

Problem-Based Projects

The following projects take the learner above and beyond knowledge and comprehension. These lessons are based on the application, analysis, synthesis and evaluation levels of Bloom's taxonomy. Learners will use information from their experience with the Hoover Dam learning node software to respond to a problem-based learning scenario. This requires a higher level of thinking, and should be implemented after completion of the study guide questions. It is up to the instructor to decide how many of these problem-based learning scenarios students will complete. An evaluation checklist is provided with each project, which can be used in a variety of ways. It can be used as a check sheet for the student in its original form, or the instructor can add point values for each item. The following pages outline the learning objectives and details of each project.

Project #1: Tour Guide Training Presentation

The learner will create a tour presentation outlining the features of Hoover Dam.

In this project, the learner takes on the role of a Tour Guide Trainer who must develop a script for a guided tour of Hoover Dam used for training purposes. Using information from the Hoover Dam learning node, images from various websites and any additional resources, the learner will create a presentation integrating operational and aesthetic features of the dam with construction history and political events surrounding its development. A project sheet and evaluation check list are included in the copying masters section on pages 1-2.

Project #2: Resume Writing

The learner will write a resume for a chosen science-related career.

There are many science professionals employed at the Hoover Dam and around the world. This activity is designed for those students who are interested in pursuing science-related careers in the future. In this project, learners will research a chosen science career using the Department of Labor website and other online resources to develop a resume that includes evidence of the required education and skills. Independent research will include finding universities that offer the required degrees and companies that would employ science professionals. The main aims of this project are to provide the learner with real-world writing experience and to motivate the learner to achieve educational and personal goals. A project sheet and evaluation check list are included in the copying masters section on pages 3-4.

Project #3: Hydropower Animation Storyboard

The learner will design an animation storyboard to explain hydropower.

This project is designed for learners interested in drawing or animation. The learner will take on the role of an animation artist hired by an educational video company to create an animated feature about hydropower. First, students will use the information from the Hoover Dam learning node in addition to other resources to learn about this renewable source of energy. Then they will develop a script and accompanying drawings to create the storyboard. Project planning sheets and an evaluation check list are included in the copying masters section on pages 5-7.

Project #4: Who Am I?

The learner will compare alternating current (AC) to direct current (DC) power.

The Hoover Dam generates about 4 billion kilowatt-hours of energy annually used to power the Southwest. The electricity supplied to our homes, schools, businesses and industries is generally alternating current or (AC) power. In this project, learners enter a fictitious contest called Who Am I to research the real inventor of AC power, Nikola Tesla and compare it to DC power. (Keep his name a secret from your students.) The learner will independently research this topic to solve the mystery of the man behind AC power and provide an overview of his life and a comparison of the two forms of power. A project sheet and evaluation check list are included in the copying masters section on pages 8-9.

Project #5: Two Sides of the Issue

The learner will evaluate the impact of dams on the environment.

This project is designed for the learner who enjoys a good debate. After researching a pro-dam organization, the Bureau of Reclamation and an organization against dams, the International Rivers Network, the learner will create a debate for each side of the issue. Additional online resources are provided to aid student research. A project sheet and evaluation check list are included in the copying masters section on pages 10-11.

Project #6: My Water Use

The learner will evaluate their water use as it relates to water conservation.

Water conservation is an important issue in society today. In this project, learners will evaluate their personal use of water through researching water-saving tips. They will then identify possible improvements for their current water use, implement at least three changes and develop a report using presentation software outlining their experience. Research into the causes and effects surrounding water conservation issues will provide a framework for the presentation. A project sheet and evaluation check list are included in the copying masters section on pages 12-13.