

The FLICC Framework of Science Denial

vEGU21 – EOS3.2 – Climate Literacy

BÄRBEL WINKLER

JOHN COOK






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!



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...**



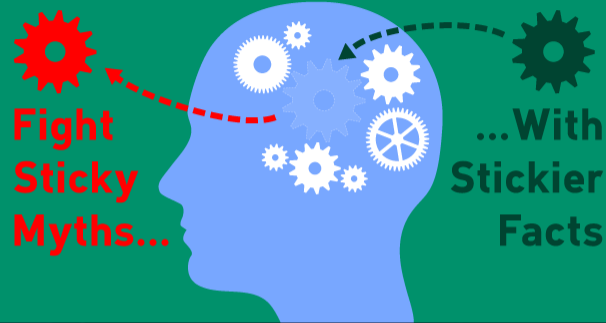
**...With
Stickier
Facts**

**THE
GOLDEN
RULE OF
DEBUNKING**

3 ELEMENTS TO AN EFFECTIVE DEBUNKING

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**THE
GOLDEN
RULE OF
DEBUNKING**

MYTH/MISCONCEPTION

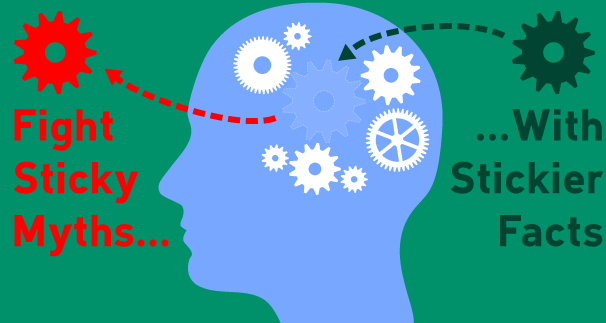
Mentioning the myth risks a familiarity backfire effect. Here are three techniques to reduce the risk of a backfire effect:

- 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.



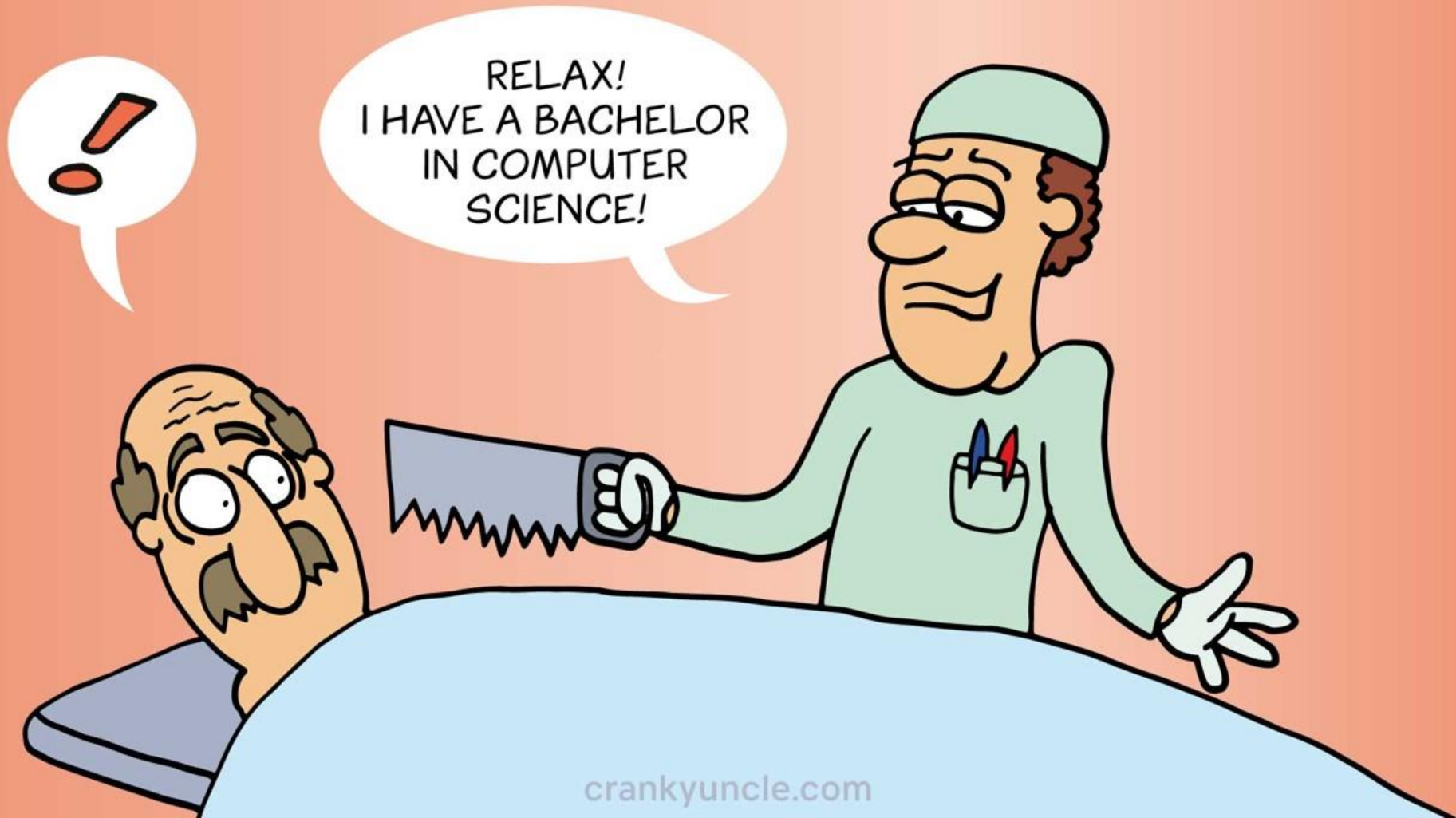
The 5 techniques of science denial (FLICC)



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

...in Kyoto, Japan in December, 1997, and any other similar proposal that limits the use of greenhouse gases would harm the environment, hinder the development of technology, and damage the health and welfare of mankind.

...dioxide, methane, or other greenhouse gases, or other substances, has a substantial net benefit.

There is no convincing scientific evidence that increasing the concentration of greenhouse gases in the Earth's atmosphere and climate system is causing or will cause any significant effects upon the natural climate and environment.

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

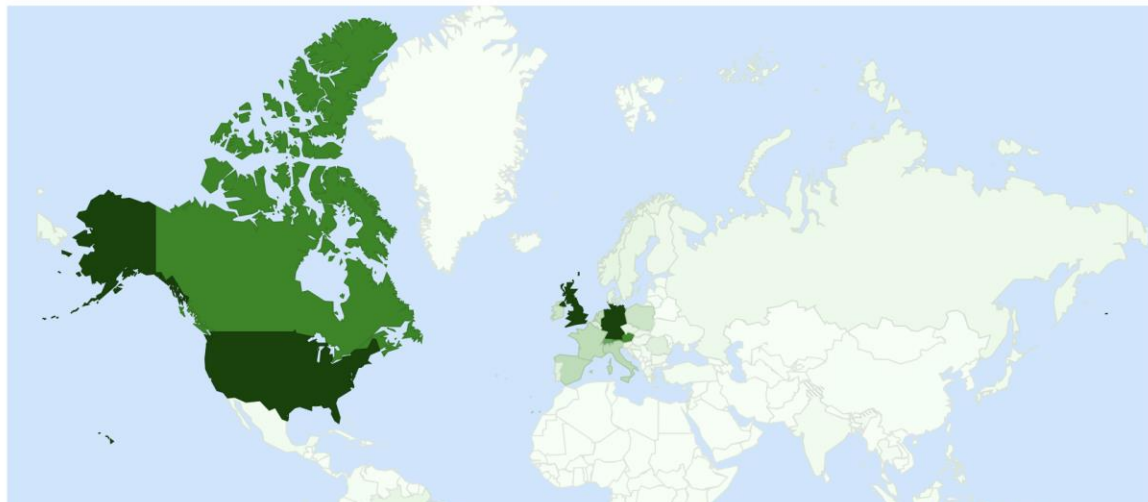
727,141

medical & public health scientists

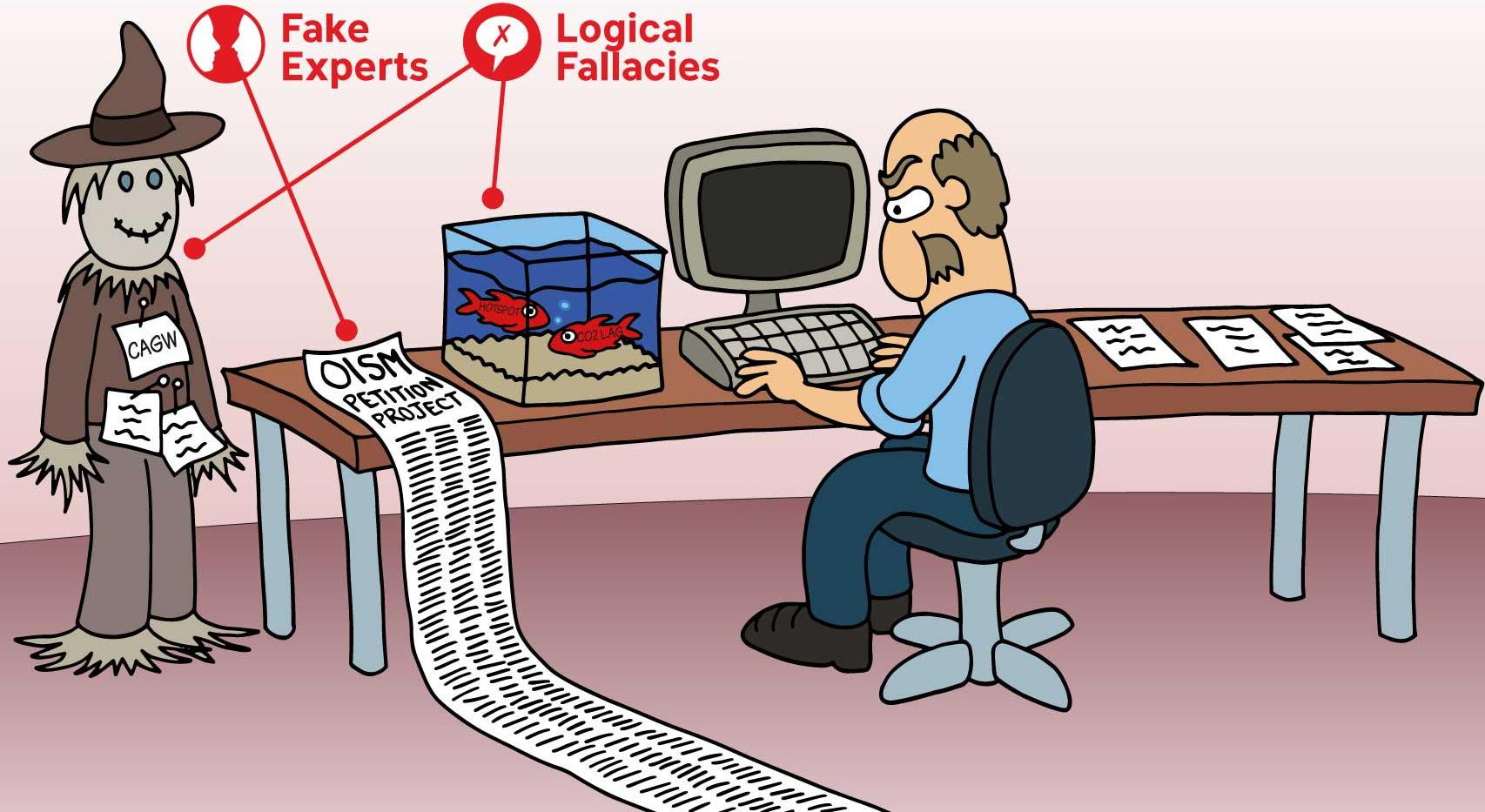
13,290

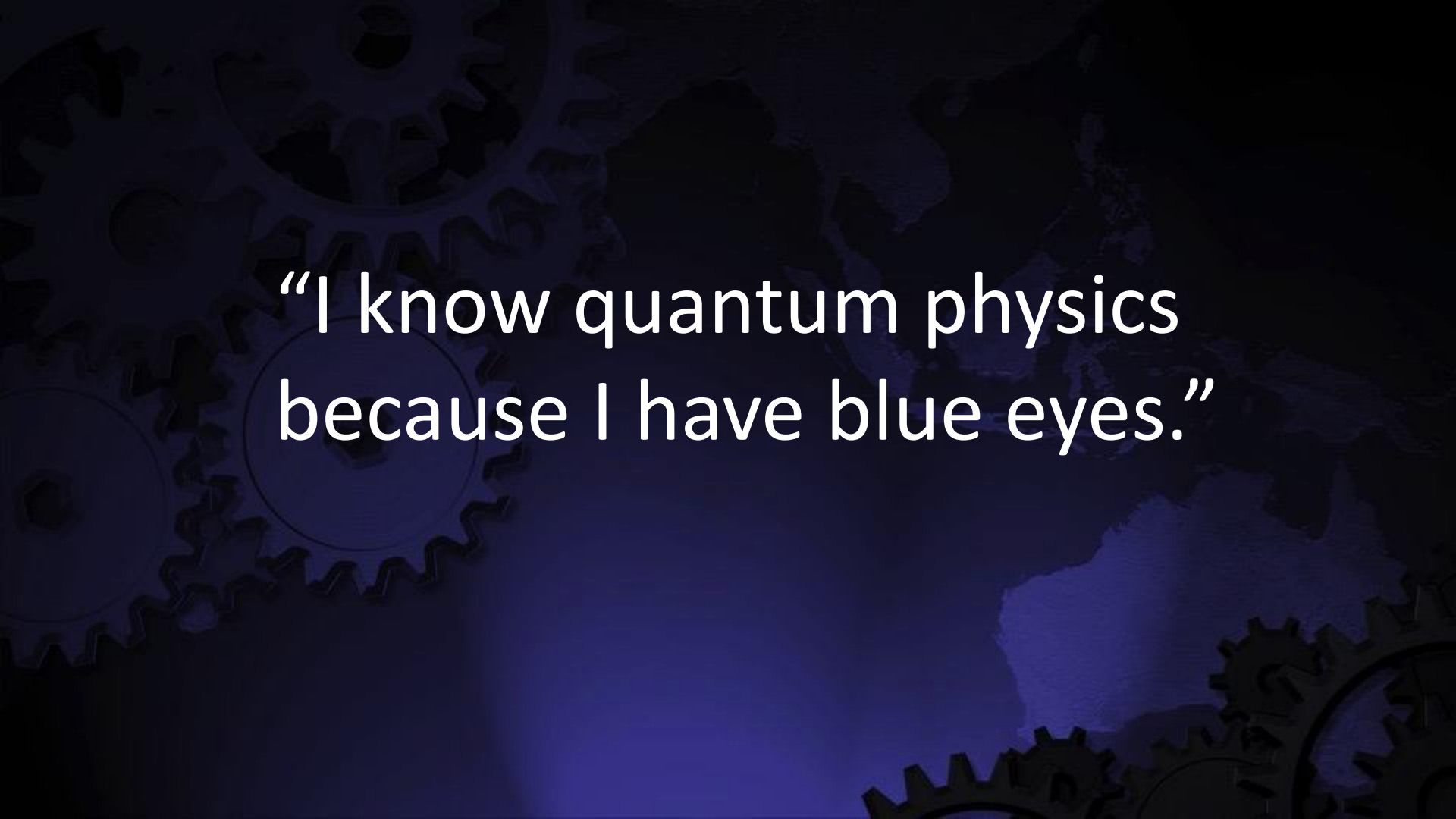
medical practitioners

40,199



The 5 techniques of science denial (FLICC)





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

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



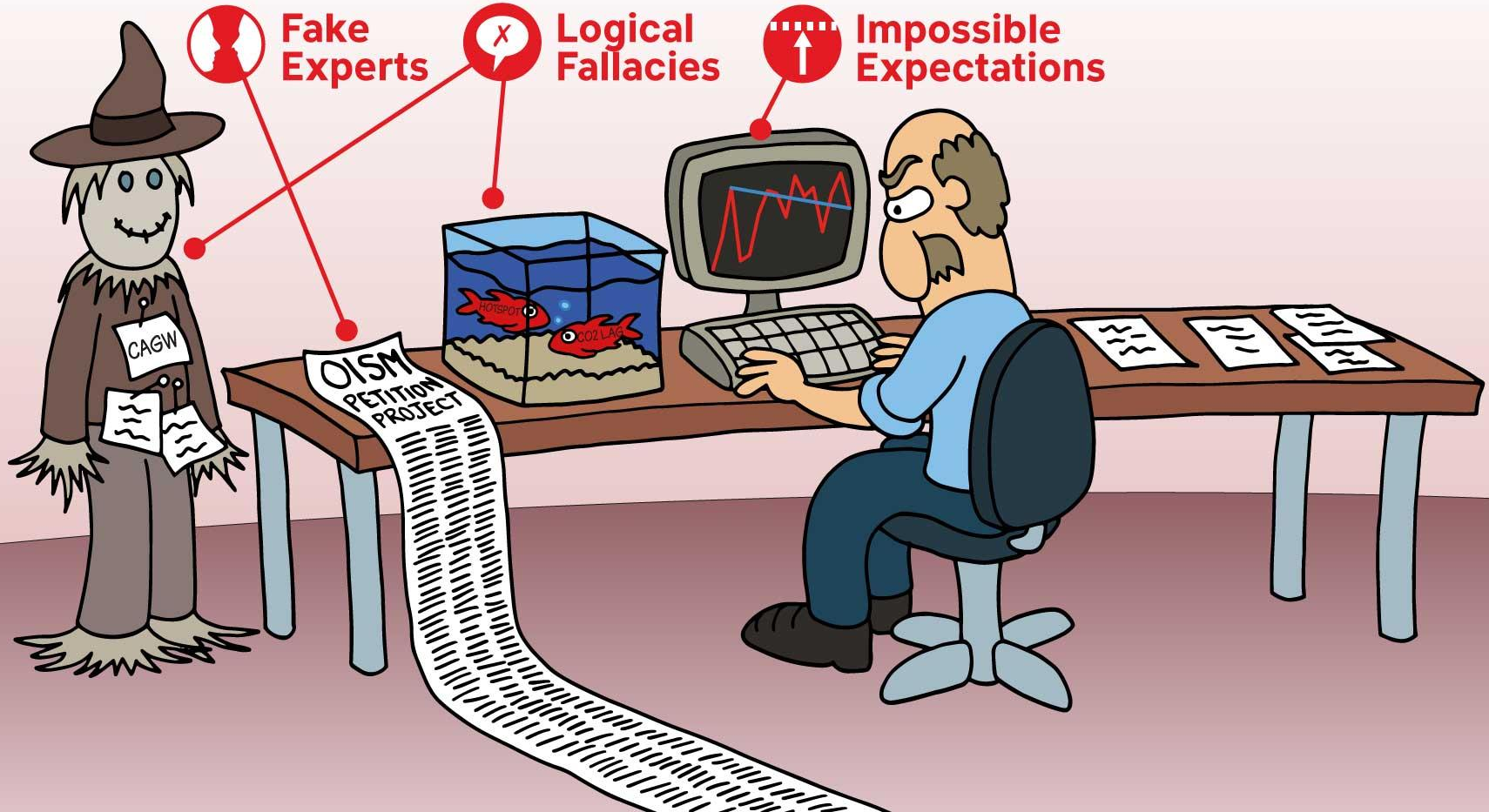
...is climate has always been changing.

This person died of natural causes...



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

The 5 techniques of science denial (FLICC)

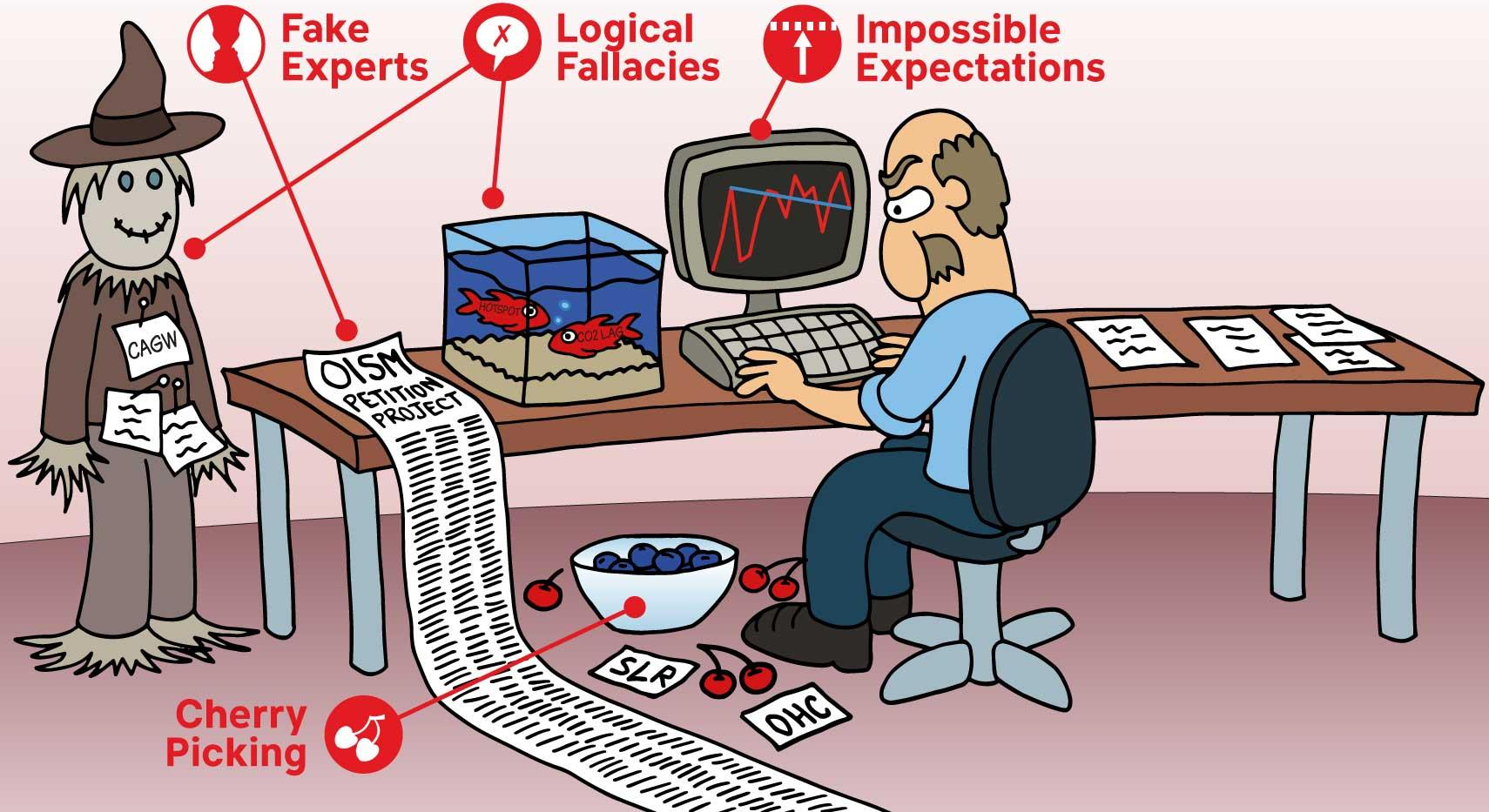


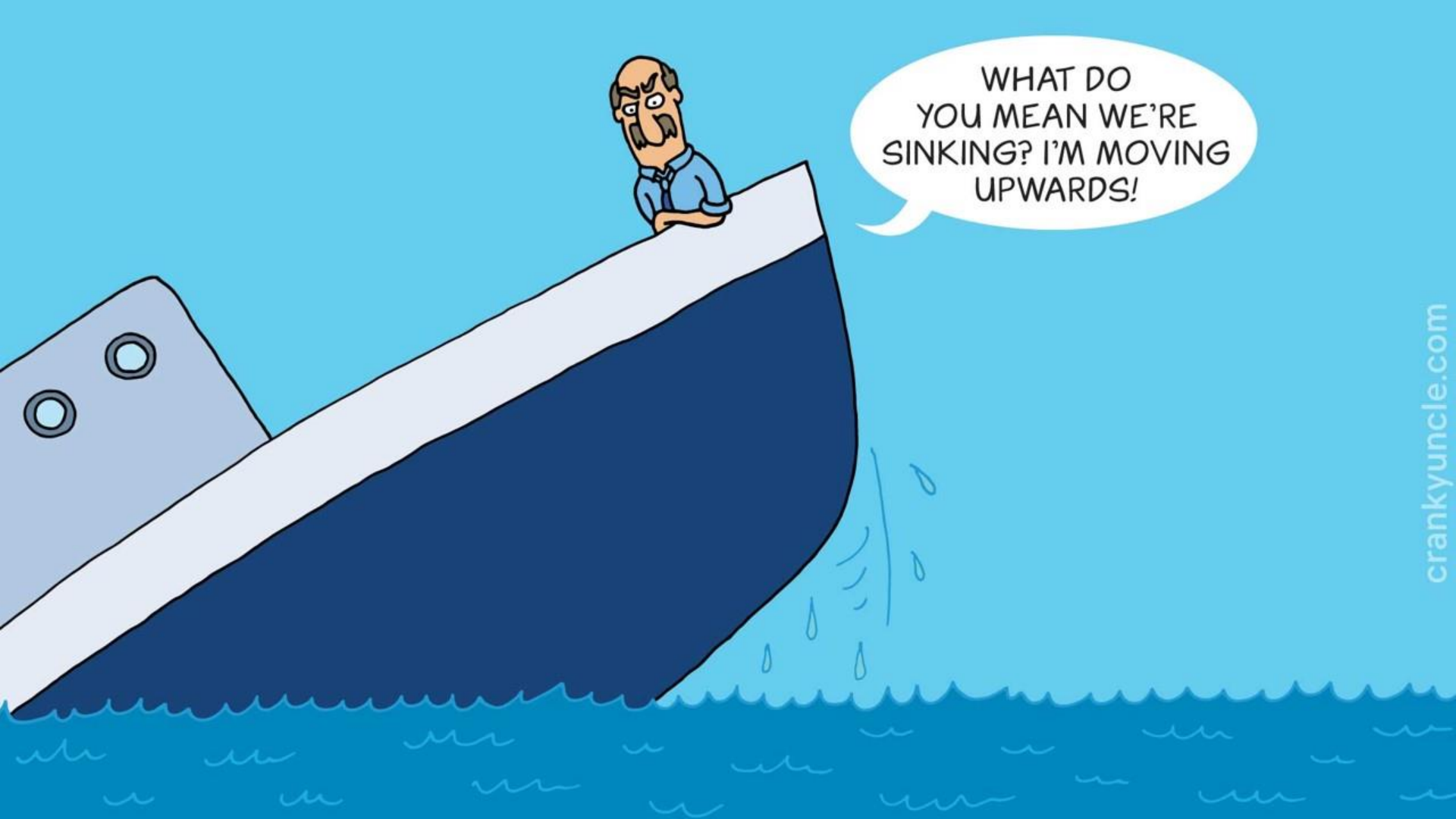


**You'll hit the ground
in 12 to 15 seconds.**

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

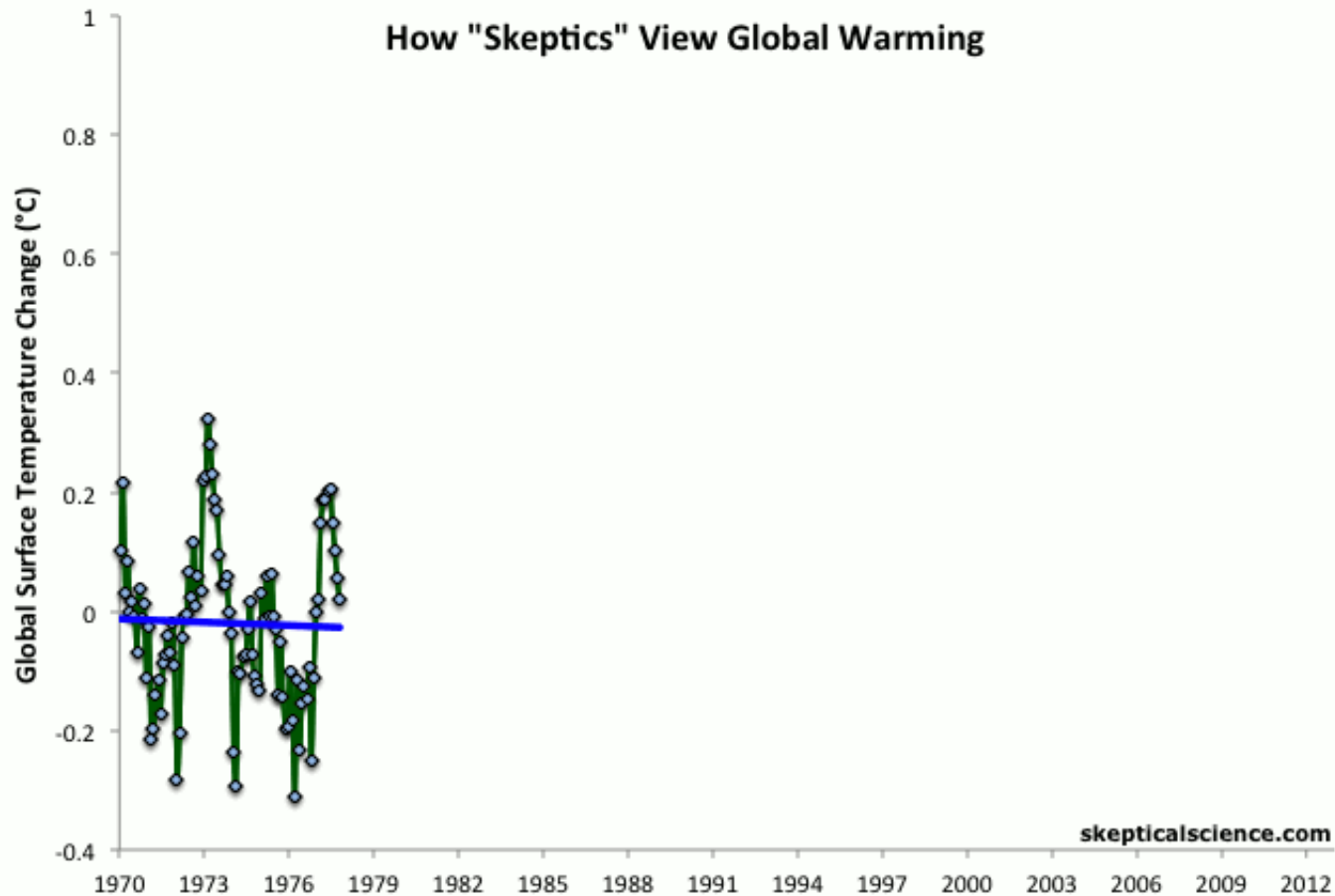
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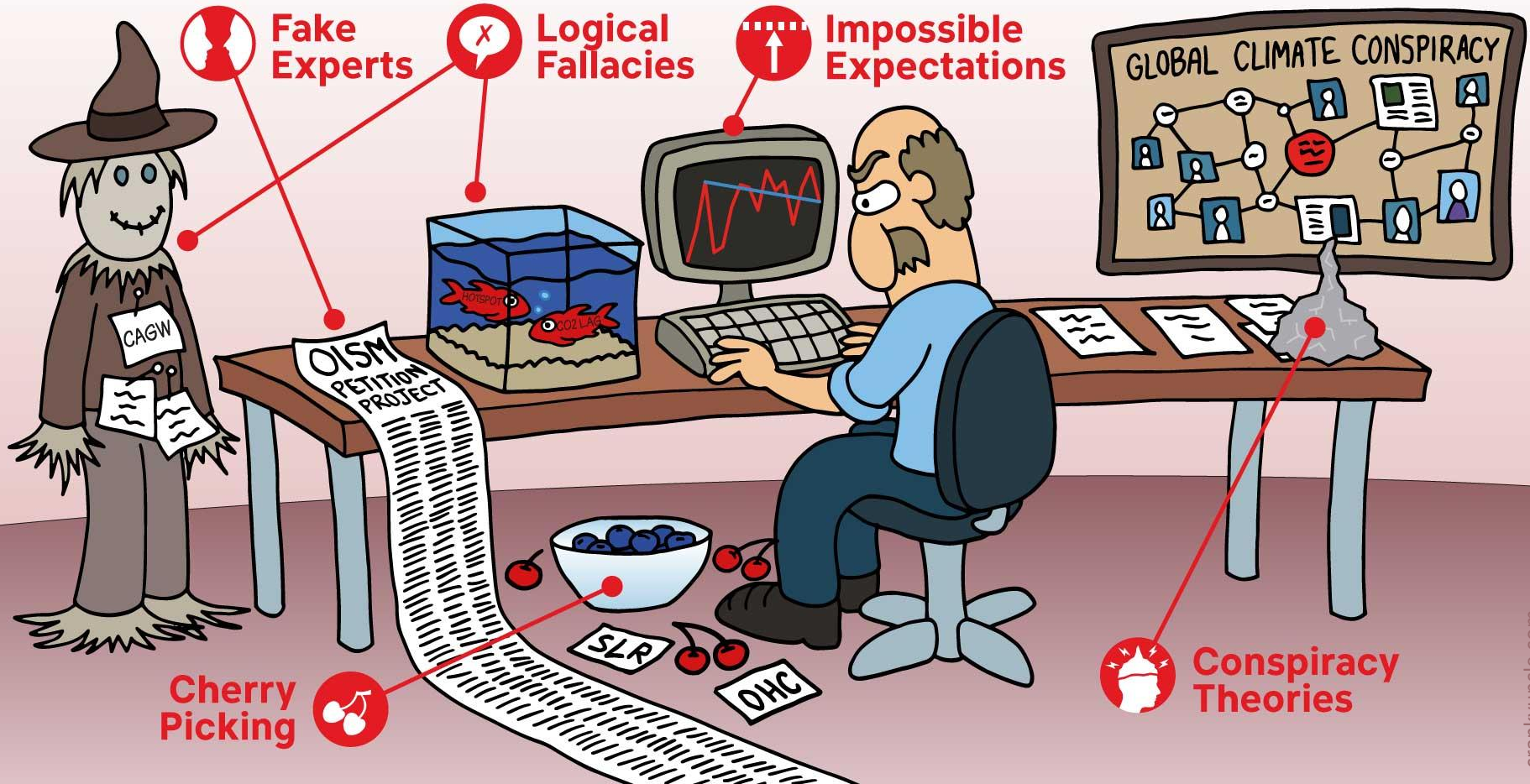


WHAT DO
YOU MEAN WE'RE
SINKING? I'M MOVING
UPWARDS!

How "Skeptics" View Global Warming



The 5 techniques of science denial (FLICC)





Donald J. Trump 

@realDonaldTrump



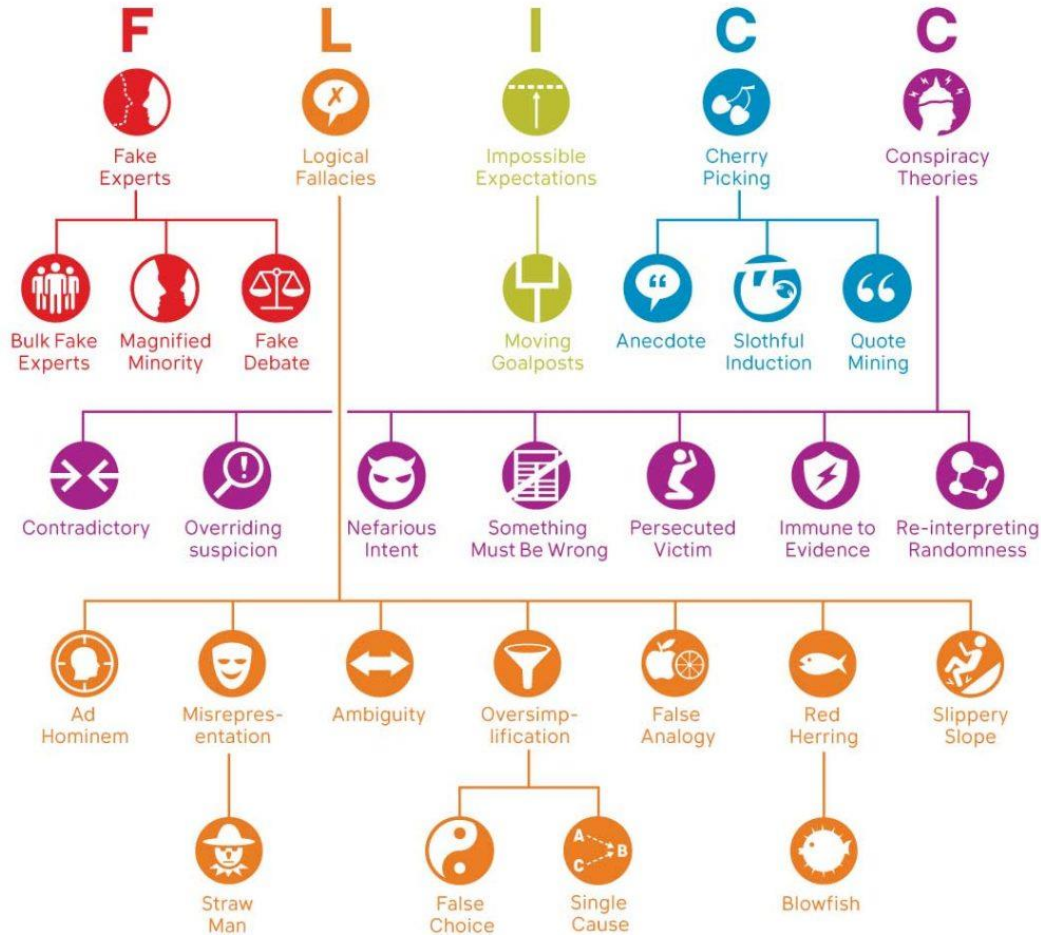
The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.

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

96.7K Retweets **64.7K** Likes



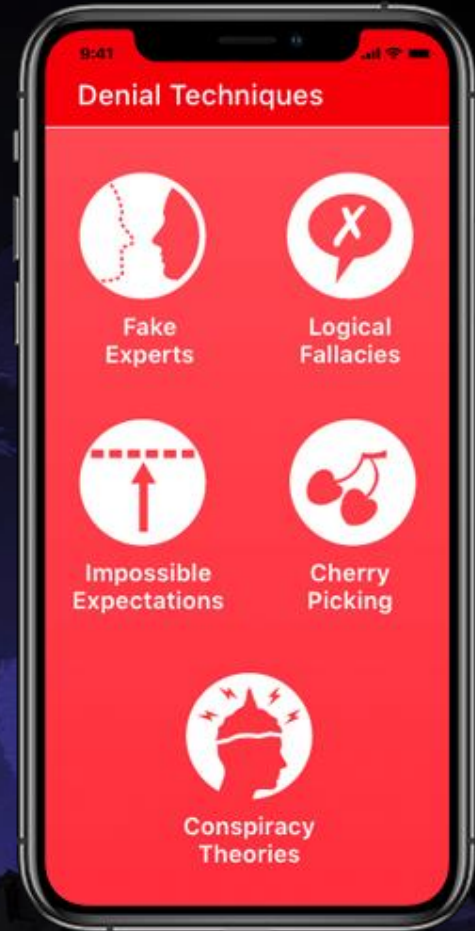
Techniques of Science Denial



Challenges of inoculation

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

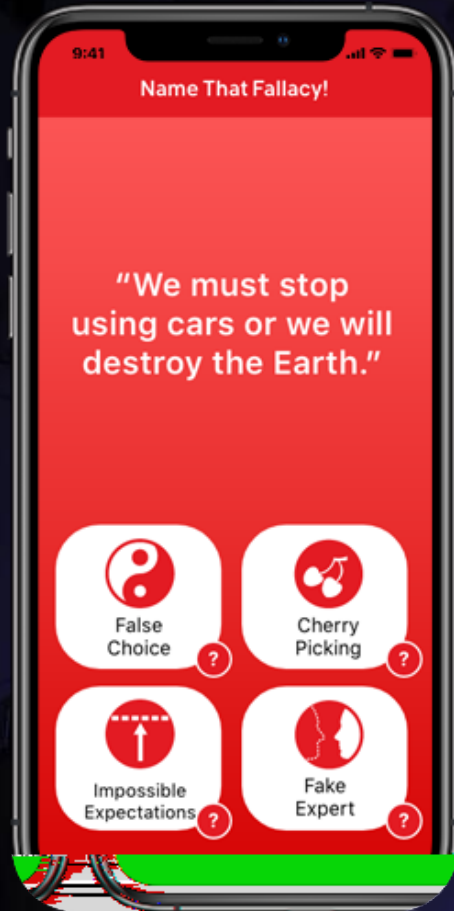
<https://crankyuncle.com> – code EGU21



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



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



Challenges of inoculation

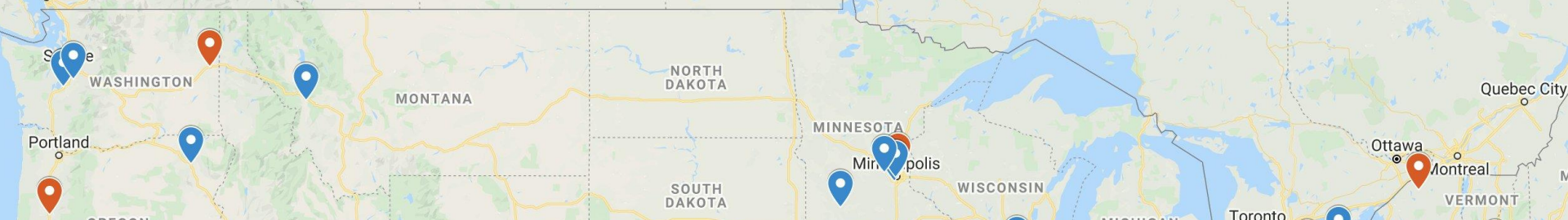
1. Psychological: critical thinking is hard!
2. Structural: how to reach siloed communities.
3. Social: climate change is tribal.

- 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



JOHN COOK



Adoption of Cranky Uncle game across subjects

- Biology
- Chemistry
- Climate science
- Conservation impact
- Critical media literacy
- Digital media
- English
- Environmental science
- Ethics
- Geometry
- Mathematics
- Oceanography
- Physics
- Political science
- Psychology
- Reasoning
- Social studies
- Writing



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

edX Courses ▾ Programs ▾ Schools & Partners About ▾ Search: BaerbelW ▾

Home > All Subjects > Communication > Making Sense of Climate Science Denial

Making Sense of Climate Science Denial

Self-Paced

Climate change is real, partly because the controversy around it is so intense. In this course, you will learn how to communicate the science of climate change and how to respond to climate change denial.

Current self-paced run available until Dec. 14 2021

<https://sks.to/denial101x>

About this course

In public discussions, climate change is highly controversial. However, in the scientific community, there is little controversy. Why do so many climate scientists concluding humans are causing 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:

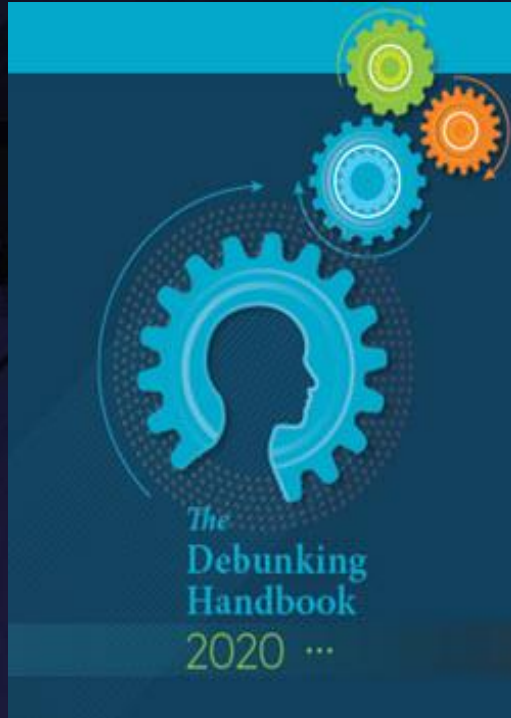
Level:

Language:

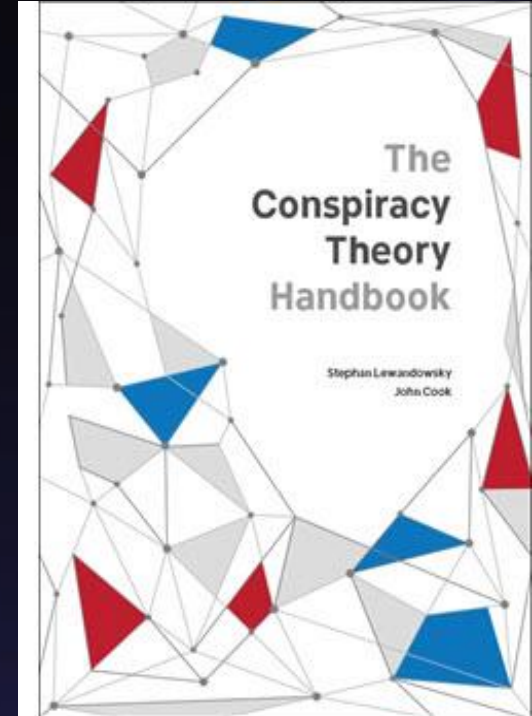
Video Transcripts:

Two helpful handbooks

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



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

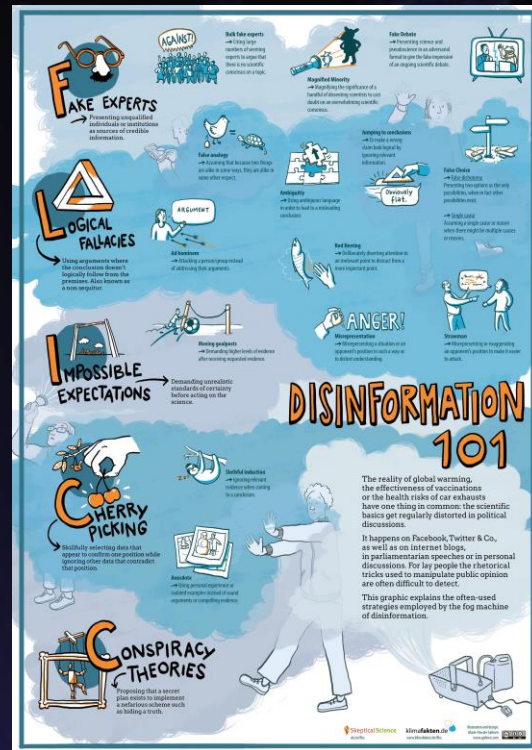
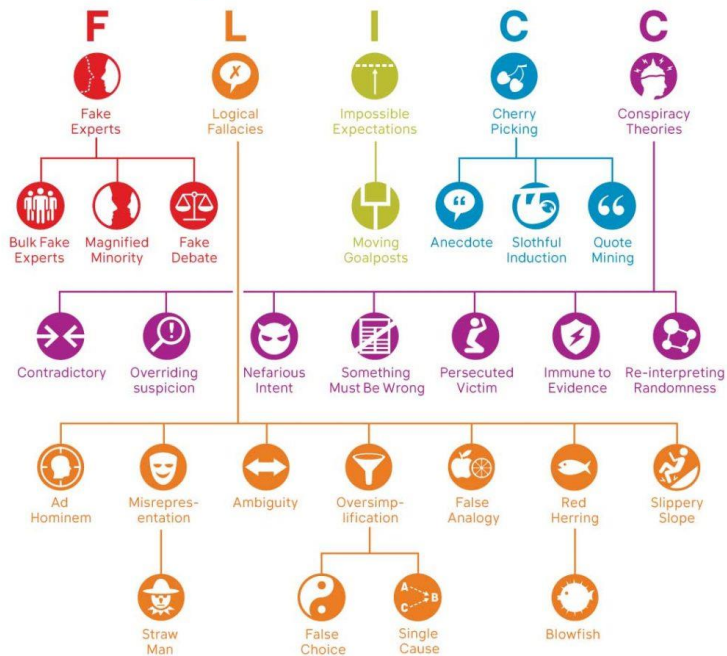


More about FLICC

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

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

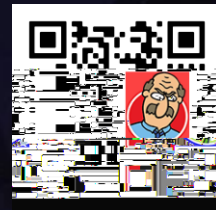
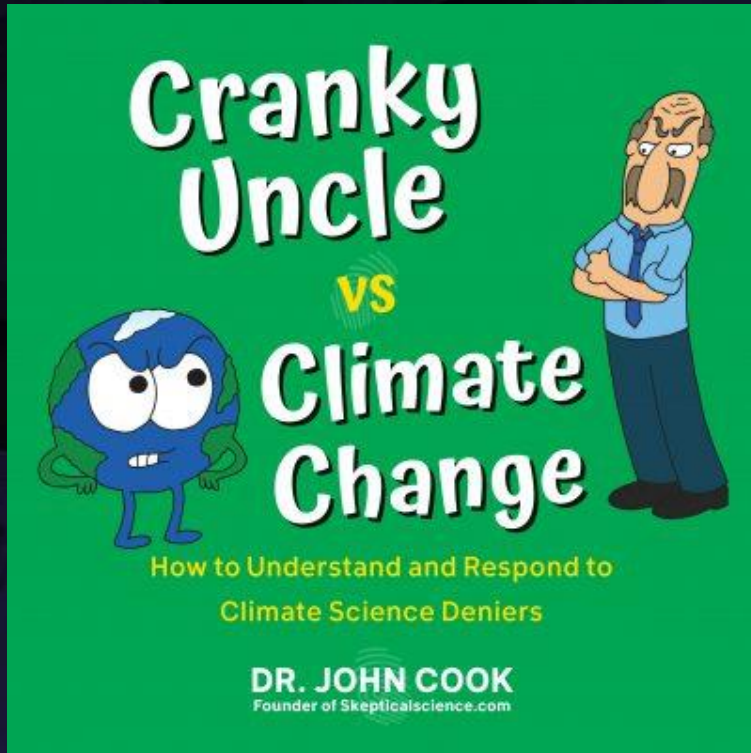
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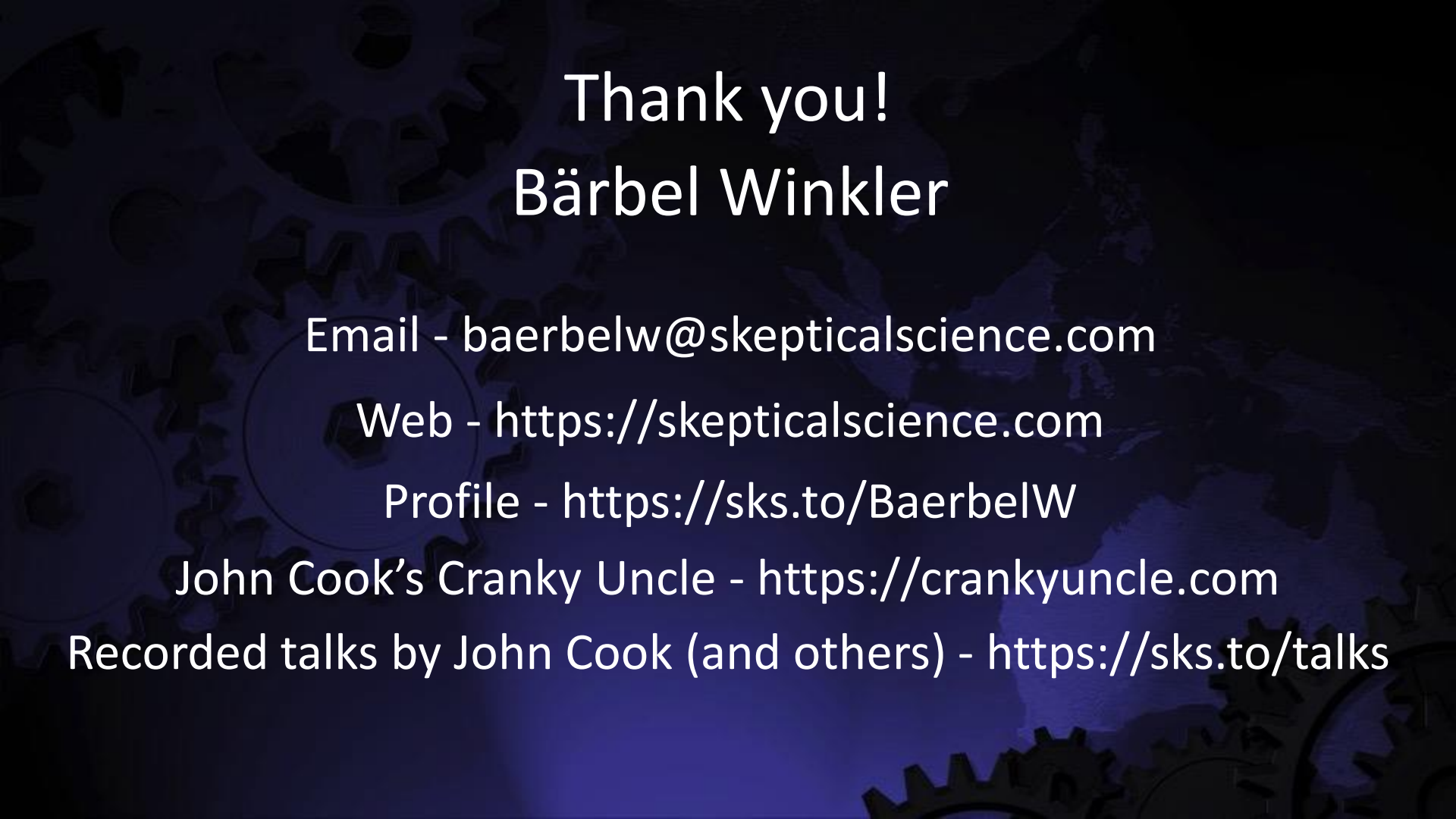


CRANKY UNCLE

„Cranky Uncle vs. Climate Change“
<https://crankyuncle.com/book>

Cranky Uncle Game
<https://crankyuncle.com/game>





Thank you!
Bärbel Winkler

Email - baerbelw@skepticalscience.com

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>