

NORTH CAROLINA STANDARD COURSE OF STUDY

SCIENCE

Introduction to the Standards

The standards-based reform movement in science education began with the publication of *Science for All Americans* (AAAS, 1989) and represented a significant step forward for the science education community. It sought to establish a coherent science education system to provide all students with the knowledge and skills necessary for life in the 21st Century. Over the years a broad consensus has emerged within the science education community that we must address the issues of coherence, articulation, and the sheer number of standards, as well as how to use the existing body of research concerning what is most important to teach and when and how to teach it (NSTA Science Anchors, 2009).

Science is a difficult concept to define precisely: different people have different understandings of what science is and what science means. Physics professor Brian Greene crafted an eloquent description of what science is and should be:

Science is a way of life. Science is a perspective. Science is the process that takes us from confusion to understanding in a manner that's precise, predictive and reliable — a transformation, for those lucky enough to experience it, that is empowering and emotional. To be able to think through and grasp explanations — for everything from why the sky is blue to how life formed on earth — not because they are declared dogma but rather because they reveal patterns confirmed by experiment and observation, is one of the most precious of human experiences.

New York Times Op-Ed, 06/01/08

Inherent in this description is one of the major reasons that science is so complex. It is both process (experiment and observation) and content (understandings, patterns, and explanations). Too much emphasis on either content or process undermines the very essence of science. Content and process work together and cannot be separated.

Certainly not all students are going to become scientists. However, all students can achieve some degree of scientific literacy. The authors of the *National Science Education Standards* define scientific literacy as “the knowledge and understanding of scientific concepts and processes required for scientific decision making, participation in civic and cultural affairs, and economic productivity” (p.22). Therefore, the *North Carolina Science Essential Standards*, from Kindergarten through high school, must be sufficiently **rigorous** to produce scientists while at the same time being sufficiently **relevant** to entice all students to become scientifically literate.