Ecosystem Comparison Teacher's Guide

Subject: Integrated Science (Life; Earth-Space; Physical)

Topics: The practice of science includes the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.

Summary: Students will observe, collect and analyze data to investigate the limiting factors in two local ecosystems and their impact on native populations.

Objective(s): After completing the field lab, students will be able to:

1) Compare and contrast the limiting abiotic factors of two local systems and evaluate the abiotic factors impact on local populations.
2) Accurately use, read and record data from digital and manual sensing equipment.

Ecosystem(s): Sawgrass Marsh and Cypress Dome

Equipment:

- Pencils
- Clipboards
- Vernier Probes

Background (Pre-field Classroom Activity)

- Vocabulary: observation, comparative analysis, limiting factors, abiotic factors, ecosystem, salinity, pH, dissolved oxygen
- Reference Material:

Procedure (Engage; Explore; Explain)

1) Engage: Discuss the movement of water through the watershed. Have students predict the movement of the water in the area in which they are standing. Then observe a bobber floating in the water as a representation of a water molecule and discuss its movement in relation to their predictions.
2) As group, using the Vernier temperature sensor, measure the temperature of the water. Make sure the sensor is not submerged into the soil under the water. Record the temperature.
3) Continue the experiment by measuring and recording each of the other abiotic factors.
4) The second half of the lab will be completed at the other field site.

Sunshine State Standards: SC 1. N.7.1, SC 1.N.1.4, SC 7.L.17.3, MA.7.G.4.4, MA.7.S.6.1

Ecosystem Comparison Student Data Sheet

General Information

Full Name:		Date:	
School (teacher):		Time:	

Student Hypothesis and Rationale

When testing water from the two locations for the abiotic factors of salinity, light intensity, temperature, pH, depth, dissolved oxygen (DO), and turbidity, I believe that _____ and _____ are the two factors that will show the greatest change from Site 1 and Site 2 because _____

_____.

Field Observations/Measurements/Data

Abiotic Factors	Site 1 Cypress Dome	Site 2 Sawgrass Marsh
Salinity		
Light Intensity		
Air Temperature		
Water Temperature		
pH		
Depth		
Dissolved Oxygen (DO)		
Turbidity		

Ecosystem Comparison Assessment

1. According to data calculations, which single factor changed the least?

2. What is the percent of change of the water depth from the Sawgrass Marsh to the Cypress Dome?

3. Was your hypothesis supported by your data? Whether your hypothesis is supported or not, what can you conclude from your observations, measurements, and results?

4. How would a tropical storm affect the water depth at both locations?

5. Knowing that these areas are surrounded by orange groves, what abiotic factors would that affect?

6. Think about the observations you have just made. Did the activity raise new questions? Write a short question (start with "What, Why, Where, When, or How") about something you want to learn more about.