

# Ecosystem Exploration

## **ESSENTIAL QUESTION: How do abiotic factors affect living things (biotic factors)?**

### **OBJECTIVES:** Students will

- Compare and contrast four ecosystems and the abiotic factors that form these unique communities
- Explain the interdependence of abiotic factors and biotic factors within these communities

### **STANDARDS:**

- **CTE-AFNR.68.ENVIRO.04.04:** Discuss the importance of the ecosystems to agriculture, society, and each other.
- **CTE-AFNR.68.ENVIRO.04.03:** Identify major ecosystems in Florida.
- **SC.912.L.17.7:** Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.

### **SAFETY:**

- Close toed shoes
- Go over expectations when animals are seen
- Stay on the trail
- Leave no trace- Do not disturb habitat (take nothing)

### **MATERIALS NEEDED for EXTENSIONS:**

- Biotic/Abiotic picture cards
- Fire strike sticks with supplies
- Handheld weather station

**ENGAGE:** Place a guess what ecosystem game after giving biotic and abiotic clues. (ex: this ecosystem is known for sand, lack of shade, and little precipitation=desert)

### **Vocabulary:**

- **Biotic-** Living, once living (dead), will be living
- **Abiotic-** Non-living- not man made, found on Earth
- **Xeric-** Dry; sandy soil, little canopy coverage
- **Ecosystem-** A biological community of interacting organisms and their abiotic factors
- **Watershed-** An area of land that flows to a common body of water
- **Hydric-** Water/Wet
- **Riverine Swamp-** A wetland system surrounding a river
- **Pine Flatwoods-** Ecosystem characterized by pine trees, well-drained soil and plenty of sunlight

### **EXPLORE:**

- Use senses to detect different smells/textures/sounds- collect samples without disturbing habitat
- Infiltration of water in the soil to compare percolation within differing habits (How many seconds?)
- Students look at canopies in different ecosystems

### **EVALUATE:**

- Students can identify abiotic and biotic factors in an ecosystem while justifying how these factors shape that community.

### **EXTENSIONS:**

- Biotic/Abiotic picture cards
- Fire strike sticks
- Gopher tortoise burrows
- Lichen Story (Alice/Freddie/Buddy)
- Edible plants- Sparkleberry/Grapevine
- Use a handheld weather station- temperature/humidity/wind speed/elevation

### **H.O.T. QUESTIONS:**

- How does elevation affect the amount of water in an ecosystem?
- Why would a dead tree be more important to an ecosystem than a live tree?

- The sparkleberry bush ripens at different times throughout the year. How is this an advantage for the ecosystem?
- How do the large bases (buttress) of the cypress tree serve as an adaptation?