The following is a sample from the Indiana Academic Standards document posted at **www.indianastandards.org**.

Grade 4

Overview

The Indiana Academic Standards for Science contain six standards. Each standard is described below. *Age-appropriate concepts listed underneath each standard specifically tied to the Falls of the Ohio State Park and its interpretive programs are available upon request. Please let us know which grade you teach.* These ideas build a foundation for understanding the intent of each standard.

Standard 1

The Nature of Science and Technology

It is the union of science and technology that forms the scientific endeavor and that makes it so successful. Although each of these human enterprises has a character and history of its own, each is dependent on and reinforces the other. This first standard draws portraits of science and technology that emphasize their roles in the scientific endeavor and reveal some of the similarities and connections between them. In order for students to truly understand the nature of science and technology, they must model the process of scientific investigation through inquiries, fieldwork, lab work, etc. Through these experiences, students will practice designing investigations and experiments, making observations, and formulating theories based on evidence.

Standard 2

Scientific Thinking

There are certain thinking skills associated with science, mathematics, and technology that young people need to develop during their school years. These are mostly, but not exclusively, mathematical and logical skills that are essential tools for both formal and informal learning and for a lifetime of participation in society as a whole. Good communication is also essential in order to both receive information and disseminate it; to understand others' ideas as well as have one's own ideas understood. Writing, in the form of journals, essays, lab reports, procedural summaries, etc., should be an integral component of students' experiences in science.

Standard 3

The Physical Setting

One of the grand success stories of science is the unification of the physical universe. It turns out that all natural objects, events, and processes are connected to each other. This standard contains recommendations for basic knowledge about the overall structure of the universe and the physical principles on which it seems to run, with emphasis on the Earth and the solar system. This standard focuses on two principle subjects: the structure of the universe and the major processes that have shaped the planet Earth, and the concepts with which science describes the physical world in general — organized under the headings of *Matter and Energy* and *Forces of Nature*. In Grade 4, students learn that the properties of rocks and reflect the processes that formed them. They investigate force and energy.

Standard 4

The Living Environment

People have long been curious about living things — how many different species there are, what they are like, how they relate to each other, and how they behave. Living organisms are made of the same components as all other matter, involve the same kinds of transformations of energy, and move using the same basic kinds of forces. Thus, all of the physical principles discussed in Standard 3 ? The Physical Setting, apply to life as well as to stars, raindrops, and television sets. This standard offers recommendations on basic knowledge about how living things function and how they interact with one another and their environment. In Grade 4, students learn that all organisms need energy and matter to live and grow.

Standard 5

The Mathematical World

Mathematics is essentially a process of thinking that involves building and applying abstract, logically connected networks of ideas. These ideas often arise from the need to solve problems in science, technology, and everyday life; problems ranging from how to model certain aspects of a complex scientific problem to how to balance a checkbook.

Standard 6

Common Themes

Some important themes pervade science, mathematics, and technology and appear over and over again, whether we are looking at ancient civilization, the human body, or a comet. They are ideas that transcend disciplinary boundaries and prove fruitful in explanation, in theory, in observation, and in design. A focus on *Constancy and Change* within this standard provides students opportunities to engage in long-term and on-going laboratory and fieldwork, and thus understand the role of change over time in studying the Physical Setting and the Living Environment.