Educator Activity Outline
Biscayne Explorer: Inventory and Nature Study

Activity Number: 1
Title: Living on the Edge
Location: Western most point of jetty, off the boardwalk

Objectives:
(Students will)

- know that living things compete in a climatic region with other living things and structural adaptations make them fit for an environment.
- know that organisms are growing, dying and decaying and that new organisms are being produced from the materials of dead organisms.
- know that organisms decompose dead plants and animals into simple minerals and nutrients for use by living things and thereby recycle matter.

Summary:

Students will step off the boardwalk onto a designated area with examples of the three mangrove species that occur in South Florida. Students will read the labels on the trees describing each of their characteristics and get a close look at the mangroves' adaptations.

Time needed: 20 minutes

Materials:

Mangrove characteristics arrows
Clothes pins
Recycling Mangroves Diagram
Leaf matter box
Mangrove soil box
Mangove seedling
Explorer Booklet

Exploration:

Read (2 min.): Look at the labeled trees. There are three different species, the red, black and white Mangroves. Mangroves are trees that live in or around salt water. Biscayne National Park has the longest stretch of undeveloped mangroves on the east coast of Florida. If you were thirsty, would you drink saltwater? (No) If your plants at home were dry would you water them with saltwater? (No) Then how do the mangrove trees live in and around saltwater? They are adapted to this environment, we call this … adaptation.

Plants and animals have adaptations so they can survive. Humans have adaptations too. Humans have opposable thumbs. Try to tie your shoe laces without using your thumbs. It is very hard. Our adaptation of opposable thumbs helps us use tools and manipulate our surroundings. It helps us survive.

Do (9 min.): Let's walk to the labeled mangrove trees to read and learn about *their* adaptations. The green-colored arrows describe adaptations for all three species of mangroves, while the red arrows are for the red mangrove's adaptations, and so on for the black and white mangroves. Use the spaces provided in your *Explorer Booklet* to write a key word or phrase or draw a picture about each mangrove's characteristics. After everyone has learned about mangrove adaptations, re-group for an activity.

Read (1 min.): As you can see *and taste,* mangroves have some pretty unique adaptations to help them survive in this salty environment. You read a little about the leaves falling off the trees and becoming fertilizer. Let's look at this cycle more closely. Just like you need nutrients, trees need nutrients to grow. Many of the nutrients that plants need to grow come from decaying "matter". We are going to look at how nutrients are recycled in the mangrove habitat.

Do (7 min.): A *Recycling Mangroves* diagram, three boxes filled with various mangrove matter and a mangrove seedling have been provided for you. Explore the diagram. Using the information provided on the diagram, finish the mangrove nutrient cycle by placing the mangrove matter boxes and mangrove seedling in the appropriate spaces. Don't forget to read the *Did You Know* facts!

Conclusion (1 min):

As you have noticed, mangroves are stinky, wet, salty and possibly buggy. They are definitely not glamorous like the coral reef, but scientists have found that corals actually depend on them as a source of nutrients. Tiny pieces of those same leaves that decompose between those prop roots are carried out to the coral reef and eaten by the coral animal. That's not all. People depend on mangrove shorelines too, to keep flood waters away and weaken hurricanes. As you can see mangroves definitely matter.

Resources:

http://www.hokoon.edu.hk/download/biology/CE/Cert_Mangrove_e.pdf
http://www.athiel.com/lib10/horstman.htm