

Scientific Inquiry, Technology, and Nature

As technology integration specialists at Hatboro-Horsham School District in Pennsylvania, we wanted to build a curricular environment that would foster critical thinking and creativity. We embarked on a path to create a hands-on learning experience for our fifth graders that would emphasize scientific inquiry.

Our district owns 24 acres of land, known as the Jarrett Nature Center (JNC). The land has a wide range of natural ecosystems, including a pond, a woodland, a wetland, and a meadow, offering a wealth of opportunities to study the environment. Any type of outdoor space that provides at least one ecosystem can be equally effective.

Using project-based learning and Understanding by Design methodologies, we posed to students the following essential question: “Why is it important to preserve the earth’s natural environment?” We then gave them a real-world problem to solve:

A builder is planning to remove a part of the JNC. Your job is to research and determine what effects this would have on the natural environment.

First, students paired up to create questions that would launch their research. They posted their questions to a blog and later discussed which ones to pursue for their project. The questions that consistently appeared were posted on a WebQuest for all fifth graders to view. These were:

- What plants and animals (and other living things) live in the JNC?
- What do the animals at the JNC eat (the food chain)?
- What are the ecosystems in the JNC?



With the above questions in mind, students divided into groups and ventured out into the JNC. One person from each team carried a backpack loaded with a NOVA 5000 laptop computer, a digital camera, a magnifying glass, a microphone, and a timer. Students worked in their teams to make journal notes and document the living and nonliving things in each ecosystem of the JNC. Team members took turns using each piece of equipment at each ecosystem.

Returning to their technology classes, students then created multimedia tours using Photo Story 3. They organized their photos, wrote detailed descriptions, narrated their stories, and used music to create a focused, multisensory story about their trip. We evaluated the multimedia projects based on an 18-point rubric, which stressed organization and structure of the story as well as whether the ideas were well developed.

Students continued the project by researching one organism and its related ecosystem at the JNC. The

students wrote persuasive letters to the Horsham Township Commissioner stating their viewpoints about the impact of a fictitious company, PaveltAll Inc., bulldozing the ecosystem they were studying.

The letters referred not only to the obvious—the benefit that oxygen provides in maintaining natural environments—but also to the medicinal benefits of specific trees, the human pleasure of eating apples and berries that proliferate in the JNC, and the possible extinction of animals due to the loss of their habitats.

When they had finished their projects, students posted all of their findings on a webpage. Through the fictitious letters they wrote to the township planning commissioner,



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