



A Position Statement of the

**Michigan Science Teachers Association**  
on  
**The Nature of Science & Evolution Education**

It is the mission of the Michigan Science Teachers Association (MSTA) to support and provide leadership for the improvement of science education throughout Michigan. In fulfillment of this mission, the MSTA recognizes that it is essential that students be introduced to the most contemporary scientific scholarship available. The MSTA recognizes that evolutionary theory is representative of this contemporary scientific scholarship as is evident by the scientific community's resounding consensus on the validity of evolutionary theory.

The goal of science is the establishment of scientific theory which is then employed as a predictive tool. In colloquial usage, theory implies a guess or a hunch. However, in science theory represents the complete opposite. The National Academy of Sciences defines theory as a "...well substantiated explanation of some aspect of the natural world that incorporates facts, laws, inferences and tested hypotheses". Scientific theory and therefore evolutionary theory is the antithesis of a guess.

However, in spite of the scientific community's repeated validation of evolutionary theory, there continues to be socio-political pressure to eliminate or weaken the instruction of evolutionary theory and/or to introduce non-scientific ideologies into the science classroom. Opponents of evolution education have suggested that evolutionary theory does not represent an empirically (tested) derived body of knowledge. This assertion demonstrates a profound misunderstanding of the nature and process of science

Scientists view and seek to explain the natural world through the empirical lens of science. The nature of scientific investigation is to ask a question and then to work to find the answer. While philosophy and theology are valuable forms of human inquiry that also seek to explain our world, science is unique in its approach by relying exclusively upon empirical natural law (e.g., the laws of physics, chemistry, geology, etc.) in its explanation and not upon supernatural intervention or untestable conjecture. It is this testability that is a hallmark of the nature and process of science. Scientific hypotheses and theories must be testable against the natural world and therefore at least be potentially falsifiable. Furthermore, any conclusions formulated from these tests are tentative pending

new data to the contrary. As our scientific knowledge expands and provides us with better insights into the natural world, science is able to modify previous conclusions and theory to incorporate this new knowledge. Like all scientific theories, evolutionary theory is dynamic and will be modified as new information becomes available.

It is these properties of the nature of science that separates scientific inquiry from theology or philosophy and therefore specifically excludes from the science classroom such non-scientific ideologies as “creation science”, “creationism”, “intelligent design” or other non-scientific “alternatives to evolution” as they do not meet the characteristics and rigor of scientific empiricism.

Although scientists continue to discuss and even disagree on some of the finer details of natural selection, the process that governs evolution, there is an overwhelming consensus in the scientific community that evolution has happened in the past and is occurring today and that furthermore, evolutionary theory is the best and only scientific explanation to explain the origin and diversification of life on Earth. By the very nature of science, there will always be questions that remain unanswered because in the process of answering a question or solving a problem, more questions arise; an admirable quality of science.

The scientific community’s strong advocacy for evolution theory is a result of the preponderance of corroborating empirical data originating from virtually all disciplines of the physical and biological sciences. The scientific community regards evolutionary theory as one of the most robust and well-substantiated scientific theories to date as evolutionary theory represents the convergence of corroborating evidence from independent lines of scientific investigation.

It is the position of the Michigan Science Teachers Association that evolutionary theory is an integral, validated and therefore essential component of modern scientific inquiry and should therefore be taught in a manner commensurate with this importance. Furthermore, it is the position of the MSTA that teachers should teach only evolutionary theory as a scientific explanation of the development and diversification of life on Earth. Evolution should be taught unaccompanied by non-scientific ideologies offered as “alternatives” to evolution. Teaching theological or philosophical explanations alongside or in place of evolution theory would not make the classroom presentation “fair or equal” but would result in the offering of false scientific alternatives to our students which would be a violation of academic honesty and our professional responsibilities as trustees of our student’s academic development and science literacy.

Approved: Michigan Science Teacher Association Board of Directors, September 2015