



Merchants of Doubt

2015 Festival Official Selection, Green Fire Award Winner

Filmmaker: Robert Kenner

Length: 94 Minutes

Summary: A film by Robert Kenner, acclaimed director of *Food Inc.*, lifts the curtain on a secretive group of highly charismatic, spokesmen-for-hire who portray themselves as scientific authorities yet aim to spread confusion and misinformation in order to cast doubt on the scientific consensus about a variety of well-studied public threats ranging from tobacco and toxic chemicals to climate change.

Course Mapping: Any Introductory Science Course

Curricular Keywords: Scientific Mindset, Scientific Method, Climate Change, Pseudoscience

Suggested Discussion Topics

- One cannot disprove an argument simply by exposing the motivation behind the individual or group making the argument instead of presenting contrary evidence. This is called the “appeal to motive” logical fallacy. With this in mind, discuss how the motivations of an individual or group should be used when conducting evaluation of their claims.
- Physicist James Trefil’s “A Consumer’s Guide to Pseudoscience” is a classic handbook of sorts for individuals to use to identify junk and pseudoscience. In this work Trefil points out that one strategy purveyors of myths use to try to convince people of their “truth” is to throw many “facts” and “figures” at their audience in rapid succession often with subsequent statements building on previous statements. The hope is that the audience simply accepts the “truth” of the information being thrown at them because their ability to critically process the information gets overloaded. What strategies can a scientifically minded individual use to dissect the “theories” of purveyors of myths and pseudoscience?
- In *Merchants of Doubt*, industry agents actually use characteristics of a scientific mindset like an appeal to skepticism to help them create doubt and to try to manufacture scientific controversy where none actually exists. Discuss the role of skepticism and the value of consensus in science where primacy of data over authority is valued.

Suggested Activity

Read Trefil’s “A Consumer’s Guide to Pseudoscience” and endeavor to use its tools to discover examples of junk or pseudoscience in recently produced media.

The work of climatologist Benjamin Santer is featured in the film. Dr. Santer was lead author of the now famous chapter 8 of the IPCC Second Assessment Report published in 1996. This chapter is important because its language communicates that the IPCC had for the first time reached a consensus that global warming is occurring and human activity is a significant cause of the warming. Investigate the conflict between Santer, Physicist Frederick Seitz, and the Global Climate Coalition (a curious name for an energy industry lobbying group but alas, appealing to their motives is not sufficient to alone disprove their message) in the wake of the report. This conflict can be an enthralling way to debate some of the hallmarks of the scientific process such as the importance of peer review, the emergence and evolution of scientific consensus, and the necessity to communicate scientific results effectively with the general public and policymakers.

Additional Resources: *Merchants of Doubt* the film is based on *Merchants of Doubt* the book by Naomi Oreskes and Erik M. Conway.

James S. Trefil, “A Consumer's Guide to Pseudoscience” *The Saturday Review*, April 29, 1978, pp. 16-21.

Chapter 8 of the IPCC Second Assessment Report titled “Detection of Climate Change and Attribution of Causes” can be found online for download. Previous and subsequent IPCC reports are also available for download (The IPCC Fifth Assessment Report published in 2014 is the most recent) and provide an interesting record of how the scientific consensus on climate change has evolved over the past few decades.
