Wood Duck Nest Box
A Eureka City Service-Learning Lesson Plan

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Introduction and Description of the Lesson

Eureka High School is known for its service learning programs. Eureka High has been honored with being recognized as a National Service Learning Leader School. One of the programs at Eureka High is "The Wood Duck Nest Box Program." The California Waterfowl Association initiated the program in 1991 to increase the wood duck population that was almost driven to extinction due to forest clearing and hunting.

Students at Eureka High got involved with the program 8 years ago and coordinated their resources to help the wood duck. Students in Paul Kinsey's wood shop class were the first to participate in the manufacturing of the wood duck nest boxes. At the present time the MIT (Manufacturing Industrial Technology) students are manufacturing the boxes. MIT is a one-year course offered to 9th graders and fulfills the requirement for Social Science. http://www.eurekacityschools.org/ehs/east/home/Projects/MITpage/HOMEPAGE.htm

Individually or with a partner, students manufacture the wood duck boxes following precise guidelines instructed by the teacher. With assistance from the teacher, the students cut the pieces of wood using various machines. Information about the wood duck and its habitat is connected to the construction of these boxes. Once completed, the nest boxes are distributed to the Humboldt Wildlife Refuge, where biologists monitor and record the effects on the wood duck's population.

The MIT and the Wood Duck Nest Box Project helps to instill core values that these 9th grade students will be able to use in everyday life. These students gain insights into a career, leadership skills, work attitudes, hands-on training, and a connection to their community and local environment.

Instructional

Preparation

Upon request from the Humboldt Wildlife Refuge, the teacher informs the students their next project is the Wood Duck Nest Box Project. The teacher tells students about the near extinction of the wood duck population due to the practice of forest clearing in the wood ducks' habitat, and to the increase in wood duck hunting. The students learn that they can play an important role in

increasing the wood duck population. Throughout California many volunteers, in conjunction with the California Waterfowl Association, participated in this program to help conserve the wood duck population. Through discussion and their actions, students see that they are providing a service to the Northern California community.

The students receive a project overview and are presented the numerous steps that would be taken to accomplish their goal of constructing the wood duck nest boxes. Students are informed about the safety issues that need to be addressed before they are to start working in the wood shop: they are to remove objects that created a hazard to themselves or their colleagues, their sleeves are to be rolled up, and they must wear protective glasses (which the teacher provides).

Action

Daily, the teacher gives his students a verbal and visual description of the tasks to undertake. If the daily tasks consist of various workstations, the teacher, student assistants, or an AmeriCorps member, provide supervision at each station.

Each day students manufacture a different part of the wood duck box. The instructions, and the students' abilities to follow them, have to be precise since the boxes must meet specifics standards to fulfill the wood ducks' needs. The students become aware of how the construction of a habitat is closely connected to the species that lives there. Although there are not state content standards designated for Manufacturing Industrial Technology, other disciplines' content standards could be applicable; there are many specific qualifications that the students must consider when making their boxes.

The California Waterfowl Association helps to distribute information about the connections between the habitat and the construction of the nest box, but the teacher is the vehicle for explaining these connections. Since the chicks of a wood duck are not able to fly once born, a ladder is carved using a “router”. The chicks are now able to climb up the ladder to an opening when ready to leave the nest. When the boxes are mounted on a tree, it needs to be able to slightly lean forward. Once the pieces are assembled for the nest box an opening is made by placing a frame over the box. The opening is not circular, but rather oval because the wood duck had to be able to insert their pelvis through the opening. The last part of the manufacturing process is making a removable lid for the nest box. The lid needs to be removable so the Humboldt Wildlife Refuge biologist can record information about the life within and using the boxes. However, the lid also has to be secure to protect the wood ducks and their eggs from predatory animals. The students use removable nails to keep the lid secure, but are not too difficult to remove by somebody if necessary.

Reflection

After students finish the wood boxes, the class travels to the Humboldt Wildlife Refuge where the nest boxes are stored. At the Refuge, the students see a slideshow, as well as hear statistics about how the ducks' habitat is connected to the local environment and human practices. Post-field trip, the students participate in a written or visual reflection concerning their learning and feelings. The students have an option of writing a letter telling a friend about the wood duck project or drawing a picture of a wood duck in their habitat. The second part of the reflection

consists of answering questions and reflecting on the project. Some of the reflection questions are:

§What did you learn about wood ducks while making this project?
§What did you learn about the wood duck nest box project?
§What part of the wood duck project did you like?

Student Assessment
The teacher takes into account many components of student participation: attendance, completing the daily tasks, following directions, effort, and the quality of the final product. Again, while there are no state content standards directly used for assessment in this class, teachers from other disciplines could adopt this project and apply content standards for assessment.

Project Evaluation and Expansion
Once the boxes are hung, members of the Humboldt Wildlife Refuge periodically check the boxes for life and use. In California, the average amount of visits is five times a year.

The teacher has a discussion with his class about the knowledge they came away with from manufacturing the nest boxes and visiting the Humboldt Wildlife Refuge. Students express their feelings about what knowledge they gained.

Materials and Staff Development Needs
•Wood
• An opening: This opening has to be made so the wood ducks pelvis can fit through it. The opening has to be at a certain height so that a raccoon will not be able to place its arm inside the box and be able to reach the wood duck nor its eggs.
•A removable lid: This creates easy access for maintenance and record keeping.
•A "ladder" inside the box: The students create a ladder by using a router.
•Well-insulated nest: 3 inches of wood shavings are set into the boxes. The shavings will create a well-insulated area for the wood ducks eggs.

Funding, Resource Support, and Sustainability
The funding for the Wood Duck Nest Box Project highly relied on donation of wood from various agencies within the community. The teacher supplied some of the supplies for the manufacturing of the nest boxes.