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# TEACHING TOOLS



## Recent Publications Help Educators Deal With the “Evolution Debate”

by Mark A. Gonzalez

In 1925 and 1927, the Tennessee court system presided over the infamous Scopes Monkey trials, a case in which a science teacher, John Scopes, was tried and convicted for teaching evolution in his science class. Scopes was charged with violating a Tennessee statute that prohibited teaching anything contrary to the Bible, including the idea that humans descended from apes. Many scientists and college-educated people treated this case as some kind of aberration, which could be dismissed because it arose in a “backwards” part of Tennessee, a long, long time ago, when few people attained a high school, let alone college, education. Tennessee legislators eventually repealed the statute in 1967. Many scientists had begun to think of the Scopes trial as an isolated chapter in ancient U.S. history.

Challenges to the theory of evolution have been numerous and unending. In 1968, the U.S. Supreme Court struck down an Arkansas law that forbade the teaching of evolution. In 1981, the U.S. Supreme Court struck down a Louisiana law that would have required public school teachers to give balanced treatment of both “creation science” and evolution. Unfortunately, creation science is an oxymoron. It is not science and is founded on no data, a prerequisite of science. Furthermore, for most Judeo-Christian theologians, “creation science” holds a view of creation at odds with most mainstream Judeo-Christian denominations. Consider that more than a dozen mainstream religious organizations have made statements supporting evolution, including the American Jewish Congress, American Scientific Affiliation, the Center for Theology and the Natural Sciences, the Central Conference of American Rabbis, the Episcopal Church, General Convention, the Lutheran World Federation, the Roman Catholic Church, the United Church of Christ, the United Methodist Church, and the United Presbyterian Church (Source: Voices for Evolution, 1995). In 1950, Pope Pius XII stated in his encyclical *Humani Generis* that ... “*the theory of the evolutionary origin of the human body does not conflict with the Catholic faith...*” Pope John Paul II concurred in 1996, stating, “*Today, nearly half a century after the publication of the encyclical, new knowledge leads to the recognition of the theory of evolution as more than a hypothesis.*”

The emergence of an increasingly vociferous fundamentalist viewpoint and of a well-organized lobbying effort has led to numerous recent challenges to the teaching of evolution in science classes. In 1999, the Kansas Board of Education adopted a policy calling for the elimination of evolution from all state tests. The hope of the fundamentalist-controlled board was that if evolution was not part of any standardized tests, then teachers would not include it in their curriculum. A spirited counterattack by prominent scientists and science educators led to a near complete replacement of the fundamentalist board members in the next election. A more secular group of board members immediately repealed the policy of the 1999 board. Elsewhere, advocates of fundamentalism are calling for either the outright ban on the teaching of evolution, or the inclusion of other non-scientific views on evolution and creation in science classes.

Interestingly, a casual examination of geologists within the NDGS and throughout America shows that many, perhaps in proportion to the general public, consider themselves to be religious individuals and attend religious services on a regular basis. This is an important finding, because it indicates that religion serves an important part of many people’s, including many scientists’, lives. However, religion is a belief system founded on faith. Faith, religious beliefs, and spirituality are beyond the realm of science. The scientific method restricts the way information is analyzed and determines the means by which hypotheses are tested. As my former Methodist pastor in Denver, Dr. Harvey Martz, would say, “*It is not the purpose of the Bible to serve as a geology, paleontology, or biology textbook.*” Similarly, it is completely inappropriate to base any science curriculum on a faith-based system. To paraphrase Pope John Paul II, in the Scriptures, the Holy Spirit does not teach us “*how the heavens go, but how to go to heaven.*”

The American Geological Institute and the Paleontological Society have recently released two publications, which deal extensively and in laymen’s terms with the evolution debate. These publications are:

Pojeta, J., Jr., and Springer, Dale A., 2001. *Evolution and the Fossil Record: The American Geological Institute and The Paleontological Society*, Alexandria, Virginia, 27 p.

Scotchmoor, J., and Springer, D.A., (editors), 1999. *Evolution: Investigating the Evidence: The Paleontological Society, Special Publications v. 9*, 406 p. (Resource book for K-16 teachers providing multifaceted ideas and examples on presenting evolution).

All teachers of earth science and biology and every member of a school board should consider these publications required reading.

Religion and science are not mutually exclusive. However, just as science is incapable of proving or disproving the existence of God, religious scriptures and views were never intended to be part of a scientific study on the process of biological evolution. Science is a methodology for investigating and analyzing information. The conclusions of this methodology can be challenged and refuted, provided the same methodology is employed. Challenging scientific conclusions by use of faith-based processes of understanding is theoretically impossible. Creationist theory is not based on any scientific theory—it is not based on any scientific data. Religious creation is an important topic, but must be restricted to appropriate venues of study, such as sociology, history, and religion. It has no place in science curricula, because it does not employ the scientific method for the analysis of data. It employs a faith-based system of understanding, which is beyond the realm of science.



### **Surfing Safari**

Educators interested in obtaining additional on-line information on evolution can begin their search at some of the following web sites:

<http://www.agiweb.org/news/evolution/index.html>

Teachers can find the publication discussed above (*Evolution and the Fossil Record*) available on-line for free. Many of the tables and figures are available for download in color format.

<http://www.pbs.org/wgbh/evolution/educators/index.html>

This site contains a wealth of information for both teachers and students to review. There is a four-part video series in which teachers discuss various strategies for teaching evolution. The video series can be viewed on-line with QuickTime or RealPlayer software. There is also an eight-session professional development course available on-line, where teachers can examine major evolutionary concepts, explore teaching methodologies, and address obstacles to teaching evolution. Also, there is a free, 40-page teacher's guide, filled with engaging, curriculum-based activities and multimedia resources on science and evolution. Teachers can request a printed copy of the teacher's guide or they can download the guide in sections as PDF files. Finally, this web site contains a section on "Teacher's Guide to Web Resources", which greatly expands the web-accessible materials available to today's science teachers.

<http://www4.nas.edu/opus/evolve.nsf>

This site contains sections on frequently asked questions and information and central themes in evolution. Also, teachers can find a list of relevant publications on evolution, and another page includes links to numerous other web sites dealing with evolution.

Certainly this is far from an exhaustive list of evolution-related web sites. I suggest these because much of the content has been developed primarily for teachers.