

Critical Analysis of Evolution: Internet References

Of 7 Internet sites specifically referenced for students to use, 3 promote Intelligent Design and/or creationism, 1 is a personal memorial to the late Dr. Stephen J. Gould, 2 are government sites (1 dealing with critical thinking methods), and 1 is an educational site run by the University of California, Berkeley. The 3 ID/creationist sites receive top billing and explicitly advocate Intelligent Design and other creationist perspectives. One of the Creationist references in this lesson suggests that studying evolution will lead a student to “devalue human life and possibly to engage in drug abuse, sexual promiscuity, and violence, or even to commit suicide.” (See line #4.) Major educational web sites with high-quality content pertinent to the lessons topics are ignored (e.g., the American Geological Institute/Paleontological Society’s web page on the fossil record, or the PBS series on Evolution).

Additionally, the lesson urges students to perform their own independent searches of the Internet, but provides no guidance for what constitutes an appropriate web site or content. Using the titles of the lesson “aspects” or such terminology as “challenge to evolution” in keyword searches, returns a preponderance of creationist sites. Students in introductory Biology classes do not have the background or knowledge to select sites with strong, accurate scientific content from sites which contain inaccurate/ misleading information but use scientific-sounding words and phrases. The Board of Education needs to provide very clear written criteria for both students and teachers as to what constitutes appropriate Internet resources for use in a high school science class. Such resources should present the consensus view of the scientific community, and should have strong editorial policies to assure that each web site’s content is accurate and complete. Appropriate web sites will also have information presented at a comprehension level appropriate for the background and experience of the students accessing them.

As it is currently written, the Critical Analysis Lesson Plan places local school districts at risk of legal action by appearing to advocate the use of creationist information in a scientific context. The Board of Education would be well advised to have this Lesson reviewed by the Attorney General’s office.

	Critical Analysis of Evolution – Grade 10 (Lesson: L10-H23)	Intelligent Design Creationism sources	What scientists say:
1 p. 321	Technology Connections: •Have students use the Internet to search for resources on evolutionary biology.		<p>The whole emphasis on the Internet is misguided as it reinforces the view of students that the internet can be relied on uncritically as a valid source of scientific information. Outside of educational and government sites (and even some of these are questionable) there is a large reservoir of misinformation. This emphasis also is in the interest of anti-evolutionists because it is one of the primary places where their arguments can be found.</p> <p>The switch in terminology from “critically analyze aspects of evolutionary theory”(what the benchmark indicator calls for) to “challenge evolution” (the term used in the lesson) has a significant effect on Internet searches. Challenge evolution is a favorite term for creationist sites.</p>

<p>2 p. 321</p>	<p>Technology Connections: •Have students use the Internet to search for resources on evolutionary biology. http://www.stephenjaygould.org</p>	<p><i>Internet reference</i></p>	<p>Internet reference: “The Unofficial Stephen Jay Gould Archive.” And: “The site was put together by myself, <u>Miguel Chavez</u>, a student at Yuba College in Northern California.”</p> <p>This is a privately developed web site created to memorialize the late Stephen J. Gould. The site makes no claim to the accuracy or completeness of its content; it also presents the viewpoint of only one scientist. It is inappropriate as a reference source.</p> <p>Internet resources not included in the lesson have much more extensive resources available, for example: http://evolution.berkeley.edu/</p>
<p>3 p. 321</p>	<p>Technology Connections: •Have students use the Internet to search for resources on evolutionary biology. http://www.arn.org</p>	<p><i>Internet reference</i></p> <p>Access Research Network is a non-profit 501(c)(3) organization dedicated to providing accessible information on science, technology and society.</p> <p>Two-thirds of the Directors, Fellows, and staff of ARN also hold positions as Directors and Fellows with the Discovery Institute (including the Center for Science and Culture), including: “Steve Meyer, Mark Hartwig , Paul Nelson, Nancy Pearcey, Mike Behe , Phil Johnson (author of the Wedge Strategy), John Mark Reynolds, David Berlinski, Mike Keas, Richard Weikart, John Angus Campbell, Jonathon [sic] Wells, William Lane Craig, and Bill Dembski,” (source: http://www.arn.org/infopage/info.htm)</p>	<p>Internet reference: Access Research Network provides a forum for the discussion of Intelligent Design and for links to a variety of related websites, the majority of which (not exclusively) advocate Creationist perspectives.</p> <p>This site promotes Intelligent Design; thus, having it as a recommended resource in the Lesson Plan violates the benchmark indicator which states that, “The intent of this indicator does not mandate the teaching or testing of intelligent design.” It is inappropriate (and possibly illegal) as a reference source.</p>

<p>4 p. 321</p>	<p>Technology Connections: •Have students use the Internet to search for resources on evolutionary biology. http://www.objectivityinscience.org</p>	<p><i>Internet reference</i></p> <p><i>“The National Association for Objectivity in Science (“NAOS”) is a section 501(c)(3) non-profit organization, the primary purpose of which is to promote objectivity in the teaching of the theory of macroevolution. Currently, most high school and university biology textbooks used in the United States do not present any scientific arguments against the theory. NAOS seeks an even-handed, balanced, objective presentation, with the arguments both pro and con presented.”</i></p> <p>“THE PROBLEM</p> <p><i>“As stated above, most high school and university biology textbooks used in the United States do not present any scientific arguments against the theory of macroevolution. The failure to do so may lead a student to conclude that he or she is in fact the result of random, chance processes, and has not been created or designed for any special purpose. This in turn can have a devastating impact on the student, leading him or her to devalue human life and possibly to engage in drug abuse, sexual promiscuity, and violence, or even to commit suicide.</i></p> <p><i>“It is critical that a scientific theory that has potentially disastrous social consequences be presented objectively. The cause of truth and the general welfare of society are both promoted if the scientific arguments both for and against the theory of macroevolution are presented.”</i></p> <p><i>“NAOS does not advocate ‘six-day creationism.’ Rather, it seeks to show that there are very serious scientific problems with the theory of macroevolution, even assuming the multitudinous forms of life on earth have come into existence over a period of millions of years.”</i></p>	<p>Internet reference: The National Association for Objectivity in Science (NAOS) is an anti-evolution website. The description quoted here highlights the philosophical, religious and anti-scientific purposes of this organization.</p> <p>Most of the content on this site is drawn from creationist or intelligent design sources; it is inappropriate (and possibly illegal) as a reference source.</p>
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<p>p. 321</p>	<p>5 Technology Connections: •Have students use the Internet to search for resources on evolutionary biology. http://www.origins.org</p>	<p><i>Internet reference</i></p> <p>“Welcome to Origins. This site features scholarly and popular resources concerning intelligent design and philosophical theism.”</p> <p>“Origins.org focuses primarily on the scientific theory known as <u>Intelligent Design</u> and reaches one logical conclusion: that the universe and life show verifiable signs of intelligent creation because there is an intelligent Creator. Some of our resources deal with scientific data exclusively and some take the defensible position that the data point to and support the Biblical claim of Divine Creation. We let the resources speak on their own merits.</p> <p>“Intelligent Design keeps the issues of origins on middle ground and ensures open discussion. For instance, whether the earth was created eons ago or thousands of years ago, evidence is mounting that it was created by an intelligent designer. Intelligent Design provides a testable alternative theory to Darwinian macro-evolution. This leaves room for discussion at the table of reason, whether one is starting from Scripture or the laboratory, a Recent-Creation or an Old Earth position.”</p>	<p>Internet reference: Origins.org is an anti-evolution, Creationist web site owned by Christian Leadership Ministries, Carrollton, TX.</p> <p>“# Copyright (c) 1995, Christian Leadership Ministries # This data file is the sole property of Christian Leadership Ministries.# # It may not be altered or edited in any way. # This data file may not be used without the permission of Christian Leadership Ministries for resale or the enhancement of any other product sold.# Christian Leadership Ministries 3440 Sojourn Drive, Suite 200 Carrollton, TX 75006 (214)713-7130</p> <p>The site repeats the common Creationist arguments against evolution:</p> <ul style="list-style-type: none"> - random chance processes, - all mutations harmful, - philosophical materialism drives science, and - design apparent everywhere. <p>Most of the content on this site is drawn from Creationist or Intelligent Design sources; it is inappropriate (and possibly illegal) as a reference source.</p>
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<p>p. 321</p>	<p>6 Technology Connections: •Have students use the Internet to search for resources on evolutionary biology. http://genetics.nbi.gov</p>	<p><i>Internet reference</i></p>	<p>Internet reference: “The National Biological Information Infrastructure (NBII) (http://www.nbi.gov) is a broad, collaborative program to provide increased access to data and information on the nation's biological resources. The NBII links diverse, high-quality biological databases, information products, and analytical tools maintained by NBII partners and other contributors in government agencies, academic institutions, non-government organizations, and private industry. NBII partners and collaborators also work on new standards, tools, and technologies that make it easier to find, integrate, and apply biological resources information. Resource managers, scientists, educators, and the general public use the NBII to answer a wide range of questions related to the management, use, or conservation of this nation's biological resources.”</p> <p>“This NBII site is developed and maintained by the Center for Biological Informatics of the U.S. Geological Survey.” This site is sponsored by the U.S. government but many of the resources derive from other sources. This site presents recent information on research in genetics from a variety of government, university, and industry sources. It also has good background and introductory material for students and the public. Content of the site is technically reviewed before being posted. It is appropriate for use as a reference source.</p>
<p>p. 321</p>	<p>7 Technology Connections: •Have students use the Internet to search for resources on evolutionary biology. http://www.ucmp.berkeley.edu/history/evolution.html</p>	<p><i>Internet reference</i></p>	<p>Internet reference: “The University of California, Berkeley, Museum of Paleontology” provides an excellent collection of resources. This is an educational web site run by the University of California, Berkeley to provide comprehensive information to teachers and students on biological evolution. This is a high quality site for educational use. Its content is up-to-date, and is reviewed for technical accuracy and completeness before being posted. It is appropriate for use as a reference source. However, for this lesson, it might be more appropriate to reference: http://evolution.berkeley.edu/.</p>

8 p. 321	Technology Connections: •Have students use the Internet to search for resources on evolutionary biology. Access the Web site for student research at the Los Alamos National Laboratory, at http://set.lanl.gov for guidelines to the Socratic Method. From the homepage, navigate to Programs, and then Critical Issues Forum.	<i>Internet reference</i>	Internet reference: Los Alamos National Laboratory, University of California, operated by the U.S. Department of Energy. A more direct reference to the program resources is: http://set.lanl.gov/programs/cif/ . The scripted approach and erroneous definitions provided in this lesson plan do not allow the effective use of the Socratic Method of critical thinking.
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