

Web Resources

This is Science! (<http://www.ucmp.berkeley.edu/people/jlipps/science.html>)

In this 12-page essay, UC Berkeley biologist Jere Lipps lucidly describes the nature of science. Particularly useful are tables showing the skills involved in critical thinking and evidential reasoning, which are the backbone of scientific inquiry.

Science Is Not about Certainty (<http://www.newrepublic.com/article/118655/theoretical-physicist-explains-why-science-not-about-certainty>)

In this essay, Carlo Rovelli underscores an important conclusion of Chapter 2 about the nature of science: “Science is not about certainty.” As the author notes, “The very expression ‘scientifically proven’ is a contradiction in terms.” Although current scientific knowledge may be effective, it is basically the best and most credible knowledge we have so far, and any part of it is open for revision.

iLogic (<http://www.butte.edu/~wmwu/iLogic/iLogic.html>)

A free online textbook on introductory logic, this resource provides an excellent overview of deduction and induction, among other topics. Section 1.3, Deduction and Induction (Go to the Table of Contents) provides concise definitions and examples of deductive and inductive arguments, and discussions of validity and soundness, strength and reliability, and proof versus confirmation, followed by two sets of exercises to test the readers’ understanding.

ScienceBlog (<https://scienceblog.com/>)

There are numerous science blogs. This site publishes science news stories on the brain and behavior, earth, energy and environment, health, life and non-humans, physics and mathematics, space, and technology. Many of the posts are press releases that report research findings. A recent blog reported a study, published in the *Quarterly Journal of Political Science*, which showed that “newspaper op-eds change minds.” Another blog reported research that shows that alcohol dependence and eating disorders share a genetic link.

Veritasium (<https://www.youtube.com/user/1veritasium>)

As described in the site trailer, “Veritasium is a channel of science and engineering videos featuring experiments, expert interviews, cool demos, and discussions with the public about everything science.” In a January 2015 video blog “This Will Revolutionize Education,” Derek Miller offers his thoughts on why technology in the classroom does not enhance learning. Other videos include “What is NOT random,” “Learned Helplessness,” and “The Science of Six Degrees of Separation.”

The American Association for the Advancement of Science (<http://www.aaas.org/>)

Publisher of the journal *Science*, AAAS is an international non-profit organization dedicated to advancing science around the world for the benefit of all people. A useful link is the AAAS Policy and Public Statements page, which contains links to statements on such topics as elections

and paper ballots, climate change, stem cell research, and the civil dialogue between science and religion.

Case Study Teaching in Science (<http://sciencecases.lib.buffalo.edu/cs/>)

This site offers numerous case studies with explanations of their uses. According to the site overview, case studies are “a powerful pedagogical technique for teaching science. Cases can be used not only to teach scientific concepts and content, but also process skills and critical thinking. And since many of the best cases are based on contemporary, and often contentious, science problems that students encounter in the news, the use of cases in the classroom makes science relevant.” One may select cases from several different scientific disciplines, including sociology and psychology, and many cases are based on contemporary science problems that are in the news (e.g., human cloning, HIV, climate change).