

A Point in Time Program

Intermediate and Advanced Level Science
Core Curriculum Grades 6-12

Overview:

- Standard 1, Key Idea 1, 2, 3
- Standard 2, Key Idea 1, 2, 3
- Standard 4, Key Idea 1, 3, 5, 7
- Standard 6, Key Idea 1
- Standard 7, Key Idea 1, 2



Note: The blue text explains how the standard directly applies to the program.

Standard 1: Analysis, Inquiry, and Design
Scientific Inquiry

Key Idea 1: The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.

Students will explore the Albany Pine Bush Preserve on a guided hike and discover the many forms of change in the natural world.

Key Idea 2: Beyond the use of reasoning and consensus, scientific inquiry involves the testing of proposed explanations involving the use of conventional techniques and procedures and usually requiring considerable ingenuity.

Students will use their creative and educated minds to hypothesize how different changes effect the environment both visually and ecologically.

Key Idea 3: The observations made while testing proposed explanations, when analyzed using conventional and invented methods, provides new insights into phenomena.

With the online photo point tool, Nature Cache, students can observe how particular photo points have changed over time. They can investigate what specific changes

occurred and how these changes influenced the environment.

Standard 2: Information Systems

Key Idea 1: Information technology is used to retrieve, process, and communicate information as a tool to enhance learning.

Using hand held GPS units, students will work in groups to find a predetermined photo point. Once the location is found, they will have to use a compass to orient themselves to the exact directional from which the photo will be taken.

Key Idea 2: Knowledge of the impacts of information systems is essential to its effectiveness and ethical use.

While learning how GPS units work, students will understand the variety of applications as well as the limitations.

Key Idea 3: Information technology can have positive and negative impacts on society, depending upon how it is used.

This program includes an introduction to GPS and how it can be used to benefit communities and society at large

Standard 4: The Living Environment

Key Idea 1: Living things are both similar to and different from each other and from nonliving things.

Students will learn to identify unique and special pine barren plants while engaging in a guided hike.

Key Idea 3: Individual organisms and species change over time.

Students will observe change at specific photo points before the program as they explore the Nature Cache website. During the program, they will document the

current environmental state of the photo point and add their data to the website back at the classroom.

Key Idea 5: Organisms maintain a dynamic equilibrium that sustains life.

While exploring natural and unnatural change in the Pine Bush, students will come to understand that change is a constant factor in the natural world. Despite constant change, organisms are able to maintain themselves and their role in the ecosystem.

Key Idea 7: Human decisions and activities have had a profound impact on the physical and living environment.

Human decisions and impacts are unavoidable in the Preserve and will be discussed in this program. There are elements of human influence at each photo point.

Standard 6: Interconnectedness: Common Themes Systems Thinking

Key Idea 1: Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.

All change in the natural world is connected. One change influences or creates another change, and this perpetuates the cycle. This will be discussed as students explore change during the walk and at the photo point.

Standard 7: Interdisciplinary Problem Solving Connections

Key Idea 1: The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision making, design, and inquiry into phenomena.

Using modern GPS technology and digital photography, students will observe change in the Pine Bush Preserve. The photos that students take will be compared to

historical photos and examined for changes in the environment.

Strategies

Key Idea 2: Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.

Students will work together in small groups to manipulate their GPS devices to find a predetermined photo point.