



## Policies Dealing With Evolution in Select States

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### Overview

As is the case with many issues, in crafting standards for science education – especially those that deal with evolution – policymakers have had to grapple with competing demands of the citizenry. Setting policy on the teaching of evolution in public schools has a long history of provoking controversy, from the Scopes Monkey Trial in 1925 to Louisiana's 1981 [Balanced Treatment for Creation-Science and Evolution-Science Act](#), which was ruled unconstitutional in 1987 by the U.S. Supreme Court in [Edwards v. Aguillard](#).

Common arguments *against* teaching evolution include the following:

- It is only a theory and should therefore not be taught as though it is a fact.
- It promotes the religion of secular humanism.
- It is nothing more than a philosophy.
- The scientific assumptions underlying evolution are flawed.
- It undermines what parents are teaching their children.

Common arguments *for* teaching evolution include:

- The word "theory" in science has a different meaning than it does in general usage.
- Science and theology are different spheres of human knowledge and experience, neither need negate the other.
- Based on available evidence, it is the best scientific explanation available for the abundance of species currently observed on Earth.
- In the global economy of the 21st century, students who are not exposed to the latest scientific theories will be at a severe competitive disadvantage compared to those students who are.
- Those advocating against the teaching of evolution do not forward a testable scientific hypothesis.

States have chosen to address the topic of evolution in a number of ways, three in particular. Some states have implemented standards that are highly supportive of biological evolution; others address critical analysis of scientific theories, including evolution; and some states express varying levels of skepticism about the theory. This document presents examples of each approach at the state level, in addition to examples from local districts. The examples in this document are not intended to be exhaustive. [For print readers of this document, text for all hyperlinks may be found at the end of this document.]

Decisions about the inclusion of evolution in public school curriculum can have an effect beyond the curriculum in a single state. For example, in 2003 the Texas state board of education adopted biology textbooks that included references to evolution. As the second largest market for textbooks in the nation and a state with a statewide textbook adoption policy, Texas holds considerable power – as do other large statewide adoption states like Florida and California – to determine the content of science textbooks purchased by other states because textbook manufacturers tailor their products to conform to the requirements of a lucrative market.

## Examples of State-Level Action

### ***State Standards That Support Evolution Education***

Despite the controversy that is sometimes attached to the teaching of evolution, a number of states have standards in place that are highly supportive of the theory. These standards require that students be given a firm grounding in the various aspects of current evolutionary theory, which includes, for instance, analyzing the fossil record, Darwin's contribution to the theory and the different lines of scientific evidence that support the theory. Three such states are California, New Mexico and South Carolina.

#### **California (1998)**

California's [science content standards](#) contain specific standards for the teaching of biological evolution for 7th grade life sciences and 9th through 12th grade biology/life sciences.

The 7th-grade life sciences standards state: "Biological evolution accounts for the diversity of species developed through gradual processes over many generations." As a basis for understanding this concept students are expected to know:

- That both genetic variation and environmental factors are causes of evolution and diversity of organisms
- The reasoning used by Charles Darwin in reaching his conclusion that natural selection is the mechanism of evolution
- How independent lines of evidence from geology, fossils and comparative anatomy provide the bases for the theory of evolution
- How to construct a simple branching diagram to classify living groups of organisms by shared derived characteristics and how to expand the diagram to include fossil organisms
- That extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient for its survival.

The 9th through 12th grade biology/life sciences standards state: "The frequency of an allele in a gene pool of a population depends on many factors and may be stable or unstable over time." As a basis for understanding this concept, students are expected to know:

- Why natural selection acts on the phenotype rather than the genotype of an organism
- Why alleles that are lethal in a homozygous individual may be carried in a heterozygote and thus maintained in a gene pool
- That new mutations are constantly being generated in a gene pool
- That variation within a species increases the likelihood that at least some members of a species will survive under changed environmental conditions
- That the conditions for Hardy-Weinberg equilibrium in a population and why these conditions are not likely to appear in nature
- How to solve the Hardy-Weinberg equation to predict the frequency of genotypes in a population, given the frequency of phenotypes.

An additional concept that 9th through 12th grade students are expected to know is that "Evolution is the result of genetic changes that occur in constantly changing environments." As a basis for understanding this concept, students are expected to know:

- How natural selection determines the differential survival of groups of organisms
- That a great diversity of species increases the chance that at least some organisms survive major changes in the environment
- The effects of genetic drift on the diversity of organisms in a population
- That reproductive or geographic isolation affects speciation
- How to analyze fossil evidence with regard to biological diversity, episodic speciation, and mass extinction.
- How to use comparative embryology, DNA or protein sequence comparisons, and other independent sources of data to create a branching diagram (cladogram) that shows probable evolutionary relationships.
- How several independent molecular clocks, calibrated against each other and combined with evidence from the fossil record, can help to estimate how long ago various groups of organisms diverged evolutionarily from one another.

## **New Mexico (2003)**

New Mexico's [Science Content Standards, Benchmarks, and Performance Standards](#) address the teaching of biological evolution at the 7th grade level and at the 9th through 12th grade levels.

Benchmark II for 5th through 8th grade life sciences states that students will "[u]nderstand how traits are passed from one generation to the next and how species evolve." Performance standards for 7th grade students address what they are expected to know in the areas of reproduction, heredity and biological evolution.

Biological evolution performance standards:

7. Describe how typical traits may change from generation to generation due to environmental influences (e.g., color of skin, shape of eyes, camouflage, shape of beak).
8. Explain that diversity within a species is developed by gradual changes over many generations.
9. Know that organisms can acquire unique characteristics through naturally occurring genetic variations.
10. Identify adaptations that favor the survival of organisms in their environments (e.g., camouflage, shape of beak).
11. Understand the process of natural selection.
12. Explain how species adapt to changes in the environment or become extinct and that extinction of species is common in the history of living things.
13. Know that the fossil record documents the appearance, diversification, and extinction of many life forms.

Benchmark II for 9th through 12th grade life sciences states that students will "[u]nderstand the genetic basis for inheritance and the basic concepts of biological evolution."

Related performance standards as they relate to knowledge of genetics and biological evolution for 9th through 12th grade students:

### *Genetics*

1. Know how DNA carries all genetic information in the units of heredity called genes, including:
  - the structure of DNA (e.g., subunits A, G, C, T)
  - information-preserving replication of DNA
  - alteration of genes by inserting, deleting, or substituting parts of DNA.
2. Use appropriate vocabulary to describe inheritable traits (i.e., genotype, phenotype).
3. Explain the concepts of segregation, independent assortment, and dominant/recessive alleles.
4. Identify traits that can and cannot be inherited.
5. Know how genetic variability results from the recombination and mutation of genes, including:
  - sorting and recombination of genes in sexual reproduction result in a change in DNA that is passed on to offspring
  - radiation or chemical substances can cause mutations in cells, resulting in a permanent change in DNA.
6. Understand the principles of sexual and asexual reproduction, including meiosis and mitosis.
7. Know that most cells in the human body contain 23 pairs of chromosomes including one pair that determines sex, and that human females have two X chromosomes and human males have an X and a Y chromosome.

### *Biological Evolution*

8. Describe the evidence for the first appearance of life on Earth as one-celled organisms, over 3.5 billion years ago, and for the later appearance of a diversity of multicellular organisms over millions of years.
9. Critically analyze the data and observations supporting the conclusion that the species living on Earth today are related by descent from the ancestral one-celled organisms.
10. Understand the data, observations, and logic supporting the conclusion that species today evolved from earlier, distinctly different species, originating from the ancestral one-celled organisms.
11. Understand that evolution is a consequence of many factors, including the ability of organisms to reproduce, genetic variability, the effect of limited resources, and natural selection.
12. Explain how natural selection favors individuals who are better able to survive, reproduce, and leave offspring.

13. Analyze how evolution by natural selection and other mechanisms explains many phenomena including the fossil record of ancient life forms and similarities (both physical and molecular) among different species.

### South Carolina (2004)

South Carolina's [Biology I](#) course is designed to familiarize students with the major concepts of biological science, which includes biological evolution. Course standards are separated into the different concepts, with the section on biological evolution consisting of three components, two of which are excerpted below. State standards are laid out in each of these sections, along with expected student performance objectives or competencies. Also included in the standards – but not highlighted below – are suggested strategies, activities and labs.

**Component One:** *Species evolve over time. Evolution is the consequence of the interactions of (1) the potential for a species to increase its numbers, (2) the genetic variability of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, and (4) the ensuing selection by the environment of those offspring better able to survive and leave offspring.*

State Standard	Performance Objectives/Competencies
Demonstrate an understanding of the factors that affect evolution such as the number of offspring, genetic variability, finite supply of resources, and environmental factors.	<ul style="list-style-type: none"> <li>Define genetic variability.</li> <li>Explain/discuss factors that increase genetic variability to include sexual reproduction, mutation, and genetic recombination during crossing-over.</li> <li>Define carrying capacity and evaluate its role as a limiting factor.</li> </ul>
Demonstrate an understanding of the scientific evidence that establishes that change occurs over time.	<ul style="list-style-type: none"> <li>Distinguish between microevolution and macroevolution.</li> <li>Compare and contrast analogous, homologous, and vestigial structures and their role in determining evolutionary relationships.</li> <li>Analyze how fossils provide geological evidence of change over time.</li> <li>Understand how analysis of DNA base sequences and amino acid sequence in proteins can provide biochemical evidence of change over time.</li> <li>Discuss how examination of embryological features can provide evidence of common ancestry and change over time.</li> </ul>

**Component Two:** *Natural selection and its evolutionary consequences provide a scientific explanation for the fossil record of ancient life forms, as well as for the striking molecular similarities observed among the diverse species of living organisms.*

State Standard	Performance Objectives/Competencies
Demonstrate an understanding of the process of natural selection and its consequences.	<ul style="list-style-type: none"> <li>Explain that natural selection is the process responsible for evolution.</li> <li>Compare directional, stabilizing and disruptive natural selection.</li> <li>Account for why traits that do not confer an advantage may or may not disappear over time.</li> </ul>
Infer how the fossil record can reveal evolutionary changes over time.	<ul style="list-style-type: none"> <li>Discuss the process by which fossils are created.</li> <li>Demonstrate an understanding of why fossil remains do not leave a complete record of</li> </ul>

State Standard	Performance Objectives/Competencies
	evolution.
Discuss the various lines of scientific evidence that underlie our understanding of the evolution and diversification of life over time.	<ul style="list-style-type: none"> <li>• Compare and contrast homologous and analogous structures in organisms.</li> <li>• List and explain vestigial structures.</li> <li>• Compare similarities and embryonic development.</li> <li>• Compare similarities in macromolecules.</li> </ul>
Describe how carbon dating is utilized in the study of evolution.	<ul style="list-style-type: none"> <li>• Explain radioactive decay and half-life, discuss limitations of C-14.</li> <li>• Calculate the age of a fossil using C-14 data.</li> </ul>
Discuss Charles Darwin's contribution to the study of evolution.	<ul style="list-style-type: none"> <li>• Explain the uniqueness of islands (like the Galapagos) and the data they yield (i.e., sites of primary succession).</li> <li>• Assess the significance of <i>The Origin of Species</i>.</li> </ul>

### States with Standards Addressing Critical Analysis

Scientists must perform critical analysis of any theory to test its validity, and the science standards in Minnesota and Ohio address students' ability to critically analyze scientific theories, including the theory of evolution. Inclusion in this category should not be interpreted to mean that the science standards in these states are opposed to the teaching of evolution in public schools under their jurisdiction.

#### Minnesota (2003)

Minnesota's 7th through 12th grade life [science standards](#) – page 22 – state that students will "understand how biological evolution provides a scientific explanation for the fossil record of ancient life forms, as well as for the striking molecular similarities observed among the diverse species of living organisms."

Relevant benchmarks:

1. *The student will understand that species change over time and the term biological evolution is used to describe this process.*
2. *The student will use the principles of natural selection to explain the differential survival of groups of organisms as a consequence of:*
  - *The potential for a species to increase its numbers;*
  - *The genetic variability of offspring due to mutation and recombination of genes;*
  - *A finite supply of the resources required for life; and,*
  - *The ensuing selection based on environmental factors of those offspring better able to survive and produce reproductively successful offspring.*
3. *The student will describe how genetic variation between populations is due to different selective pressures acting on each population, which can lead to a new species.*
4. *The student will use biological evolution to explain the diversity of species.*

Referring to 9th through 12th grade students, Minnesota's [science standards](#) state – page 16 – that students will "understand the nature of scientific ways of thinking and that scientific knowledge changes and accumulates over time."

It is important to note that Minnesota's standards do not single out evolutionary theory for more scrutiny than what is required for other scientific theories. One of the state benchmarks states that students will "be able to explain how scientific and technological innovations as well as new evidence can challenge portions of or entire accepted theories and models including but not limited to cell theory, atomic theory, theory of evolution, plate tectonic theory, germ theory of disease and big bang theory."

Complete benchmarks:

1. *The student will be able to distinguish among hypothesis, theory and law as scientific terms and how they are used to answer a specific question.*



2. The student will be able to explain how scientific and technological innovations as well as new evidence can challenge portions of or entire accepted theories and models including but not limited to cell theory, atomic theory, theory of evolution, plate tectonic theory, germ theory of disease and big bang theory.

3. The student will recognize that in order to be valid, scientific knowledge must meet certain criteria including that it: be consistent with experimental, observational and inferential evidence about nature; follow rules of logic and reporting both methods and procedures; and, be falsifiable and open to criticism.

4. The student will explain how traditions of ethics, peer review, conflict and general consensus influences the conduct of science.

5. The student will recognize that some scientific ideas are incomplete, and opportunity exists in these areas for new advances.

### Ohio (2002)

Ohio's [Academic Content Standards](#) outline what students should know and be able to do. The academic content standards are not mandated, as Ohio's school districts exercise local control and determine their own curricula. All statewide assessments are based on the content standards.

The standards address the teaching of evolution at multiple grade levels, but are especially detailed at the 10th grade level:

State Benchmark	Grade-level Indicators
<p>Explain how evolutionary relationships contribute to an understanding of the unity and diversity of life.</p>	<ul style="list-style-type: none"> <li>• Describe that biological classification represents how organisms are related with species being the most fundamental unit of the classification system. Relate how biologists arrange organisms into a hierarchy of groups and subgroups based on similarities and differences that reflect their evolutionary relationships.</li> <li>• Explain that the variation of organisms within a species increases the likelihood that at least some members of a species will survive under gradually changing environmental conditions.</li> <li>• Relate diversity and adaptation to structures and their functions in living organisms (e.g., adaptive radiation).</li> </ul>
<p>Describe a foundation of biological evolution as the change in gene frequency of a population over time. Explain the historical and current scientific developments, mechanisms and processes of biological evolution. Describe how scientists continue to investigate and critically analyze aspects of evolutionary theory. (The intent of this benchmark does not mandate the teaching or testing of intelligent design.)</p>	<ul style="list-style-type: none"> <li>• Recognize that a change in gene frequency (genetic composition) in a population over time is a foundation of biological evolution.</li> <li>• Explain that natural selection provides the following mechanism for evolution; undirected variation in inherited characteristics exist within every species. These characteristics may give individuals an advantage or disadvantage compared to others in surviving and reproducing. The advantaged offspring are more likely to survive and reproduce. Therefore, the proportion of individuals that have advantageous characteristics will increase. When an environment changes, the survival value of some inherited characteristics may change.</li> <li>• Describe historical scientific developments that occurred in evolutionary thought (e.g., Lamarck and Darwin, Mendelian Genetics and modern synthesis).</li> </ul>

State Benchmark	Grade-level Indicators
	<ul style="list-style-type: none"> <li>Describe how scientists continue to investigate and critically analyze aspects of evolutionary theory. (The intent of this indicator does not mandate the teaching or testing of intelligent design.)</li> </ul>
<p>Explain how natural selection and other evolutionary mechanisms account for the unity and diversity of past and present life forms.</p>	<ul style="list-style-type: none"> <li>Analyze how natural selection and other evolutionary mechanisms (e.g. genetic drift, immigration, emigration, mutation) and their consequences provide a scientific explanation for the diversity and unity of past life forms, as depicted in the fossil record and present life forms.</li> <li>Explain that life on Earth is thought to have begun as simple, one-celled organisms approximately 4 billion years ago. During most of the history of Earth only single-celled microorganisms existed, but once cells with nuclei developed about a billion years ago, increasingly complex multicellular organisms evolved.</li> </ul>
<p>Summarize the historical development of scientific theories and ideas, and describe emerging issues in the study of life sciences.</p>	<ul style="list-style-type: none"> <li>Use historical examples to explain how new ideas are limited by the context in which they are conceived. These ideas are often rejected by the scientific establishment; sometimes spring from unexpected findings; and usually grow slowly through contributions from many different investigators (e.g., biological evolution, germ theory, biotechnology and discovering germs).</li> <li>Describe advances in life sciences that have important long-lasting effects on science and society (e.g., biological evolution, germ theory, biotechnology and discovering germs).</li> <li>Analyze and investigate emerging scientific issues (e.g., genetically modified food, stem cell research, genetic research and cloning).</li> </ul>

The state's academic standards also address two standards – *Scientific Inquiry* and *Scientific Ways of Knowing* – that describe the nature of scientific ways of thinking and behaving. *Scientific Inquiry* benchmarks are discussed on page 42 of the standards, with the relevant grade-level indicators detailed starting on page 80. *Scientific Ways of Knowing* benchmarks are discussed on page 44, with relevant grade-level indicators detailed starting on page 87.

In March 2004 the state board adopted a set of model lessons that included many lessons on evolution, including one lesson plan for 10th grade students: "[Critical Analysis of Evolution.](#)" Working in groups, students are instructed to research the five aspects of evolutionary theory: (1) anatomical and molecular homology, (2) the fossil record, (3) antibiotic resistance, (4) peppered moths and (5) endosymbiosis. At the end of the assignment, students are to write brief summaries describing various aspects of their research that have supported or challenged evolutionary theory. It is important to note that although model lessons provide an example that teachers may follow while teaching particular benchmarks and indicators, they are *not* mandated.

In February 2006, the state board [deleted](#) the model lesson plan, "Critical Analysis of Evolution," from the state board-approved curriculum along with the related 10th-grade life science benchmark and indicator. The board also referred the deleted model lesson, benchmark and indicator to the Achievement Committee to determine whether they should be replaced, and if so, to make an appropriate recommendation to the full board.

## States That Express Skepticism of Evolution

Perhaps the best-known recent action regarding education about evolution is the modification of the state's science standards by the Kansas State Board of Education in 2005. Also in 2005, Alabama adopted new science standards that address evolution education, although the preface to the new standards does retain some skepticism, and a disclaimer is placed into science textbooks.

### Kansas (2005)

In adopting Kansas' [Science Education Standards](#), the state board stated that, "Evolution is accepted by many scientists but questioned by some. The Board has heard credible scientific testimony that indeed there are significant debates about the evidence for key aspects of chemical and biological evolutionary theory." The standards include seven indicators for students in 8th through 12th grades under benchmark three, which states that students "will understand the major concept of the theory of biological evolution."

Indicator One states that students will "understand evolution, descent with modification, is a scientific explanation for the history of the diversification of organisms from common ancestors."

Additional specificity under indicator one includes:

- c. Patterns of diversification and extinction of organisms are documented in the fossil record. Evidence also indicates that simple, bacteria-like life may have existed billions of years ago. However, in many cases the fossil record is not consistent with gradual, unbroken sequences postulated by biological evolution.*
  
- f. The view that living things in all the major kingdoms are modified descendants of a common ancestor (described in the pattern of a branching tree) has been challenged in recent years by:
  - i. Discrepancies in the molecular evidence (e.g., differences in relatedness inferred from sequence studies of different proteins) previously thought to support that view.*
  - ii. A fossil record that shows sudden bursts of increased complexity (e.g., the Cambrian Explosion), long periods of stasis and the absence of abundant transitional forms rather than steady gradual increases in complexity, and*
  - iii. Studies that show animals follow different rather than identical early stages of embryological development.**

Indicator Three states that students will understand that "biological evolution is used to explain the earth's present day biodiversity: the number, variety and variability of organisms."

Additional specificity under Indicator Three:

- a. Separate populations within a species may become sufficiently different enough that new species develop. This process is called speciation.*
- b. Changes in inherited traits accumulate in populations.*
- c. Historically only a small percentage of species have survived to modern times.*
- d. Whether microevolution (change within a species) can be extrapolated to explain macroevolutionary changes (such as new complex organs or body plans and new biochemical systems which appear irreducibly complex) is controversial. These kinds of macroevolutionary explanations generally are not based on direct observations and often reflect historical narratives based on inferences from indirect or circumstantial evidence.*

Indicators Seven states that students will explain "proposed scientific explanations of the origin of life as well as scientific criticisms of those explanations."

Additional specificity under Indicator Seven:

- Some of the scientific criticisms include:*
  - a. A lack of empirical evidence for a "primordial soup" or a chemically hospitable pre-biotic atmosphere;*
  - b. The lack of adequate natural explanations for the genetic code, the sequences of genetic information necessary to specify life, the biochemical machinery needed to translate genetic information into functional biosystems, and the formation of proto-cells; and*



c. The sudden rather than gradual emergence of organisms near the time that the Earth first became habitable.

### **Alabama (2005)**

The preface to Alabama's 2005 [science standards](#) (readers may experience a delay in opening link) states:

*The theory of evolution by natural selection, a theory included in this document, states that natural selection provides the basis for the modern scientific explanation for the diversity of living things. Since natural selection has been observed to play a role in influencing small changes in a population, it is assumed, based on the study of artifacts, that it produces large changes, even though this has not been directly observed. Because of its importance and implications, students should understand the nature of evolutionary theories. They should learn to make distinctions among the multiple meanings of evolution, to distinguish between observations and assumptions used to draw conclusions, and to wrestle with the unanswered questions and unresolved problems still faced by evolutionary theory.*

In November of 2005, the state board of education voted to continue a requirement that science textbooks contain the disclaimer, "evolution is a controversial theory."

### **Other State Action**

#### **Kentucky (1976)**

[KY. REV. STAT. ANN. § 158.177](#)

In 1976, the Kentucky legislature asserted a teacher's right to include the Bible theory of creation in any class concerning the "theories of the creation of man and the earth, and which involves the theory thereon commonly known as evolution[.]" The statute was repealed and reenacted with the same section number in 1990.

*(1) In any public school instruction concerning the theories of the creation of man and the earth, and which involves the theory thereon commonly known as evolution, any teacher so desiring may include as a portion of such instruction the theory of creation as presented in the Bible, and may accordingly read such passages in the Bible as are deemed necessary for instruction on the theory of creation, thereby affording students a choice as to which such theory to accept.*

*(2) For those students receiving such instruction, and who accept the Bible theory of creation, credit shall be permitted on any examination in which adherence to such theory is propounded, provided the response is correct according to the instruction received.*

*(3) No teacher in a public school may stress any particular denominational religious belief.*

*(4) This section is not to be construed as being adverse to any decision which has been rendered by any court of competent jurisdiction.*

### **Examples of Action in Individual Counties/Districts**

#### **Cobb County, Georgia**

In 2002, the Cobb County school district placed stickers on science textbooks stating that, "This textbook contains material on evolution. Evolution is a theory, not a fact, regarding the origin of living things. This material should be approached with an open mind, studied carefully, and critically considered."

In January 2005, the U.S. District Court for the Northern District of Georgia [found that the policy](#) "violate[d] the Establishment Clause of the First Amendment and Article I, Section II, Paragraph VII of the [Constitution](#) of the State of Georgia." The court ordered the district to remove the stickers from all science textbooks and prohibited the district from disseminating the sticker in any form. As of December 2005, the case is under appeal.

## Dover, Pennsylvania

In 2004, the Dover school board decided to read the [following statement](#) prior to portions of biology class that dealt with evolution:

*The Pennsylvania [Academic Standards](#) require students to learn about Darwin's theory of evolution and eventually to take a standardized test of which evolution is a part.*

*Because Darwin's theory is a theory, it continues to be tested as new evidence is discovered. The theory is not a fact. Gaps in the theory exist for which there is no evidence. A theory is defined as a well-tested explanation that unifies a broad range of observations.*

*Intelligent design is an explanation of the origin of life that differs from Darwin's view. The reference book, 'Of Pandas and People,' is available for students who might be interested in gaining an understanding of what intelligent design actually involves.*

*With respect to any theory, students are encouraged to keep an open mind. The school leaves the discussion of the origins of life to individual students and their families. As a standards-driven district, class instruction focuses upon preparing students to achieve proficiency on standards-based assessments.*

In December 2005, the U.S. District Court for the Middle District of Pennsylvania ruled that the school board's decision to require biology students to hear about intelligent design was unconstitutional in [Kitzmiller vs. Dover School District](#). In the ruling, the judge found that the "Defendants' [Intelligent Design] Policy violates the Establishment Clause of the First Amendment of the Constitution of the United States and Art. I, § 3 of the [Constitution](#) of the Commonwealth of Pennsylvania."

### Text of hotlinks:

*Balanced Treatment for Creation-Science and Evolution-Science Act:*

<http://www.legis.state.la.us/lss/lss.asp?doc=80458>

*Edwards v. Aguillard:*

<http://caselaw.lp.findlaw.com/scripts/getcase.pl?navby=CASE&court=US&vol=482&page=578>

California science content standards: <http://www.cde.ca.gov/re/pn/fd/documents/sci-stnd.pdf>

New Mexico Science Content Standards, Benchmarks, and Performance Standards:

[http://www.ped.state.nm.us/cilt/downloads/science/science\\_standards.pdf](http://www.ped.state.nm.us/cilt/downloads/science/science_standards.pdf)

South Carolina Biology I course standards:

<http://www.myscschools.com/offices/cso/standards/science/documents/Biology1courseguide09-2004.doc>

Minnesota science standards: <http://education.state.mn.us/mde/static/000282.pdf>

Ohio science standards Academic Content Standards:

[http://www.ode.state.oh.us/academic\\_content\\_standards/ScienceContentStd/PDF/SCIENCE.pdf](http://www.ode.state.oh.us/academic_content_standards/ScienceContentStd/PDF/SCIENCE.pdf)

Ohio "Critical Analysis of Evolution":

[http://www.ode.state.oh.us/academic\\_content\\_standards/sciencesboe/pdf\\_setA/L10-H23\\_Critical\\_Analysis\\_of\\_Evolution\\_Mar\\_SBOE\\_changes.pdf](http://www.ode.state.oh.us/academic_content_standards/sciencesboe/pdf_setA/L10-H23_Critical_Analysis_of_Evolution_Mar_SBOE_changes.pdf)

February 2006 Ohio State Board Brief:

<http://www.ode.state.oh.us/board/meetings/February06/default.asp?pfv=True>

Kansas Science Education Standards: <http://www.ksde.org/outcomes/sciencstd.pdf>

Alabama science standards: <ftp://ftp.alsde.edu/documents/54/01SciTOC.rtf>

KY. REV. STAT. ANN. § 158.177: <http://www.lrc.ky.gov/KRS/158-00/177.PDF>

*Selman v. Cobb County School District*: <http://www.talkorigins.org/faqs/cobb/selman-v-cobb.html>

Georgia Constitution: <http://www.law.emory.edu/GEORGIA/gaconst.html>

Dover school district statement: [http://www.dover.k12.pa.us/doversd/lib/doversd/\\_shared/Letter to Parents about Biology Curriculum--011005.pdf](http://www.dover.k12.pa.us/doversd/lib/doversd/_shared/Letter to Parents about Biology Curriculum--011005.pdf)

Pennsylvania Academic Standards: <http://www.pde.state.pa.us/k12/lib/k12/scitech.pdf>

*Kitzmiller v. Dover School District*: [http://www.pamd.uscourts.gov/kitzmiller/kitzmiller\\_342.pdf](http://www.pamd.uscourts.gov/kitzmiller/kitzmiller_342.pdf)

Pennsylvania Constitution: [http://www.dgs.state.pa.us/dgs/lib/dgs/pa\\_manual/section2/article\\_i.pdf](http://www.dgs.state.pa.us/dgs/lib/dgs/pa_manual/section2/article_i.pdf)

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## ***Helping State Leaders Shape Education Policy***