

What is Project-based Learning?

Project-based learning is a structure that transforms teaching from "teachers telling" to "students doing." More specifically, project-based learning can be defined as:

- Engaging learning experiences that involve students in complex, real world projects through which they develop and apply skills and knowledge.
- A strategy that recognizes that significant learning taps students' inherent drive to learn, capability to do important work, and need to be taken seriously.
- Learning in which curricular outcomes can be identified up-front, but in which the outcomes of the student's learning process are neither predetermined nor fully predictable.
- Learning that requires students to draw from many information disciplines in order to solve problems.
- Experiences through which students learn to manage and allocate resources such as time and materials.

Examples of Projects

The two projects described below are actual examples of interdisciplinary projects that were successfully used in a classroom.

A Project on Pets

A class of elementary students was very interested in pets. Students began by writing down their ideas, reviewing them and refining them. Each student wrote and illustrated a story about pets; these were revised, proofread and published in a class book. Beginning activities included making pet folders for storing work, reading pet ads, measuring and weighing pet supplies, making a pet dictionary and making bar graphs of their favorite pets. The students wrote about pets in their daily journal, and asked open-ended questions.

Parents and community members began to visit the classroom, bringing pets. Students took notes, drew sketches, measured, and examined the pets. As the project continued, students began making suggestions for turning the classroom into a pet store. The class discussed this idea and came up with very creative suggestions. Each child decided upon one animal that they wanted to study and made notes in their journal about their plans and supplies they would need, then they were grouped with others who wanted to study the same pet. All of the groups made some type of artistic rendition of their animals, then wrote books about them, or created a game, some even made a movie.

Throughout the project students continued to write in their journals, interview people about pets, and ask questions of one another.

The final culmination of the project was the "Grand Opening" of their pet store attended by 73 people who circulated the "store" looking at the animals, books, pamphlets, artifacts, graphs, notes, sketches, paintings, diagrams, posters, and graphs, while the video of the entire project was playing on the TV in the front of the room.

Water Pollution Project

This project was a collaborative effort between high school students in Brazil and 3rd through 6th grade students in San Jose, California. The students studied the ecological concerns related to water pollution in order to bring about a cultural and political understanding between the Brazilian and American students involved in this project.

The following is the scenario given to the students at the start of the project:

Congratulations! You have been invited to be a delegate at an important international conference on the state of the world's water. The task of this conference is to develop a list of recommendations that nations should enact into law so we can improve the quality of water on our planet.

Over the course of the project the students developed multiple tasks that needed to be undertaken in order to complete the project. Here is a break down of the steps undertaken in this project:

- Generative, constructive tasks (or "performances of understanding")
- Water quality testing and experiments
- Research on the history of the two watersheds
- Written assignments
- Artist creation
- Creation of Web site and multimedia products
- Complex, multi-faceted investigations
 - Comparison of results of water quality testing in Sao Paulo and the San Francisco Bay Area
 - Analysis of test results and the implications for both regions
 - Creation of Web site for the project
 - Synthesizing the possible solutions to the problem
 - Connections to the community and world of work
 - Use of on-line collaboration tools (working in a global economy)
 - Suggesting solutions to the problem of water pollution to politicians
 - Conducting scientific research and posting the results on the Internet for other to see and use.

Assessment:

- Changes in standardized test scores
- Portfolio evidence of learning evaluated against national or statewide standards, etc.
- Student journals and logs
- Checklists
- Ongoing checklists to determine what students have done and need to do as they work on their projects

This project was one of the 10 semi-finalist projects for the Intel Award, and it was feature at the Award Winning Blossom Valley Learning Consortium's Annual Young Authors' and Multimedia Faire. Linda Roberts from the U.S. Department of Education and a delegation from the Brazilian Ministry of Education visited Edenvale School to observe students engaged in this project. The project is included in *Global Project Based Learning with Technology* by Kiyomi Hutchings and Mark Standley, Visions Technology in Education Series, Portland Oregon, 2001.