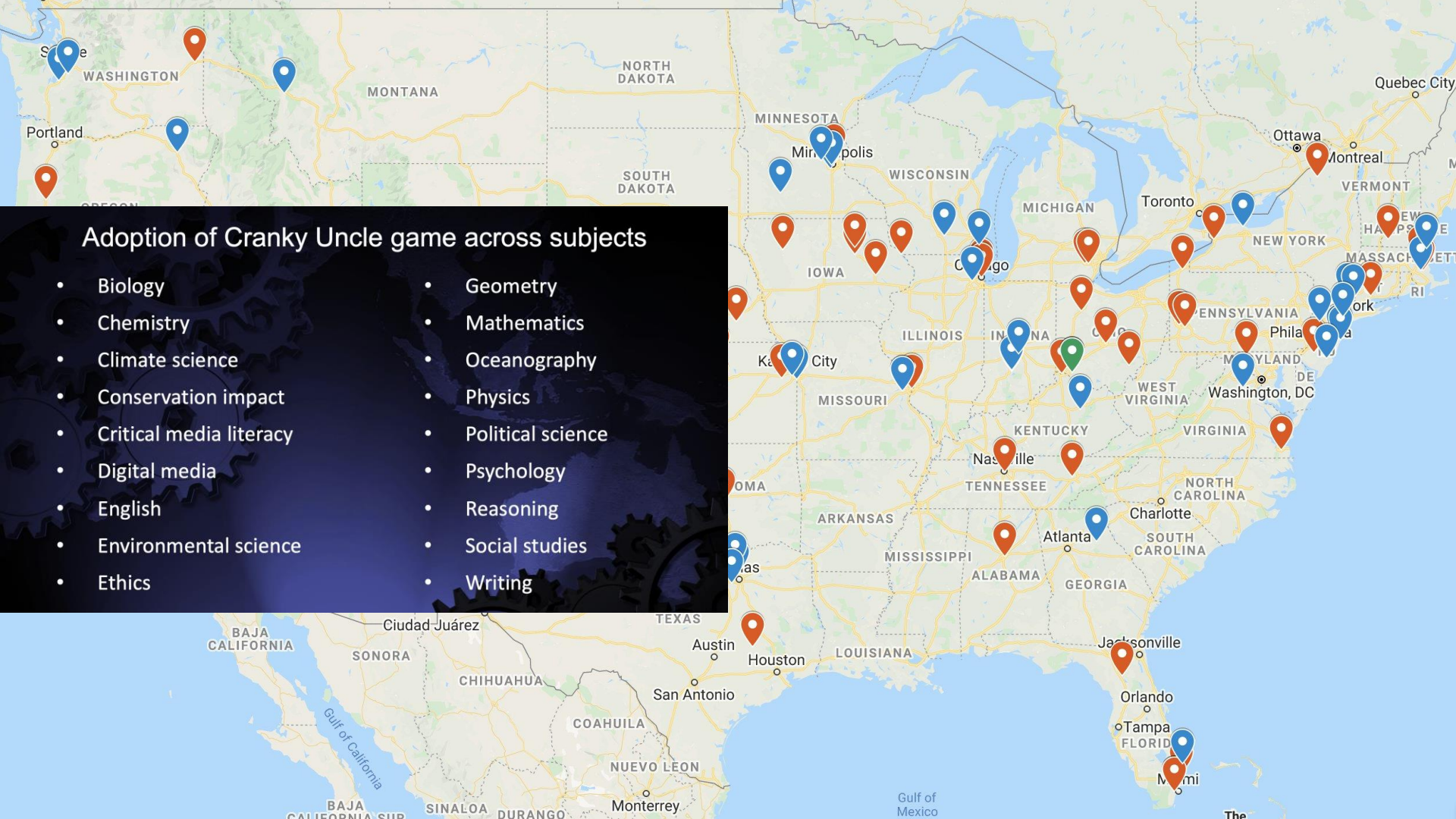
- Explains the science behind the Cranky Uncle game
- Resources for class activities
- Sign up for group code at <https://sks.to/crankyclass>

the Teachers' Guide to Cranky Uncle

I PREFER
OLD SCHOOL!



JOHN COOK



Challenges of inoculation

1. Psychological: critical thinking is hard!
2. Structural: how to reach siloed communities.
3. Social: climate change is tribal.



Cranky Contest

CRANKY POINTS

US

24,303


THEM

23,203



Additional Resources

Massive open online course (MOOC) Denial101x




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Search:

BaerbelW ▾

[Home](#) > [All Subjects](#) > [Communication](#) > [Making Sense of Climate Science Denial](#)



Making Sense of Climate Science Denial

Climate change is real, so why the controversy and debate? Learn to make sense of the science and to respond to climate change denial.



Self-Paced

Enroll Now

☒ I would like to receive email from The University of Queensland and learn about other offerings related to Making Sense of Climate Science Denial.

About this course

In public discussions, climate change is often a highly controversial subject. However, in the scientific community, there is little controversy about the overwhelming scientific consensus regarding human-made global warming.

- Why the gap between the public and scientists?
- What are the psychological and social drivers of the rejection of the scientific consensus?
- How has climate denial influenced public perceptions and attitudes towards climate change?

This course examines the science of climate science denial.

We will look at the most common climate myths from “global warming stopped in 1998” to “global warming is caused by the sun” to “climate impacts are nothing to worry about.”

We'll find out what lessons are to be learnt from past climate change as well as better understand how climate models predict future climate impacts. You'll learn both the science of climate change and the techniques used to distort the science.

Length: 7 weeks

Effort: 2 to 4 hours per week

Price: FREE
Add a Verified Certificate for \$49 USD

Institution: UQx

Subject:

Level:

Language:

Video Transcripts:

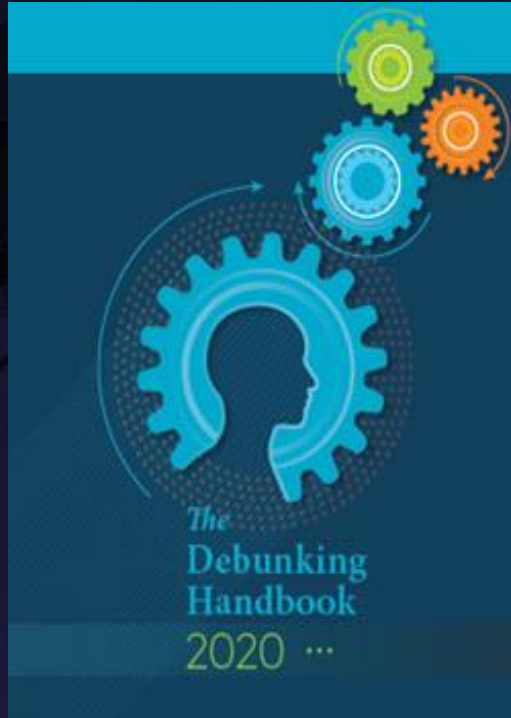


Current self-paced run available until Dec. 14 2021

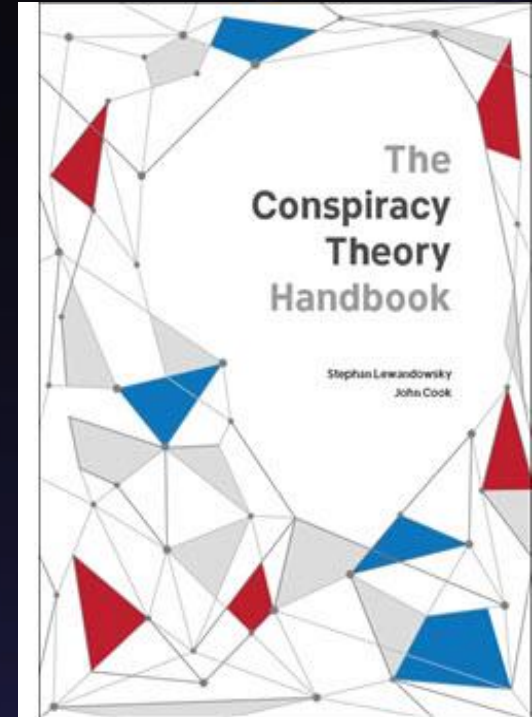
<https://sks.to/denial101x>

Two helpful handbooks

The Debunking Handbook 2020
<https://sks.to/db2020>



The Conspiracy Theory Handbook
<https://sks.to/conspiracy>

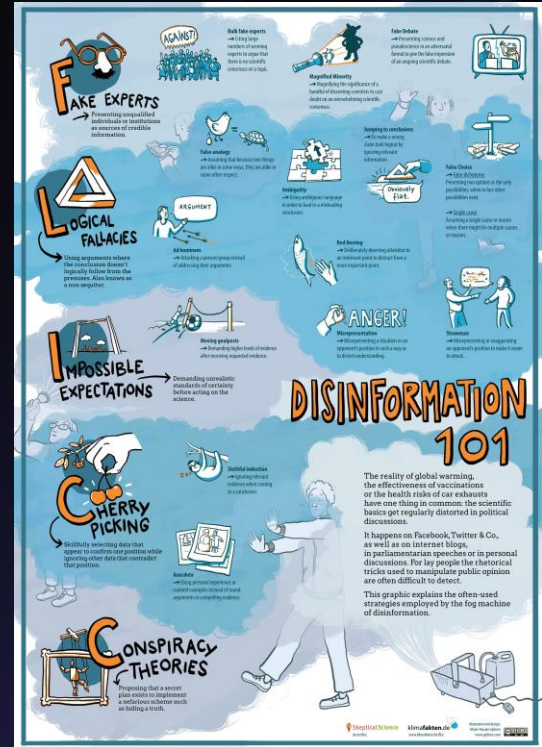
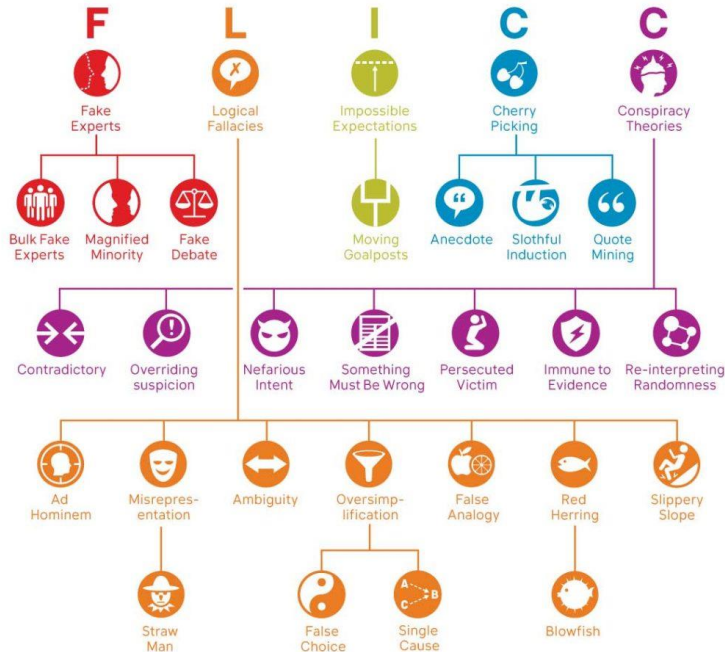


More about FLICC

The History of FLICC
<https://sks.to/flicc>

FLICC-Poster
<https://sks.to/flicc-poster>

Techniques of Science Denial



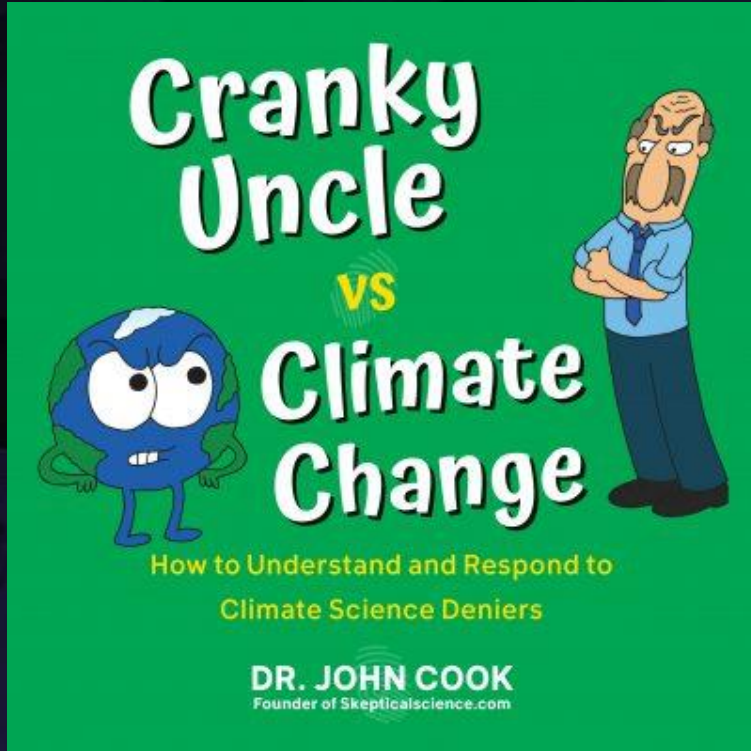
CRANKY UNCLE

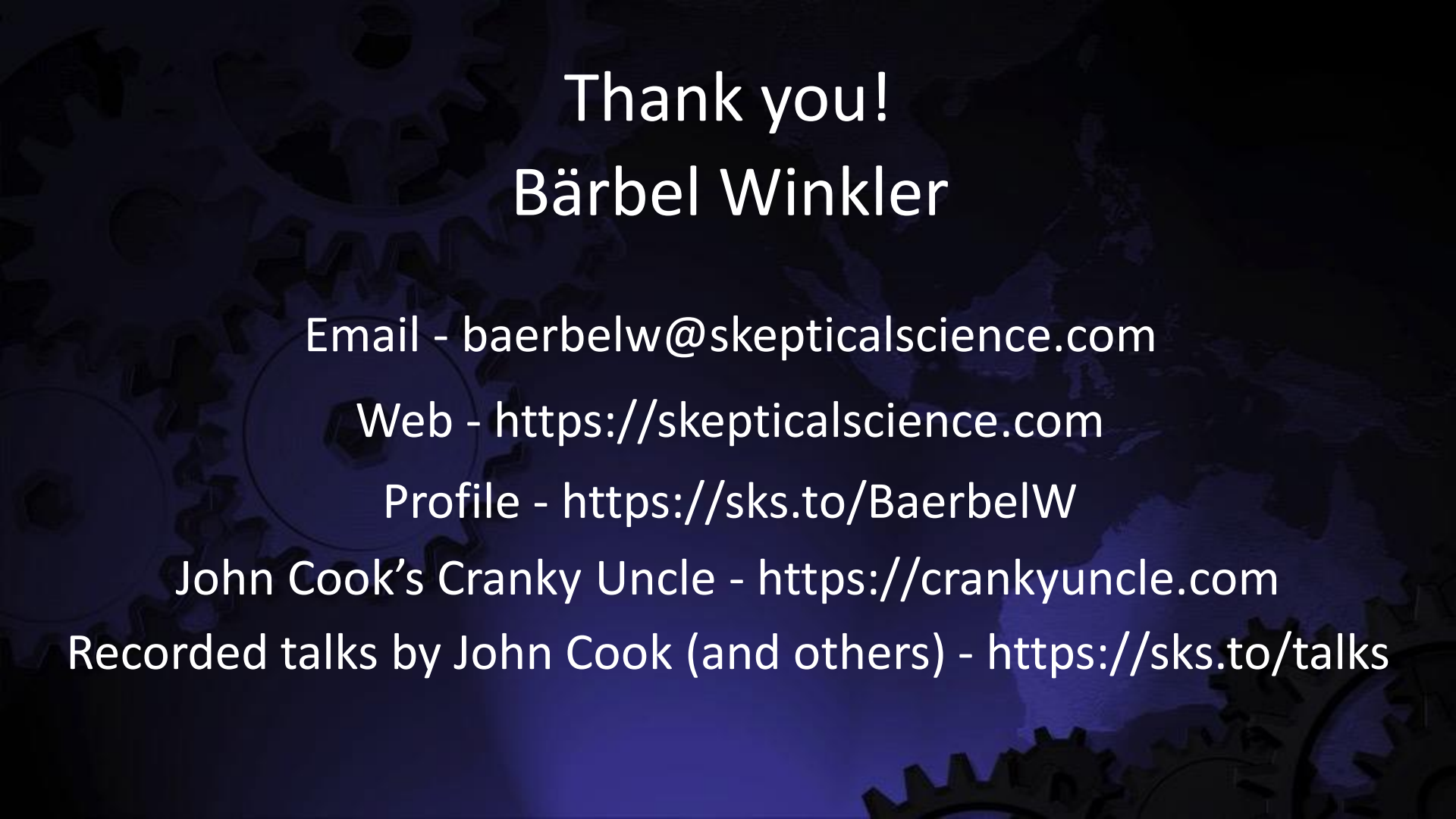
„Cranky Uncle vs. Climate Change“

<https://crankyuncle.com/book>

Cranky Uncle Game

<https://crankyuncle.com/game>





Thank you!
Bärbel Winkler

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Web - <https://skepticalscience.com>

Profile - <https://sks.to/BaerbelW>

John Cook's Cranky Uncle - <https://crankyuncle.com>

Recorded talks by John Cook (and others) - <https://sks.to/talks>

Resources & References

Lewandowsky, S., & Cook, J. (2020). The Conspiracy Theory Handbook. Available at <https://sks.to/conspiracy>

Lewandowsky, S., Cook, J., Ecker, U. K. H., Albarracín, D., Amazeen, M. A., Kendeou, P., Lombardi, D., Newman, E. J., Pennycook, G., Porter, E. Rand, D. G., Rapp, D. N., Reifler, J., Roozenbeek, J., Schmid, P., Seifert, C. M., Sinatra, G. M., Swire-Thompson, B., van der Linden, S., Vraga, E. K., Wood, T. J., Zaragoza, M. S. (2020). The Debunking Handbook 2020. Available at <https://sks.to/db2020>. DOI:10.17910/b7.1182

Cook (2020). Deconstructing climate science denial. In Holmes, D. & Richardson, L. M. (Eds.) Research Handbook on Communicating Climate Change. Cheltenham, UK: Edward Elgar Publishing. <https://doi.org/10.4337/9781789900408.00014>

Cook, J., Schuennemann, K., Nuccitelli, D., Jacobs, P., Cowtan, K., Green, S., Way, R., Richardson, M., Cawley, G., Mandia, S., Skuce, A., & Bedford, D. (April 2015). Denial101x: Making Sense of Climate Science Denial. edX. <https://sks.to/Denial101x>