

North Carolina State Department of Public Instruction

<http://www.ncpublicschools.org/curriculum/science/scos/2004/18middlegrades>

PURPOSE

The science component of the *North Carolina Standard Course of Study* (SCS) is designed to provide learning opportunities for all students to become scientifically literate. Scientific literacy implies an understanding of the scientific concepts and processes needed for personal decision-making, participation in civic affairs, and economic productivity. A scientifically literate person has a substantial understanding of scientific concepts and inquiry skills, which enable one to continue to learn and think logically. This person understands and appreciates the limits of science and technology. North Carolina students can achieve scientific literacy through an instructional program based on the science component of the SCS. The intent of the science program is to merge unifying concepts of science, strands, content goals, and objectives.

Middle School Education

The middle school science section of the SCS continues to integrate the unifying concepts of science to provide continuity in science instruction across grade levels and between science disciplines. These unifying concepts are:

- Systems, Order and Organization.
- Evidence, Models, and Explanation.
- Constancy, Change, and Measurement.
- Evolution and Equilibrium.
- Form and Function.

The middle school section of the SCS includes four strands that provide the context for teaching the goals and objectives. The strands encompass:

- Nature of Science.
- Science as Inquiry.
- Science and Technology.
- Science in Social and Personal Perspectives.

By the end of eighth grade, all students should have constructed understanding of the following concepts, theories, and universal laws:

- Human body systems.
- Basic heredity and genetics.
- Population dynamics.
- Diversity and adaptations of organisms.
- Change over time of life and landforms.
- Structure of the earth system.
- Earth in the universe.
- Transfer of energy.
- Motion and forces.
- General and interacting properties of matter.
- Basic cellular biology.

MIDDLE GRADES 6-8

The middle school science component of the SCS focuses on the Unifying Concepts of Science as identified by the National Science Education Standards. The unifying concepts and the Strands should be integrated with science content goals and objectives for middle school.

The Unifying Concepts of Science consist of:

- Systems, Order, and Organization
- Evidence, Models, and Explanation.
- Constancy, Change, and Measurement.
- Evolution and Equilibrium.
- Form and Function.

The **Strands** include the following goals:

Nature of Science

As a result of activities in grades 6-8, all students should develop an understanding of:

- Science as a human endeavor.
- Nature of scientific knowledge.
- Historical perspectives.

Science as Inquiry

As a result of activities in grades 6-8, all students should develop an understanding of:

- Ability to do scientific inquiry.
- Understanding about scientific inquiry.
- Ability to perform safe and appropriate manipulation of materials, scientific equipment, and technology.
- Mastery of integrated process skills.
 - acquiring, processing, and interpreting data
 - identifying variables and their relationships
 - designing investigations
 - experimenting
 - analyzing investigations
 - constructing hypotheses
 - formulating models

Science and Technology

As a result of activities in grades 6-8, all students should develop an understanding of:

- What technologies are.
- Ability to perform technological design.
- Understanding science and technology.

Science in Personal and Social Perspectives

As a result of activities in grades 6-8, all students should develop an understanding of:

- Personal and community health.
- Population dynamics/Environmental quality
- Natural and human-induced hazards.
- Science and technology in local, national, and global challenges.
- Careers in science and technology.

