

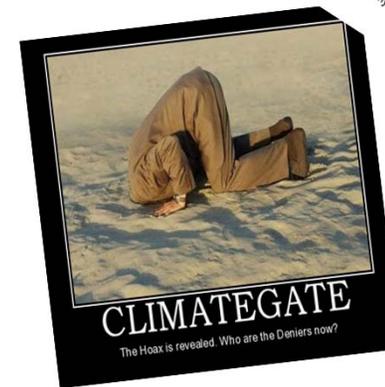
BUNK DETECTING PRINCIPLES

Rules of Thumb to Help
the Public Assess "Scientific" Claims

Caroline Crocker, MSc, PhD
American Institute for Technology and Science Education

“Scientific” Claims

- ✓ Broccoli pills keep you young.
- ✓ Collagen reduces wrinkling.
- ✓ Daily baby aspirin is good for you.
- ✓ Physics shows that we don't have free will.
- ✓ Snow storms disprove global warming.



Possible Reasons for Misinformation

- ✓ Financial
- ✓ Political
- ✓ Religious



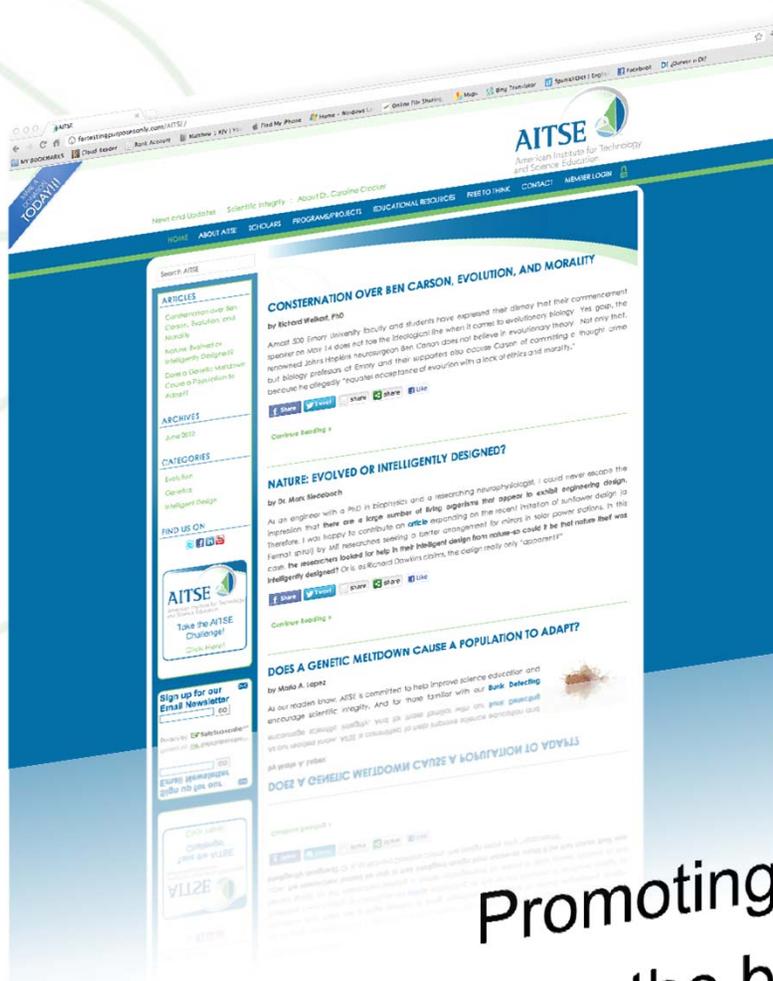
- ✓ Because scientific “truth”
changes as we learn more.



The Problem



- ✓ “Experts” & peer-reviewed articles can be wrong.
- ✓ Some deliberately mislead.
- ✓ Scientific illiteracy ~75 %.
- ✓ Some “treatments” and “beliefs” can be harmful...or deadly.



Promoting scientific integrity
Getting the bunk out of science...

www.aitse.org

For newsletter: Text AITSE to 22828

Bunk-Detecting Principles

Rules of thumb to assist non-experts in evaluation of “scientific” claims.

1. Check if the author claims that something has been *proven* or declares something to be a *fact*.
2. Check if the author makes claims to have accomplished something that is beyond what has actually been done.
3. Check if what is said is scientifically accurate.
4. Beware of grandiose claims.
5. Check if the claims *can* be tested scientifically, that is, can they be measured.
6. Be careful when an author makes too much of the scientific qualifications of those involved or disparages those who do not agree his/her views.
7. Check that the “satisfied customers,” “experts,” study participants, and promoters of the idea or product do not stand to gain from their testimony or participation.
8. Finally, be skeptical.

PRINCIPLE #1



Check if the author claims that something has been *proven* or declares something to be a *fact*.

“The evidence is incontrovertible: Global warming is occurring.” American Physical Society http://www.aps.org/policy/statements/07_1.cfm

Amended: “The evidence for global temperature rise over the last century is compelling. However, the word “incontrovertible”...is rarely used in science because by its very nature science questions prevailing ideas.”

PRINCIPLE #2



Check if the author makes claims to have accomplished something that is beyond what has actually been done.

“...all mammals are controlled by a sophisticated biofield.” “O” ring and Quantum Reflex Analysis, <https://www.holistichealthwithmandi.com/qra>

In Dr. Fritz Popp’s paper, he actually wrote that living organisms emit coherent photons, not that they are controlled by them.

www.aitse.org

To see the entire article, enter “O ring” in the AITSE website search box

PRINCIPLE #3



Check if what is said is scientifically accurate.

“Over 90% of people do not get enough oxygen because their diaphragm is inactive.”

“50% of a person’s chronic pain is attributed to insufficient oxygen to the brain.”

Rubenstein Center for Pain Management, <http://www.rubensteincenter.com/how-it-works>

People with an inactive diaphragm do not experience pain; they are dead.

Doctors do not prescribe oxygen for pain relief. Why not?

www.aitse.org

To see the entire article, enter “R Center” in the AITSE website search box (email me for password)

PRINCIPLE #4

Beware of grandiose claims.

Pomegranate consumption will alter cholesterol levels, fight atherosclerosis and arthritis, heal prostate and other cancers, fight colds and flu, and reverse Alzheimer's disease. <http://www.pomwonderful.com/>

Pass the pomegranate juice!



PRINCIPLE #5



Check if the claims *can* be tested scientifically, that is, can they be measured.

“A new study has revealed that facial stubble and a geeky personality are [women’s] biggest secret turn-ons.” <http://www.dailymail.co.uk/femail/article-1251929/The-perfect-man-geek-facial-stubble--womens-secret-turn-ons-revealed.html#ixzz1zygu01lg>.

“We have also inherited exquisite skills for self-deception. The human brain...regularly tricks us—and then masterfully hides the evidence!”
Evolving Wisdom, <http://evolutionizeyourlife.com/online-course.php>

PRINCIPLE #6



Be careful when an author makes too much of the scientific qualifications of those involved or disparages those who do not agree his/her views.

“Dr. Joe McCord, a *world-renowned* scientist...”

<http://www.protandim.com/clinical-proof/>

Only 50% of the American public “believe” in evolution. Could *only* be for one of three reasons. 1) Scientific illiteracy, 2) Religious illiteracy, or 3) The activity of the “large...powerful...very effective” anti-evolution industry. Brian Alters, Chapman U, <http://sciencedude.ocregister.com/2010/10/11/chapman-to-open-new-evolution-center/112562/>

www.aitse.org

To see the entire article, enter “Applegate” in the search box (notice that neither scientist is illiterate).

PRINCIPLE #7



Check that the "satisfied customers," "experts," study participants, and promoters of the idea or product exist and do not stand to gain from their testimony or participation.

LifeVantage (Protandim)

- Used company insiders as trial participants.
- Did not disclose author's financial conflicts of interest.
- Donny Osmund did not disclose that he is a paid spokesperson
- Dr. Helmit Herring does not exist.

PRINCIPLE #8



Finally, **be skeptical**. Do not be quick to believe people, especially when it involves your health, faith and/or money!

80-yr-old wealthy female complaining of sudden weight gain. Given expensive pills for her intestines—and they worked!

www.aitse.org

To see the entire article, enter "chiropractic" in the search box.

Just for Fun

Question: “Has it been scientifically proven that the world will end in 2012?”

Wiki-Answer: “No. Actually it is scientifically proven that the world will not end in 2012.”

Which bunk-detecting principles are being violated?



What is AITSE Doing to Combat Bunk?

- ✓ Consortium of experts.
- ✓ Monthly newsletter.
- ✓ Daily updates.



We Need Your Help



- ✓ Scientists, engineers, physicians
 - ✓ Join the consortium.
 - ✓ Contribute articles.
- ✓ Send us suggestions for topics of interest.
- ✓ Suggest other bunk-detecting principles or help refine the existing ones.

- ✓ **QUESTIONS?**

www.aitse.org

To see more about the Consortium, enter "scholars" in the search box.