

I. Title

Studying the significance of biodiversity in Baldwin Woods near Bowling Green, Ohio.

II. Lesson Summary

The students will tour Baldwin Woods and learn about the flora and fauna.

III. General Goal

The students will learn about the biodiversity of Baldwin Woods (virgin black). This activity will allow them to see how much the Great Black Swamp has changed due to human intervention and time.

IV. Duration

-1 Day field trip to Baldwin Woods

-Up to 4 50-minute class periods-1 day to collect data, 2 days to interpret data and present data, 1 day for video

V. Learning Objectives

Activity and Teacher Objectives

Process

Upon completion of this activity the students will be able to;

- 1) Measure and describe some physical characteristics the habitat.
- 2) Identify links between human population growth, consumption, habitat destruction, and species extinction.
- 3) Define local biological diversity.
- 4) Record observations and test hypotheses using field data.
- 5) Make a general statement about how species diversity is affected by ecosystem diversity, area, and human disturbance.

Content

- 1) Communities change over time.
- 2) Human intervention affects species biodiversity.
- 3) Biodiversity has aesthetic and economical value in human society.

Bowling Green City Schools Curriculum Objectives(See attached sheet)

Biology	Program Goal A	Objectives 1,2,4-7
	Program Goal B	Objectives 1-2
	Program Goal C	Objective 6
	Program Goal E	Objectives 3-4

VI. Prerequisite Knowledge/Skills

1) The students need to know how to make observations, how to keep data journals and sketches, how to interpret collected data, how to collect live specimens, and the processing of the scientific method. See assessment for data criteria.

2) A naturalist will give the students a general tour of Baldwin Woods and helpful hints on how to identify various plants species.

2) The students will also need a unit on classification to help them identify local flora. This involves the kingdoms and major groups of the plants and animals.

3) They will also require some expertise in using dichotomous keys. A lesson that allows them to use and develop dichotomous keys will prepare them. Using dichotomous keys that are relevant like a local tree dichotomous key will be very beneficial to take to the field.

## VII. Background Knowledge

1) Baldwin Woods is a 124-acre parcel of land that is half virgin black swamp forest and half restored grassland, which is burned every two years. The grassland was once farmland and is used for land management purposes only. The forest consists of such trees like giant oak, elm, hickory, sycamore, cottonwood, ash, and maple. It is also abundant in native wildflowers and plants.

## VIII. Preparation for the Lesson

### Materials

-field guides of local flora -trees, wildflowers, grasses, etc.

-dichotomous keys of local flora

-field journals, plenty of pencils

-specimens of local plants

-storage bags, plant press

-off repellent, ivy block, etc.

-containers can be set up with the above equipment for student convenience to use at the exploration sites

-Specimens can be stored in refrigerator over night if necessary

## IX. Instructional Strategy

### Engagement

Introduce this activity with a discussion with students about the local flora. Have them discuss what they know about the area and its biodiversity. Teachers can then get a feel for the students, background knowledge and misconceptions. This can guide the level of preparation that is necessary for the exploration activity.

### Exploration

1) Plan a one-day field trip to Baldwin Woods. Have them pack a sack lunch for the long day. They should also wear long slacks if feasible to avoid contact with poison ivy and mosquitoes.

2) Arrange to have a naturalist give a general tour of Baldwin Woods. The students should take field notes on his/her presentation.

3) Students will then be given time to explore the woods in groups to identify the biodiversity of the area. The students need to collect data such as types of plant and trees found and the numbers of those organisms they find in the woods. The life collected can be specified by the teacher and modifications can be made for appropriate levels and areas, such things like wildflowers, and tree leaves. Students should also make sketches of the biodiversity and a brief map of the woods area they are studying. Students also need to note the size of the biodiversity either by direct measurement or sketches.

4) Have students meet back near the bus and have them eat their sack lunches. The next day in class begin analysis of plant life in Baldwin Woods.

#### Discussion/Explanation

1) The next day have the classes compile data on the board by listing the types and numbers of plants found in each area. If specimens were collected they need to be displayed for other students to analyze.

2) Have the students investigate the kinds of flora they identified out in the field. They should see differences in the diversity of plants found in Baldwin Woods.

3) Have the students present their findings to the class by showing specimens and using visual aids to compile their collected data. The students will need to note and collect data presented by other groups to help analyze the findings of all students from Baldwin Woods.

4) To follow up the activity show the video „The Story of the Great Black Swamp% by Joseph Arpad. The video explains the conquering and settling of the land and its relationships to how the people today feel about their land. It shows how the pioneers cleared the land of trees, built log cabins, hunted wild animals, and how subsistence farming was their first economy.

5) The video will help the students to learn about the kinds of plants and animals that were found in this area before the settlers came and drained the area for farmland. Many of those plants and animals will be found in Baldwin Woods. By comparing Baldwin Woods to Fuller Preserve the students can see how a pioneer community compares to the original community and how long it takes for a community to return to a climax community like Baldwin Woods. They will also learn about their heritage and how humans interacted with their environment and how they conquered it.

#### XI. Assessment

1) Students will work in groups to collect data in the field. These groups will also be responsible for presenting this data and specimens collected to the class in a logical

manner. The presentations will require interpreting data logically and presenting the data in an organized fashion using visual aids and live specimens.

The following concepts need to be included in the data and presentation;

- a) kinds of plants found in each habitat
- b) numbers of plants in the habitat
- c) size of plants in the habitat
- d) description of the habitat
- e) comparison of the diversity of plants
- f) age of the habitat
- g) significance of the habitat to others in NW Ohio

2) Field journals will also be collected and graded on completion, content, and presentation.

3) Students will demonstrate that they can observe scientific phenomena and make inferences basely on previously gathered information from the field trips and the video of the Black Swamp.

XII. Comments

Good Luck!!!!