

Topical Outline of Course

- Sunday: PM- Introduction to Flora of the Lake Erie Islands
Class Requirements
- Monday: AM- Basic Plant Anatomy-Structures and Functions
Use of Plant Keys-Learning the Language
Field Practice on Gibraltar Island
PM- Common Plant Families
How to Dry and Mount Plant Specimens
Floral Structure-Pollination Strategies-Field Trip to Butterfly House
- Tuesday: AM- Habitats Here in Ohio and Why-Environmental Conditions
Plant Adaptations to their Specific Environments and Seasons
Plant Succession
PM- Field Trip to Middle Bass Island -Succession-From Bare Rock to Woods
- Wed.: AM- Plant and Animal Interactions
Seed and Fruit Identification and Adaptations Workshop
Edible, Medicinal and Other Uses of Plants
PM- Field trip to Kelley's-Wetland, Alvar, Quarry, Scheele Preserve
- Thursday:AM- How Plants Change Their Environment-Invasive Species Here in Ohio
Diversity and Conservation of Plants
PM- Mainland Field Trip-Invasives, Edison Woods, Eric Sand Barrens,
Resthaven Prairie
- Friday: AM- Presentation of Class Room Lesson Projects
PM- Possible Field Trip to Pelee- Heritage Center, Sand Beach, Oak
Savannah
- Saturday: AM- Final Exam
Evening Sessions may include edible and medicinal plants, guest lectures, optional
Project Learning Tree Instruction (\$20 fee for workshop activity guide.)

Methods of Evaluation

Three Quizzes	20%
Plant Collection & Field Journal	20%
Lesson Plan Developed for Classroom	40%
Final Exam	<u>20%</u>
	100%

Off Campus Field Experience- This course will include daily field trips to a variety of local habitats. There will also be stops at least to two other museums or displays with local flora topics.

**OHIO DEPARTMENT OF EDUCATION
ACADEMIC CONTENT STANDARDS BY GRADE LEVEL
COVERED BY EEOB 694, LOCAL FLORA FOR TEACHERS**

Grade One

Earth and Space Systems-1, 3
Life Sciences-2, 4
Scientific Inquiry-6

Grade Two*

Life Sciences-1, 2, 6, 7, 9

Grade Three

Scientific Inquiry-5
Scientific Ways of Knowing-5

Grade Four*

Life Sciences-1, 2, 3, 5

Grade Five

Life Sciences-6
Science and Technology-1, 2

Grade Six

Life Sciences-3, 7

Grade Seven*

Earth and Space Science-8
Life Sciences-3, 5

Grade Ten*

Earth and Space Sciences-1
Life Sciences-12, 13, 14, 15, 17, 18, 21

Grade Eleven*

Earth and Space Sciences-1
Life Sciences-1, 6, 9, 12,

Grade Twelve

Life Sciences-7, 8

**OHIO DEPARTMENT OF EDUCATION
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Grade OneEarth and Space Systems

1. Identify that resources are things that we get from the living (e.g., forests) and nonliving (e. g. minerals, water) environment and that resources are necessary to meet the need and wants of a population.
3. Explain that all organisms cause changes in the environment where they live; the changes can be very noticeable or slightly noticeable, fast or slow (e. g., spread of grass cover slowing soil erosion, tree roots slowly breaking sidewalks.)

Life Sciences

2. Explain that food comes from sources other than grocery stores (e.g., farm crops, farm animals, oceans, lakes and forests.)
4. Investigate that animals eat plants and or other animals for food and may also use plants or other animals for shelter and nesting.

Scientific Inquiry

6. Use appropriate tools and simple equipment/ instruments to safely gather scientific data (e. g., magnifiers, timers and simple balances and other appropriate tools.)

Grade Two*Life Sciences

- 1.... Plants need air, water, nutrients (e.g., minerals), living space and light to survive.
2. Identify that there are many distinct environments that support different kinds of organisms.
6. Investigate the different structures of plantsthat help them live in different environments. (e.g.... leaves and roots).
7. Compare the habitats of many different kinds of Ohio plants and animals and some of the ways animals depend on plants and each other.
9. Compare Ohio plants during the different seasons by describing changes in their appearance.

Grade ThreeScientific Inquiry

5. Record and organize observations (e.g. journals, charts and tables).

Scientific Ways of Knowing

5. Discuss how both men and women find science rewarding as a career and in their everyday lives.

Grade Four*Life Sciences

1. Compare the life cycles of different plants including germinations, maturity, reproduction and death.

2. Relate plant structures to their specific functions (e.g., growth survival and reproduction).
3. Classify common plants according to their characteristics (e.g., tree leaves, flowers, seeds, roots and stem.)
5. Describe how organisms interact with one another in various ways (e.g., many plants depend on animals for carrying pollen or dispersing seeds).

Grade Five

Life Sciences

6. Analyze how all organisms, including humans, cause changes in their ecosystems and how these changes can be beneficial, neutral or detrimental (e.g., beaver ponds, earthworm burrows, grasshoppers eating plants, people planting and cutting trees and people introducing a new species.)

Science and Technology

1. Investigate positive and negative impact of human activity and technology on the environment.
2. Select and safely use the appropriate tools to collect data when conducting investigations and communicating findings to other (e.g., magnifiers, microscopes, ...)

Grade Six

Life Sciences

3. Identify how plant cells differ from animal cells (e.g., cell wall and chloroplasts).
7. Recognize that likenesses between parents and offspring (e.g., eye color, flower color) are inherited. Other likenesses are learned.

Grade Seven*

Earth and Space Science

8. Describe how temperature and precipitation determine climatic zones (biomes) (e.g., desert, grasslands, forests, tundra and alpine).

Life Sciences

3. Explain how the number of organisms and ecosystem can support depends on adequate biotic (living) resources (e.g., plants, animals) and abiotic (non-living) resources (e.g., light, water and soil.) My example alvar versus a wetland.
5. Explain that some environmental changes occur slowly while others occur rapidly (e.g., forest and pond succession, fires and decomposition).

Grade Ten*

Earth and Space Sciences

1. Summarize the relationship between the climatic zone and the resultant biomes. (This includes explaining the nature of the rainfall and temperature of the mid-latitude climatic zone that supports deciduous forest.)

Life Sciences

12. Describe that biological classification represents how organisms are related with species being the most fundamental unit of the classification system. Relate how

biologists arrange organisms into a hierarchy of groups and subgroups based on similarities and differences that reflect their evolutionary relationships.

13. Explain that the variation of organisms within a species increases the likelihood that at least some members of a species will survive under gradually changing environmental conditions.

14. Relate diversity and adaptation to structures and their functions in living organisms (e.g., adaptive radiation.)

15. Explain how living things interact with biotic and abiotic components of the environment (e.g., predation, competition, natural disasters and weather.)

17. Conclude that ecosystems tend to have cyclic fluctuations around a state of approximate equilibrium that can change when climate changes, when one or more new species appear as a result of immigration or when one or more species disappear.

18. Describe ways that human activities can deliberately or inadvertently alter the equilibrium in ecosystems.

21. Explain that natural selection provides the following mechanism for evolution;....

Grade Eleven*

Earth and Space Sciences

1. Explain ways in which humans have had a major effect on other species (e.g., the influence of humans on other organisms occurs through land use., which decreases space available to other species and,

Life Sciences

1. Describe how the maintenance of a relatively stable internal environment is required for the continuation of life, and explain how stability is challenged by changing physical, chemical and environmental conditions.....

6. Predict some possible impacts on an ecosystem with the introduction of a non-native species.

9. Give examples of how human activity can accelerate rates of natural change and can have unforeseen consequences.

12. Recognize that ecosystems change when significant climate changes occur or when one or more new species appear as a result of immigration or speciation.

Grade Twelve

Life Sciences

7. Relate diversity and adaptation to structures and functions of living organisms at various levels of organization.

8. Based on the structure and stability of ecosystems and their non living components, predict the biotic and abiotic changes in such systems when disturbed (e.g. introduction of non-native species, climatic change, etc.)