

EDUCATORS' GUIDE

South Florida People and Environments
at the Florida Museum of Natural History



The Florida Museum of Natural History is Florida's state museum of natural history. The Museum is dedicated to understanding, preserving and interpreting biological diversity and cultural heritage.

ACKNOWLEDGEMENTS



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offered by the Florida Museum, please visit our website:
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The Florida Museum of Natural History's Educators' Guides, in combination with ongoing teacher workshops, outreach, and field trips to its permanent and temporary exhibitions, will help you structure learning experiences that correspond to the following Florida Sunshine State Standards. All guides contain materials and online resources to supplement and enhance student learning in the classroom and during in-gallery experiences, tying Museum exhibits to the state standards and enhancing school fieldtrips.

Language Arts

Reading Standard 1:

The student uses the reading process effectively.

Reading Standard 2:

The student constructs meaning from a wide range of texts.

Writing Standard 1:

The student uses writing processes effectively.

Writing Standard 2:

The student writes to communicate ideas and information effectively.

Listening, Viewing and Speaking Standard 1:

The student uses listening strategies effectively.

Listening, Viewing and Speaking Standard 2:

The student uses viewing strategies effectively.

Math

Measurement Standard 1:

The student measures quantities in the real world and uses the measures to solve problems.

Data Analysis and Probability Standard 3:

The student uses statistical methods to make inferences and valid arguments about real-world situations.



Science

Processes that Shape the Earth Standard 2:

The student understands the need for protection of the natural systems on Earth.

Processes of Life Standard 1:

The student describes patterns of structure and function in living things

How Living Things Interact with Their Environment Standard 1:

The student understands the competitive, interdependent, cyclic nature of living things in the environment.

How Living Things Interact with Their Environment Standard 2:

The student understands the consequences of using limited natural resources.

The Nature of Science Standard 3:

The student understands that science, technology, and society are interwoven and interdependent.

Social Studies

Time, Continuity and Change Standard 1:

The student understands historical chronology and the historical perspective.

Time, Continuity and Change Standard 6:

The student understands the history of Florida and its people.

People, Places and Environments (Geography) Standard 1:

The student understands the world in spatial terms.

People, Places and Environments (Geography) Standard 2:

The student understands the interactions of people and the physical environment.

The Arts: Visual Arts

Cultural and Historical Connections Standard 1:

The student understands the visual arts in relation to history and culture.

Applications to Life Standard 1:

The student makes connections between the visual arts, other disciplines, and the real world.

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PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS



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Exhibit Introduction

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For thousands of years, coastal environments have supported people, including the Calusa, an indigenous nation of South Florida. The South Florida People and Environments exhibit ventures into the rich environments of South Florida to learn about the ecosystems that have sustained humans for centuries.

Start in the estuary, the cradle of the ocean, to explore mangrove forests, the life that thrives there, and how mangroves protect us, and sea life from waves, erosion, storm surges and other natural phenomena. Immerse yourself in a 12 times magnified underwater scene of the estuary in order to see life from the perspective of a jellyfish, needlefish, barnacle or toadfish.

Move beyond the natural wonders of the estuary to learn how this ecosystem has supported humans for the last 6,000 years. Through fishing techniques developed by the Calusa, fishing has been a thriving industry for Florida. See how the Calusa adapted to their coastal resources while viewing the record left behind for archaeologists to uncover and decipher. Native people, however, are not just a memory in South Florida. The Seminole and Miccosukee tribes still live and thrive as part of South Florida society while maintaining and utilizing traditional crafts and practices.



PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS



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Section One: Bountiful Estuary

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Introduction

More than 70% of Earth's surface is covered with water. Of that, only 3% is fresh water, leaving 97% of the water on earth as **brackish** or salt water. Brackish water is most commonly found in estuaries.

An **estuary** is a body of water where fresh water flowing off the land meets and mixes with salt water of the sea or ocean. Therefore, estuaries occur throughout the world wherever fresh water meets salt water and are some of Earth's most nutrient rich and therefore hospitable places for young fish and **crustaceans**. They are often called "cradles of the ocean" because many fish and shellfish spend the early part or sometimes all of their lives there. Surrounded by saltwater on three sides, Florida has many estuaries along its coastline; wherever a river empties into the Gulf of Mexico or Atlantic Ocean. Today's Florida estuaries formed about 6,000 years ago, when sea level approached its current height. Before then, sea level was lower and estuaries would have been further out on the continental shelf.

Much of South Florida's interior is a unique river that resembles a **marsh**, called the Everglades. The Everglades is the largest remaining **subtropical** wilderness in the continental U.S. and is home to many unusual and **endangered** plants and animals. It's heart is a wet saw grass **prairie** that water flows through like a river, at times 50 miles wide but only 6 inches deep. This "River of Grass" slowly moves southward, and near the coast forms coastal prairies, mangrove swamps, and a large estuary at Florida Bay.

Fun Fact:

More than 90% of the fish and shellfish we eat live in estuaries for at least part of their lives.

Florida
Museum of
Natural
History estuary
boardwalk
through the
mangroves.



PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS



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Section One: Bountiful Estuary continued

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Vocabulary Words

Brackish: Water that has a higher salinity than fresh water but a lower salinity than salt water. It is the result of the mixing of seawater and freshwater.

Crustacean: An animal that is characterized by several pairs of jointed legs, a hard outer shell, and two pairs of antennae. Examples are lobster, shrimp, and crabs.

Dredging: The process of pulling up large amounts of sediment and soil from the bottom of waterways and disposing of it elsewhere in order to keep the waterway open and navigable.

Ecosystem: A group of plants, animals, and microorganisms that work together in an area with the nonliving aspects of the environment.

Endangered: An endangered species is a population of an organism, which is at risk of becoming extinct.

Erosion: The displacement of sediment, rock and soil by natural phenomena such as currents, tides, wind, and ice in a downward motion due to gravity. Erosion is a natural process but in many places is increased due to human interference.

Estuary: A body of water where fresh water flowing off the land meets and mixes with salt water of the sea or ocean.

Marsh: A type of wetland that has continuous or frequent additions of flowing water to the point of flooding. Typical plants include grasses and reeds.

Microscopic: A term used to describe objects that are too small to be seen with the naked eye.

Prairie: A treeless, grass-covered plain.

Primary Producer: An organism that creates organic material from carbon dioxide through the process of photosynthesis.

Prop Roots: Tree roots that are above ground.

Propagule: A part of a plant that is used to spread plant populations. In mangroves, the seed is germinated before it drops from the parent tree.

Pneumatophore: Another term for prop roots.

Salinity: A measurement used to indicate the saltiness of water.

Subtropical: A term used to identify climates that have relatively warm winters that rarely see frost or snow and have hot summers. As one moves towards a tropical environment, the cool winters disappear into hot weather while as one moves towards temperate zones the winters are colder and longer.

PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS



Florida Museum of Natural History

Section One: Bountiful Estuary continued

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Guiding Questions and Answers

1) Why are estuaries important to fish, shellfish, and birds?
What might happen if estuaries are destroyed?

The estuary is a place of great diversity, all of it interconnected in a fantastic web of life. Like a web, all parts work together to create a complete product. Everything is connected, and depends on other parts of the system to remain alive. Many small and often overlooked organisms, such as zooplankton and worms feed on **primary producers**, such as algae and mangroves to form the foundation of food webs in estuaries. Without primary producers other creatures could not survive. Algae and mangroves are critical to the overall health of the estuary, and thus to the survival of the many species that live and reproduce in the estuary. Without the small stuff, the big stuff would not exist, including many animals important to people today.

Algae, plankton, and worms are food sources for small, young or baby fish and shellfish. Most fish, shellfish, crabs, and shrimp spend the beginning of their lives in estuaries. Once they are large enough to eat larger food, they may move out into the open ocean. If these smallest organisms decline in numbers or no longer exist, baby fish and other animals lose their food source and therefore will not survive into adulthood to reproduce. Fish numbers will rapidly decline and ultimately become extinct.

Declining numbers in fish populations translates to a declining food source for birds. This ultimately leads to declining bird populations. It is clear that small creatures and organisms found only in an estuary are the basis for much coastal and ocean life.

Damage to the populations of primary producers comes from water pollution and poor water quality as well as human destruction and encroachment on natural habitats. As human populations grow, additional land is developed, destroying natural habitats and moving humans closer to the coast. Mangrove forests collect rainwater and loose soil as it moves downhill toward the coast. The destruction of these natural habitats eliminates our natural barriers that prevent erosion and filter pollutants from rivers and other water runoff. Areas of trees collect rainwater and loose soil as it moves downhill toward the coast. When these trees and other plants are cut down for human development, there is nothing to catch the soil. Therefore, water reaches the coast carrying sediment and other debris that pollutes estuaries.

Estuaries also provide homes for birds, fish, and shellfish in their mangrove forests. More information on the importance of mangroves is in the next guiding question.



Florida Museum of
Natural History estuaries.

PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS



Florida Museum of Natural History

Section One: Bountiful Estuary continued

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2) How many different kinds of mangroves are there?

What role do mangrove trees have in South Florida estuaries?

Most trees need fresh water to grow, but mangroves are able to grow in both fresh and salt waters making them common in brackish water areas, where the salinity can vacillate. In salty water areas, the mangrove has more space to grow because few other trees are able to grow there. Worldwide, there are 50 mangrove species that grow in tropical and sub-tropical climates. Florida has three unrelated species:

Red Mangroves (*Rhizophora mangle*) live closest to the water's edge. Their unique **prop roots** bend but rarely break in storms. The roots exchange oxygen and carbon dioxide through pores and filter out salt at the root's surface. In the tree canopy, numerous seedlings or **propagules** hang waiting to fall. When they drop, they may root in the soft sediments below or float for up to 100 days before taking root.

Black Mangroves (*Avicennia germinans*) grow on slightly higher ground than reds. Look for their finger-like **pneumatophores** sticking out of the mud. These help the tree exchange oxygen and carbon dioxide. Black mangroves excrete salt through the leaves. In Florida, black mangroves can survive as far north as Cedar Key and sometimes into the Panhandle but often die back in the winter.

White Mangroves (*Laguncularia recemosa*) live on the highest ground of all and typically have no prop roots. White mangrove leaves have special glands to excrete salt. The flowers of both white and black mangroves attract bees, and mangrove honey is highly prized. White mangroves are easy to identify by their deeply ridged bark, the dimple at the tip of the leaf, and two glands at the leaf base.

Mangroves along with sea grasses are extremely important to the survival of Florida and the animals that live in the estuary. First, mangroves minimize erosion and stabilize the shorelines. They slow down floodwaters and reduce destruction by heavy waves.

Second, mangrove roots are home to many animals, including some near extinction. Mangroves trap mud, leaves, and other debris among their roots. These leaves, flowers, and other litter are an important part of the food chain and are eaten by tiny **microscopic** organisms, young fish, shrimp, and other animals that live among the roots. The web of roots creates a safe location for small fish to hide from larger fish. Some organisms even live attached to the mangrove's roots.



Mangrove tree with prop roots showing

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Section One: Bountiful Estuary continued

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Third, Mangroves provide a nesting place for many birds that feed on ocean animals living in the estuary. More than 175 species of birds use South Florida mangrove areas for nesting or feeding. Some birds, such as Roseate Spoonbills, Mangrove Cuckoos, and Black-whiskered Vireos, breed almost exclusively in the mangroves. Thousands of acres of mangroves and sea grasses have been destroyed over the past 50 years. When we lose mangroves and sea grasses, we endanger fish and shellfish, and our coasts are vulnerable to dangerous storms. We can help preserve these valuable coastal resources by preventing pollution, stopping unwise **dredging** and filling activities, and insist on sensible boating and fishing practices.

3) What is unique about the Everglades?

What ecosystems are included in the Everglades?

The Everglades are a culmination of many different landscapes formed by slight changes in elevation, water **salinity**, and soil composition. The different combinations of natural features generate a wide variety of plants and animals, each of which requires a unique set of variables to survive. Cypress heads, hardwood hammocks, pinelands and saw grass prairies are a few examples of different landscapes found within the Everglades. Wildlife within the Everglades is abundant and includes many rare and endangered species. Most common are wading birds that depend on marshes for food and nest sites.

The Everglades are not isolated from the rest of Florida. Water comes into the ecosystem from as far north as the Kissimmee River basin. On its journey south, the water is disturbed by pollutants and is diverted to urban areas and farms. This reduces the amount of water reaching the Everglades. If there is not enough fresh water to fill the area, salt water from the surrounding sea creeps inland to fill the gap. Many plants and animals cannot survive in salt water or **brackish** water and are forced further inland. This change in water composition also contaminates drinking water aquifers that supply Miami, Palm Beach, and most of coastal southern Florida.



Nesting birds of the estuary



Aerial photo of the Everglades



Great egret in a Cypress Swamp

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People have destroyed many fragile Everglades habitats. As South Florida population skyrockets, urban growth has encroached on large areas of the Everglades. Development, agriculture, pollutants, canals, and exotic plants all threaten the existence of this unique ecosystem.

It has taken people a long time to recognize the Everglades as a complex and fragile ecosystem on the verge of collapse. Only through better understanding and careful land management can we hope to restore some of the Everglades. Some solutions are underway, but the fate of the Everglades hangs in the balance. Everglades National Park, a 1.5-million-acre preserve, has been designated a World Heritage Site, an International Biosphere Reserve, and a Wetland of International Importance.

Pre Activities

Geography: The geography and locations of natural features in relation to large metropolitan areas can give a greater understanding of the effects humans have on nature.

Materials:

- Map of Florida

Actions:

- Show students a map of Florida.
- Ask students to point to various locations on the map. Suggested places:
 - Where they live
 - Where other family lives
 - Where they go to school
 - Disney World
 - Miami
 - The Florida Keys
- Ask students to find the Everglades.
- Ask students questions relevant to the topography and geography of the Everglades:
 - What rivers feed into the Everglades?
 - How far north do these rivers run?
 - Where do these rivers empty into the Gulf of Mexico?
 - How wide are the Everglades?
 - How close is a large city?

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Section One: Bountiful Estuary continued

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Wetlands Activity: Wetland ecosystems are vital for the filtering of water pollutants.

Materials Needed:

- Plastic paint trays from hardware store
- Bowls or plastic containers
- Sponges (about 2 1/3- they need to fit tightly)
- Watering can
- Water
- Dirt
- Fork or spoon

The slope of the paint tray represents land that empties into the sea or the basin of the paint tray.
The sponges represent the wetlands ecosystem.

Actions:

- Divide the class into groups of 2 or 3 students. Each group should have a set of all the materials.
- Start by having students slowly pour water from the watering can onto the top of the slope of the paint tray. Explain that this represents rain falling on land. What do they observe? Water trickles or runs down into the basin, which represents rain running down to the coast and emptying into the ocean. What might change if a wetland were present between the slope and the ocean?
- Pour out the water that has collected.
- Moisten the sponges and squeeze out the excess water.
- Arrange the sponges inside the paint tray where the slope meets the basin. The sponges should extend from one side to the other without any gaps or overlapping. This represents the wetland. Students should “rain” water again and observe what happens. What was different this time? The sponges collected some of the water.
- Pour out the collected water and squeeze out the sponges. Put the sponges back into the tray.
- Fill the bowl half-full of water. Add the dirt. Stir with a fork or spoon. This represents polluted water or water that is carrying sediment. Only use half the water for each of the following scenarios.
- **Scenario 1:** 6,000 years ago, the Calusa Indians lived in Florida. There were not as many people living in Florida at the time. Like many other indigenous peoples, the Calusa were likely conscious of the effect they had on their natural surroundings. They lived within and among nature, with certain respect for the plants and animals around them. When it rained, water ran down to the coast through to the wetlands and out to sea. After reading aloud, have students slowly pour half of their dirty water at the top of the slope. What does the water look like when it enters the ocean? Where does the sediment get caught?

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Florida Museum of Natural History

Section One: Bountiful Estuary continued

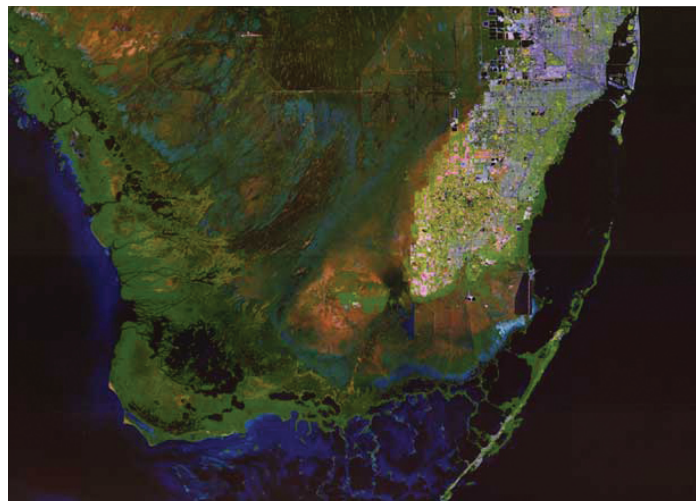
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- **Scenario 2:** A new housing development has just been planned just outside of Miami, but before they can start building, construction workers need to chop down the trees in the area and along the coast. Students should now remove one of the sponges. Pour the second half of the dirty water down the slope and observe what happens. What was different this time? The water that reaches the ocean is dirty. Not all of the sediment/pollution was captured by the wetlands.
- Discuss how this change in the wetlands also affects the animals that live in the ocean. How might additional pollution and/or sediment affect the animals that live in the ocean?



Field Trip Activity

- What animals or items do students see in the mangroves?
 - Can students find:
 - The crocodile
 - Fiddler crabs
 - Nesting Birds
 - Propagules
 - Prop-roots
 - Pneumatophores
- How many different kinds of trees are in the exhibit? How can students tell the difference between the three different types of mangroves?
- What do students notice about the sounds in the mangrove forest?
- What do students think the Calusa child is doing in the tidal area of the mangrove forest?
- Make sure to look in the drawers on the white wall of the bountiful estuary.
- Talk about proportion in the underwater room. All the fish and plants in this room are 12 times bigger than in real life. Therefore, the plants and animals that they see are actually only a few inches big. Make sure to point out the mangrove roots since students saw the actual size of mangrove roots in the previous exhibit room. This will enable them to understand the size differences.



Florida housing taking over what little wetlands there are left in the Everglades and surrounding areas.

PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS



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Section One: Bountiful Estuary *continued*

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Life under the mangroves - underwater scene in the South Florida Exhibit

- What is each students' favorite creature in this exhibit and why?
- Play "I spy" in the underwater scene since there are so many different shapes, sizes and colors of creatures.
- Point out the seahorse on the wall of the underwater exhibit as you are exiting. What is coming out of his belly? Explain that seahorses carry their babies in a pouch until they are big enough to swim and catch food. Also explain that it is the male seahorse that carries the babies.

Post Activity

Food Webs: All plants and animals are connected in food webs. If one creature is affected by an outside source, all of the creatures within a food web will be affected.

Materials:

- Plastic cups
- Activity Sheet - Food web cards
- Velcro
- Environmental impact scenarios

Set-Up:

- Print out food web cards, cut apart, and laminate
- Put a piece of Velcro on the back of each card
- Put a piece of Velcro on 10 cups per group
- Attach each card to a cup so that the wider end of the cup sits on the table

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Florida Museum of Natural History

Section One: Bountiful Estuary continued

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Action:

- Divide the class into groups of 2-3 students
- Give each group a set of cards and 10 cups
- Have each group divide their cards into four categories: producers, herbivores, carnivores, and top carnivore.
- Make sure that everyone has the correct groupings. If necessary, discuss why certain plants or animals fall into their particular category.
- Have students build a pyramid with their cups with the four producers on the bottom, the three herbivores on the second level, the two carnivores in the third level, and the top carnivore on top. Every group of students does not need to have their producers, herbivores, and carnivores in the same exact position. It is just important that they have the levels correct.
- Read the provided scenarios that cause the elimination of one or more of the organisms in the pyramid.
What happens to the food web when one plant or animal is eliminated?

Scenario 1: Water pollution

A factory has been dumping their waste into the river that runs behind their property. This has changed the quality of the water entering the estuary and does not allow algae to grow anymore. Pull out the algae cup.

Scenario 2: Overfishing

Mullet is a type of fish that humans consume. To meet the demand, the number of fishermen catching mullet has doubled. This has led to a greatly decreased population of this fish making it difficult for predators in the ocean to find mullet to feed on. Pull out the mullet cup.

Scenario 4: Human intrusion

A new housing development has been planned outside of Miami. In order to build, a mangrove forest needs to be cut down. Pull out the red mangrove cup.

Producers: Phytoplankton, Red Mangrove,
Sea Grass, Green Algae

Herbivores: Copepod, Sea Urchin, Mullet

Carnivores: Striped Bass, Clam

Top Carnivore: Shark



Water pollution



Overfishing



Mangrove forest

PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS

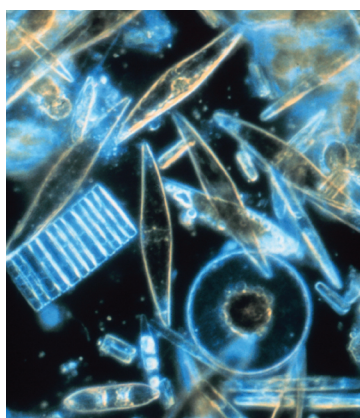


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Activity Sheet - Food Web Cards



Phytoplankton



Red Mangrove



Sea Grass



Green Algae



Copepod



Sea Urchin

PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS



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Section One: Bountiful Estuary continued

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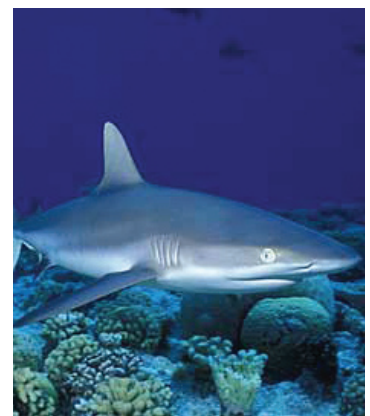
Activity Sheet continued



Striped Bass



Clam



Shark

PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS



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Section Two: Calusa Indians

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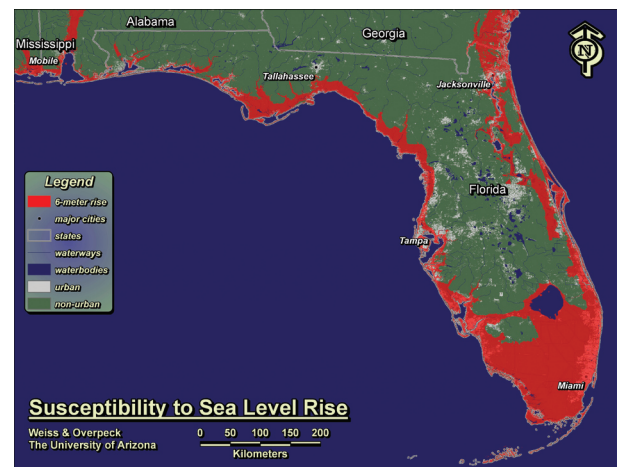
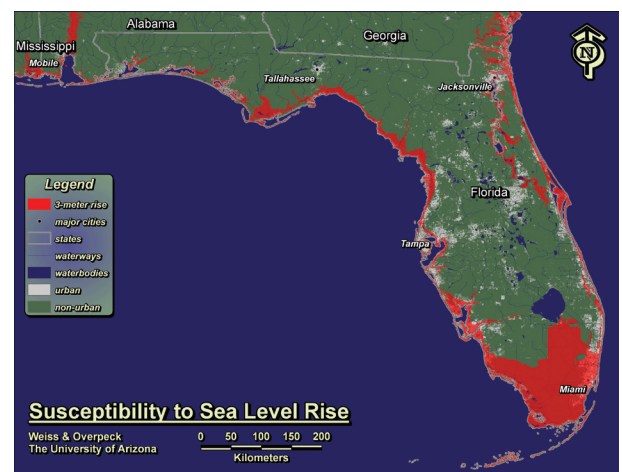
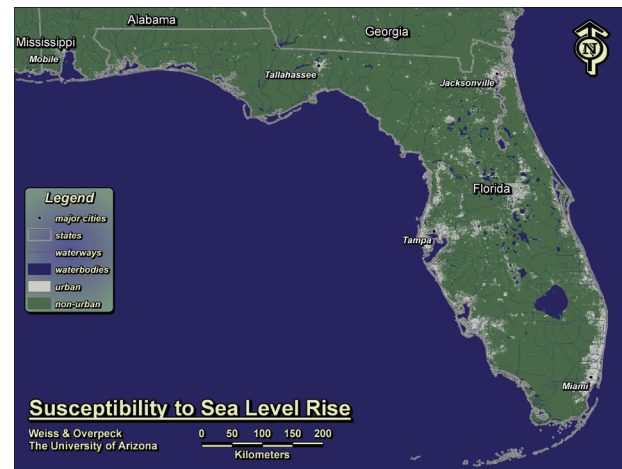
Introduction

We know from archaeological evidence that people lived in interior Florida at least 12,000 years ago. Some early Floridians may have lived at or near the coast, but at the time, Florida's coastline was much further out due to a lower sea level. Any evidence of coastal peoples before 6,000 years ago is now under the sea. Scientists do know, however, that people have lived in the Gulf coast area of Florida for at least 6,000 years.

Sea levels respond to global climate change. In colder times called ice ages, water freezes at the north and south poles. This leaves less liquid water to cover the earth resulting in a lower sea level. When the Earth warms up, the polar ice melts and sea level rises. The most recent ice age ended around 10,000 years ago, and by 5,000 to 4,000 years ago the rising sea reached its current levels creating what we see as Florida's modern coast. Today, scientists believe that the sea is rising by .06 to .12 inches per year due to Global Warming. At that rate, by the year 3000, sea level will be 5 to 10 feet higher.

Europeans have called the Calusa by many names, which may be mispronunciations of the Calusa name for their own nation. Many Indian groups call themselves "the people" in their own language. Various names used by Europeans include Carlos, Calos, Caloosa, and Caalus.

By the 16th century, the Calusa controlled the southern half of Florida. They traveled by canoe, engineering canals to connect coastal towns to inland waterways and communities. In addition to the southern half of Florida, the Calusa were connected to other Indian peoples throughout eastern North America and the Caribbean. Ancient trade networks supplied the Calusa with exotic materials such as copper, quartz, and greenstone in exchange for large seashells and other local goods.



Images by: Weiss and Overpeck,
The University of Arizona

PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS



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Section Two: Calusa Indians continued

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After European contact, the Calusa had access to materials salvaged from shipwrecks, including gold, silver, and glass, which they incorporated into their lives and craftsmanship. Spaniards tried to convert the Calusa and other Native groups to Catholicism by establishing missions throughout the state, but the Calusa remained faithful to their centuries-old beliefs. European diseases, war, and slavery eventually took their toll on the Calusa population. The Calusa were also pushed out of their homeland by Europeans and by Creek and Yamassee Indians from the north. Some of the Yamassee captured South Florida Indians and sold them into slavery in the English colonies.



House of Carlos, Cacique of the Calusa, c. 1566. Illustration by Merald Clark

Displaced from southwest Florida, some Calusa joined other native peoples in the Florida Keys. An English writer reported that the last of the South Florida Indians departed for Cuba in 1763. Some later returned to Florida, and others may have remained in Florida and worked with Cuban fisher folk in the late 1700s and early 1800s. Calusa people may have lived on in South Florida, with newly arrived native peoples from the north, today known as Seminoles. Seminoles sometimes say that if a person within the tribe is tall, he or she must have Calusa ancestry.

Fun Fact: About 1,600 years ago, a warm period may have caused waters in southwest Florida to rise to four feet above today's sea level.

PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS



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Section Two: Calusa Indians continued

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Vocabulary Words

Calusa: The name of a Native American Indian group from South Florida.

Composite hooks: Fishing hooks used by the Calusa that are made of carved bone or antler, wood, and twine.

Dinghies: small boats carried by larger boats.

Midden: The archaeological term for discarded material remains left by humans in a trash pit.

Net Gauges: Standard sized gauges used for making nets. Each standard-size is designed to create openings in a net to fit the gills of a desired fish.

Prow: The front part of a ship.

Throat gorges: A slender piece of bone with sharpened points on each end. It would then be attached to a cord in order to catch fish.

Weirs: A type of fish trap that consists of wooden posts that are woven together so that water can pass through, but fish cannot.

Zooarchaeology: The study of animal remains from archaeological sites.

Guiding Questions and Answers

1) What did the Calusa eat? Where did they get their food? What tools did they use to obtain their food?

The Calusa were fishers and depended on estuaries for most of their food. They ate pinfish, grunt, mullet, sheepshead, and catfish, as well as oysters, clams, whelks, and conchs. Less common but perhaps more valued were sea trout, redfish, grouper, snapper, snook, and shark. Unlike most other Florida Natives, the Calusa did not farm large quantities of crops such as corn, beans, and squash but they did keep small household gardens. They also gathered many wild plant foods and hunted land animals. Scientists know what the Calusa ate because they found bones and shells from old garbage dumps called **middens**. These bones and shells are studied by **zooarchaeologists**.

The Calusa used nets most often for fishing, but they also fished with spears, hooks, **composite hooks**, **throat gorges**, and probably **weirs** and traps. The Calusa made cord nets with different size openings (“meshes”) to catch different size fish.

Nets were constructed of palm-fiber cord. They made standard sized meshes by knotting the cord around rectangular **gauges**. The knot they used is still used today for making nets. Cypress wood pegs and hollow gourds kept the top of the net afloat. Shells and stones weighed down the bottom. Netting technology changed very little until the mid-20th century with modern materials such as monofilament nets, motorized boats and modern refrigeration.

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Section Two: Calusa Indians continued

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Some fish are strong enough to break the cordage and thus too big to catch by net. Spears were ideal for the largest fish, such as sharks. Catching large fish was beneficial because the one animal fed a large number of people. It may have also created a surplus of food that could be dried and stored for a later date when food may not be as abundant. Speer fishing, however, was dangerous because fishermen had to canoe out to the open ocean. It also required the hunter to be very close to the shark in order to throw the spear. Hunting with a spear required a lot of skill and observation. The fisherman had to have excellent aim and the strength to throw the spear to kill their prey. Also, they had to understand the ebb and flow of the tides in order to reach their prey and return home safely.

Shellfish were also part of the Calusa diet and were dug up from the sand near the water's edge. There was a large amount of shellfish available and collecting these creatures required little to no skill. Women and children most likely collected shellfish by digging them up with a small stick or their hands.

2) How did the Calusa make and utilize canoes?

Canoes were vital to Calusa life. They were used for everyday travel, trade, fishing, and warfare. The Calusa probably made dugout canoes from pine and cypress trees. Canoes for calm water had simple **prows**, and those for rougher seas had projecting prows to help with canoe balance. To carry big loads, the Calusa made barges by tying a platform between two canoes or smaller canoes could be pulled as **dinghies**. The Calusa made canoes out of a single log. To shape the boat, they burned the middle and chopped out the charred wood with robust shell tools. They used other shell tools to finish the surfaces.

Canals served as highways for the Calusa and their neighbors making travel efficient. Canals connected communities and served as protected pathways for trade, tribute, and communication. The Calusa did not have large tools for digging. Instead they dug the canals with their hands or perhaps shells as hand shovels. In order to travel through the canals, the Calusa used canoes.



Pine canoe recovered from Florahome, Florida

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Section Two: Calusa Indians continued

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3) How did the Calusa use the non-digestible parts of their food?

The Calusa used shark teeth to make precision cutting and drilling tools, and deadly weapons. Rough sharkskin made perfect sandpaper and the oil from shark livers was mixed with pigments to make body paint that also repelled mosquitoes.

Shells became a wide variety of tools or products from conch shell horns, to cups or bowls. Shells were also carved into beads and ornaments for decorations as well as trade with other Indian nations.

Animal bones were also used. Large bones might have been carved into knife handles. Smaller bones were used as awls or made into beads.

4) How do scientists know so much about the Calusa if they are no longer a living group of people?

The Calusa made good use of their trash piles, called **middens**. Middens show archaeologists the remains of what people leave behind. Over the centuries these remains pile up in layers, the oldest layers on the bottom and the most recent on the top. Archaeologists read the stories of the past in these layers. Animal and plant remains from middens reveal what a group of people ate as well as the season in which people harvested their food. These remains tell us if people lived in a place year-round, or if they visited a place seasonally. The Calusa also built their houses on top of middens made completely of deposited shells.

Scientists and historians also have written descriptions from Spanish explorers and missionaries who came into contact with Native Americans or lived with them. Throughout the 16th century, Spanish explorers were voyaging to Florida, Mexico, and South America with intentions of conquering the land in the name of Spain. They were often at the mercy of Native groups to provide them with food. Interactions and observations were recorded in personal logs and journals. These written records, however, are biased against European standards and customs.



Artifacts of shells vital to Calusa daily life.
Photo by Jeff Gage.



Artifacts from Oven Hill site.
Photo by Jeff Gage.

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Section Two: Calusa Indians continued

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Inside the Calusa leader's house.

5) Did the Calusa have a government? How did they divide labor?

Spaniards described Calusa society as divided into nobles and commoners. Spanish society was organized this way, so the Spaniards may have misinterpreted what they saw. But it does seem clear that a small group of leaders made decisions for the Calusa and provided protection. Commoners provided labor for public works projects and food for the nobles.

Calusa leaders were kin to one another and inherited their positions. The people believed that their leader was responsible for ensuring a plentiful availability of food and water. Calusa people worked daily, and enjoyed good health and long lives. Work did not take the whole day. People had time for games, song, dance, and public ceremonies.

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Section Two: Calusa Indians continued

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6) What were Calusa religious beliefs?

Little is known about Calusa religion before Spanish contact and influence. Juan Rogel, a Spanish missionary priest, however, described some Calusa beliefs in 1567. Despite obvious bias, these writings are vital to our limited understanding of Calusa beliefs.

They say that each person has three souls. One is the little pupil of the eye; another is the shadow that each one casts; and the last is the image of oneself that each one sees in a mirror or a calm pool of water.

And when a person dies, they say that two of the souls leave the body and that the third one, which is the pupil of the eye, remains in the body always.

They believe those who govern the world to be three persons...

- *The first one, who is greater than the other two, is the one to whom the universal government of the most universal and common things belong, such as the heavenly movements and the seasons.*
- *The second one is greater than the third, that to him belongs the government of the kingdoms, empires, and republics.*
- *The third one, who is the least of all and the one who helps in the wars. And to the side to which he attaches himself, they say that that one gains victory.*

The Calusa say that when a person dies, the soul enters into some animal or fish. And when they kill such an animal, it enters into another lesser one so that little by little it reaches the point of being reduced into nothing. (Juan Rogel, 1568)

Spaniards made two attempts to establish missions among the Calusa. Both failed. Spanish Jesuits established a mission at the Calusa capital town of Calos and attempted to make Christians of the Calusa. But the Calusa remained true to their beliefs, even after Spaniards killed their leader. The Jesuits abandoned the mission in 1569. In 1697, the Franciscans established a new mission, but lived there just a few months before the Calusa forced them to leave.

Pre Activity

Rising Sea Levels: Sea level is affected by global climate. Increasing temperature results in an increasing sea level.

Materials:

- A conical flask
- Cork with two holes for tube and thermometer
- Thin glass tube with ml measurements
- Long thermometer
- Lamp
- 150-watt floodlight
- Food coloring

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Section Two: Calusa Indians *continued*

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Set Up:

- Fill the flask with very cold water. Add food coloring for easier viewing.
- Place the cork in the stopper
- Slide the thermometer and tube into the holes in the cork. The water level should rise slightly into the tube

Actions:

- Have one student come up and record the temperature of the water.
- Have another student come up and record the height of the water.
- Have students predict what will happen when the flask is heated. Have them write down their hypothesis.
- Place the flask over the lamp.
- Turn on the lamp and record the temperature and height of the water every two minutes.
- Extension: Have each student create a table to record the data and then create a graph afterward to show temperature of water versus height of water.
- What happened to the water as the temperature rose? An aspect of Global Warming is that air temperature is higher and rising. If the water represents the ocean, what does this mean for ocean levels? What would happen if ocean levels rose?
- Show students the prediction map for how much of South Florida would be under water if Global Warming continues.

Field Trip Activity

- Look at the different tools used for fishing? What advantages do students think each one had? What disadvantages? Which ones might catch more fish?
- Look at the hut outside. What is the hut built on? Why do students think it was built on shells?
- Look at the archaeological stratigraphy wall. What can you see in the different layers? Which layers are the oldest? How do you know?

Post Activity

Daily life of a child was very different when the Calusa were alive. There were no movies, video games, books, etc. and children's chores were essential to the survival of a family.

Actions:

- Have students imagine that they are a Calusa child. Have each student write a story of a typical day in their life from the time they wake up in the morning until the time they go to sleep at night. What do you eat? What games do you play? What is your family like? How do you help your family?
- Ask students to share their stories.
- Discuss the different aspects of daily life that students chose to incorporate into their stories. Why do they believe that these actions were part of a Calusa child's life?

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Section Three: Native American Legacy

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Introduction

A few of the objects in this section of the South Florida exhibit are from burial sites. These objects present a special challenge to this museum and to all institutions that hold cultural materials of this nature. Most, if not all, native groups are offended by the idea of disturbing burials and removing human remains and objects. They also feel that viewing objects associated with a burial is disrespectful. We wish to show respect toward these groups and objects, and have consulted with native people to seek their advice about the displays. They suggested we let people know before they enter the exhibit so that they may prepare themselves appropriately. There is also one exhibit case that is completely dark unless the light button is pushed. This is to allow visitors the choice of viewing these burial related objects.

The legacy of the Calusa and their neighbors lives on. They left behind a material record of their culture that is uncovered and studied by archaeologists. Objects recovered from archaeological sites give us a glimpse into the lives lived by the Calusa.



Toomeys-Pineland dig site. Photo by Bill Marquardt

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Section Three: Native American Legacy continued

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Most of the objects in this section are from three important South Florida archaeological sites. Excavated by Frank Cushing in 1896, the Key Marco site is recognized worldwide for its remarkable specimens of Native American artistic achievement. Unusual conditions of preservation at this muck site allowed recovery of organic materials such as netting, cordage, wooden boxes and bowls, bone implements, several extraordinary carved and painted masks and figureheads, and a famous 6-inch high wooden feline figurine.

Pineland was a major town in the Calusa heartland. Its 30-foot-tall mounds and 30-foot-wide canal suggest its importance to Calusa politics and trade. Florida Museum archaeologists recovered fragments of cordage, wood chips, and other plant materials, as well as a thousand-year-old carved wooden crane's head. Pineland holds great potential for further discoveries in continuing excavations by the Florida Museum of Natural History.

The Pineland site complex is located in coastal Lee County, northwest of Fort Myers. The site is listed on the National Register of Historic Places and is part of the Randall Research Center, a component of the Florida Museum of Natural History, which has conducted research and education programs in Southwest Florida for more than 20 years.

Fort Center is the modern name given to a site near Lake Okeechobee. It was connected to Florida's west coast by a series of canals and natural drainages. Fort Center had substantial earthworks and a pond containing a wooden platform that had been supported by wooden animal posts carved about 1500 years ago. Archaeologists also found metal artifacts made 300 to 450 years ago.

The objects of this exhibit were buried in the ground for hundreds of years, preserved by wet soils. Wood was the medium of most Calusa expression and therefore, this exhibit displays a large quantity of wooden artifacts. Wood played a role in every facet of life — from canoes to containers, tools to masks, and weaponry to ornaments. The Calusa are known for their excellent wood working skills.

Upon excavation and exposure to air, the paint colors of these wood artifacts faded and the wood shrank and warped. Museum exhibit cases have to be specifically designed to control the climate (temperature and humidity) in order to prevent any additional deterioration of the artifacts. These design features include monitoring humidity inside well-sealed cases with special materials that measure humidity levels and absorb excess moisture as well as fiber-optic lights that do not emit heat or ultraviolet rays that can damage artifacts. Lastly, the mounts that hold the objects in place are individually designed to give proper support with non-harmful materials.

Vocabulary Words

Archaeology: The study of human cultures through the collection, documentation, and analysis of material remains.

Conservator: A person who is responsible for restoring artifacts and works of art.

Earthworks: Artificial changes in land height or level.

Muck: Soft, moist dirt.

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Section Three: Native American Legacy continued

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Guiding Questions and Answers

1) Why were organic materials preserved at these sites and not at others?

Why did they then deteriorate upon excavation? Can deterioration be prevented?

Florida's wetlands contain many well-preserved archaeological sites. "Wet sites" preserve materials rarely recovered from dry-land archaeological sites because the bacteria that cause decay of organic materials cannot survive in low-oxygen wetland environments.

Three important wet sites in South Florida are:

- Fort Center, Glades County
- Pineland, Lee County
- Key Marco, Collier County

Unfortunately, archaeologists discovered that once these organic specimens were removed from the wet soils, they rapidly deteriorated, paint colors faded and wood warped, shrank, and cracked. Today, professional conservators use specialized methods to prevent the decay of wet site objects. Conservators immerse some waterlogged objects in liquid chemical mixtures that gradually replace the water in the wood. This stabilizes the decaying wood cells, which would otherwise collapse as the water evaporates.

Other materials, especially cloth, fibers, leather, and some woods, respond well to freeze-drying. Conservators first soak the object in a liquid chemical mixture to replace much of the water, and then freeze-dry it to remove any additional liquid.

Pre Activity

Artifact Interpretation: Objects such as money can reveal a lot about the cultural group that created and used the object. Look for clues such as language, dates, and pictorial symbols.

Materials per group

- 1-2 pieces of foreign money (or pictures of)
- Pencil
- Paper

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Section Three: Native American Legacy continued

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Actions:

- Divide the class into groups of 3-4. Distribute one or two pieces of foreign money to each group.
- Each group should choose one person to write for the group.
- Students are now archaeologists, examining artifacts found at a site. Their task is to determine as much as they can about the culture that created the object.
- Groups should present their conclusions to the rest of the class and the reasons they came to those conclusions. What processes did they use to reach their conclusions?
- Discuss the different types of information that can be obtained from artifacts and problems that can occur from making assumptions based on modern knowledge and behavior. Just because an object looks similar to an object we use today, does not mean that they used it the same way. It is difficult to determine aspects of another culture, but all archaeologists can do is make their best educated guess based on the artifacts discovered.

Field Trip Activity

- Point out the low levels of lighting used in this room and discuss how light can fade items. (Example: carpet that is in the sun; construction paper left in the sun) We do not want these items to fade, so they are in low levels of light that will not damage them. Why is it important to protect artifacts that are in museums?
- Point out the wooden plaque with the ivory-billed woodpecker. What do students notice about this artifact? It is very small, the wood is cracked, and the paint is faded. Look back in the previous room. There is a recreation of this wooden plaque as it was when archaeologists first discovered it. Explain that when archaeologists uncovered it, the wood dried out, shrank, and warped. Scientists have now found special ways to prevent the wood from becoming damaged like this. Why is it important for scientists to protect artifacts when they come out of the ground?

Post Activity

Bag O' Artifacts: Artifacts represent individuals as well as cultures. Groups of artifacts found together can change the meaning of single artifacts.

Materials:

- Lunch size paper bags
- List of numbers; each number should be assigned to an individual student

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Section Three: Native American Legacy continued

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Actions:

- As homework, have each student bring in several objects (that will fit in the bag) that they feel represent who they are as a person. For example, if they love cats they may decide to put a cat sticker or a cat figurine in the bag. Or if they collect a certain object, they can put that in the bag. If they love painting, they could put a paintbrush or a container of paint in the bag. Instruct students not to share what they put in their bags with the other students.
- Give everyone an individual number to put on their bag and keep a list of the names and numbers that students cannot see. Do not put names on the bags.
- Mix up the bags and distribute the bags so that everyone gets someone else's bag.
- Have each person try to guess to whom the bag belongs. How could they tell? Discuss the different ways that students came to their conclusions.



Ivory-billed woodpecker plaque

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Section Four: Today's South Florida Indian People

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Introduction

There are two federally recognized Indian tribes in South Florida today, the Seminole and the Miccosukee, as well as the unaffiliated Independent or Traditional Seminoles. These people have survived centuries of war, cultural upheaval, and oppression. In spite of the odds, they have a vibrant living culture that both retains traditional cultural values and charts new paths into the future.

Ancestors of the Seminole and Miccosukee had lived in the lower Southeast for many thousands of years. When Europeans invaded America, southeastern people suffered tremendous population loss and cultural disintegration from new diseases, warfare, and slavery. Determined to survive, many Indian people joined together. Some moved into the Florida peninsula, particularly people from present-day Georgia and Alabama whom the English called "Creeks." Remnant populations of Florida native peoples as well as Africans who had escaped from colonial slavery joined them. Spaniards referred to these native people as *cimarrónes*, meaning wild or untamed. Among the Indians, this word became *Simanóli*. Later, U.S. citizens called all Florida Indians Seminole.

Among the Seminole and Miccosukee, kinship passes through the women. Children are born into their mother's clan, or extended family group. A man marries into his wife's clan and traditionally lives in the wife's clan camp. Today there are eight clans: Panther, Bear, Deer, Wind, Bigtown, Bird, Snake, and Otter. Other clans, such as Alligator, are now extinct because the last female member died.

Between 1817 and 1858, the U.S. waged three aggressive campaigns against the Seminoles called the "Seminole Wars." These wars were an attempt to destroy the power of the Seminoles and allow for colonization of territories coveted by Whites. The U.S. government forcibly removed more than 3,000 Seminoles to Oklahoma during the "Trail of Tears". Descendants of these people are members of the Seminole Nation of Oklahoma.

A few hundred Seminoles avoided government capture and survived in the remote South Florida wilderness. Their descendants are members of today's Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida, and the unaffiliated Independent or Traditional Seminoles.

Today over 36,000 American Indian people live in Florida, representing over 300 tribes, bands, and groups. In addition, census records show that nearly half a million Florida residents report some American Indian heritage. The Seminole Tribe of Florida (over 2,000 members) and the Miccosukee Tribe of Indians of Florida (over 500 members) are the only federally recognized tribes whose governmental headquarters are located in Florida. Approximately one-third (about 500 people) of the Poarch Band of Creek Indians, headquartered in Alabama, live in northern Florida.

Fun Fact: Seminole and Miccosukee women wear rattles on their legs during some traditional dances. Rattles made of metal cans replaced the traditional turtle shell rattles in the 20th century. Dancers filled both kinds of rattles with seeds of the native *canna lily*.

PART ONE: SOUTH FLORIDA PEOPLE AND ENVIRONMENTS



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Section Four: Today's South Florida Indian People continued

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Vocabulary Words

Chickee: Seminole word for house. A typical Seminole house was bald cypress log frame with a palmetto thatch roof.

Clan: A group of families related through a common ancestor or marriage.

Miccosukee: A Native American Tribe who currently lives in Florida along with the Seminole. Linguistic differences are one of the main things that separate these tribes.

Patchwork: Needlework in which patches or scraps of fabric are sewn together.

Poarch Band of Creek Indians: A Native American Tribe made up of Creek Indian descendents and descendants from other groups. Tribal members are located in both Florida and Alabama; however, the tribal headquarters are in Alabama.

Trail of Tears: A forced relocation of Native American group during the 1830's. The Indian Removal Act forced Indians to vacate their land in the Eastern United States, moving west of the Mississippi River.

Seminole: A member of any of several groupings of Native Americans comprising emigrants from the Creek Confederacy territories to Florida or their descendants in Florida and Oklahoma.

Sofke: From the Creek word asofke meaning corn soup, or sour corn soup. Variations of this traditional corn soup are still made by members of many Eastern Native American tribes.

Guiding Questions and Answers

1) What traditions of the Seminole and Miccosukee remain today?

The Seminole and Miccosukee are well known for their colorful clothing. In the 19th and early 20th centuries, women decorated clothing with designs sewn onto completed garments. By 1880, hand-operated sewing machines allowed for more complex designs. By the 1920s they had developed their famous patchwork designs, which were sewn directly into the garment. Although clothing and patchwork designs have changed over the years, the tradition is very much alive today. Many Seminole and Miccosukee people wear patchwork daily or for special occasions. Patchwork artists exhibit and sell their work at tribal fairs and other community events.



Seminole patchwork skirt

Seminole and Miccosukee women have made dolls for the tourist trade since the early 20th century. Most dolls are made of sewn and stuffed saw palmetto trunk fiber, and wear patchwork clothing. Fewer women make dolls today, but the tradition persists and dolls remain popular with tourists and collectors.

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Southeastern peoples have made baskets for thousands of years. Seminoles recall a once elaborate basket tradition that simplified during the Seminole Wars. Utilitarian baskets made of split cane or saw palmetto stems were common in the 19th and early 20th century. Coiled sweet grass baskets became common in the 20th century and are the dominant form today. Basketry is mainly a woman's art.

Woodworking is traditionally a man's art. They made the family chickee (house), dugout canoes, ball-game racquets, men's dance rattles, corn mortars and pestles, large spoons for sofke (corn soup), and model canoes and animals for the tourist trade. Fewer men practice woodworking today, but the tradition still lives.

Traditional Seminole and Miccosukee houses, called chickees, are constructed of cypress log frames covered with palm thatch roofs. Today nearly all Seminole and Miccosukee people live in modern homes but still enjoy traditional chickees for family gatherings or special purposes. Specialized builders preserve the time-honored craft of chickee construction, and their creations range from small playground structures to fantastic community buildings.

Seminole silver working was also a man's art practiced most actively during the 19th and early 20th centuries. Silversmiths fashioned European coins into ornaments for men and women. The simplest technique was to pierce coins for use in necklaces or earrings. More complex bossed ornaments were made by heating a coin, hammering it flat on an axe-head anvil, cutting the shape, and using antlers or other sharp objects to emboss a design. Pierced ornaments had designs cut into a flattened coin or other silvery metal. Today silver working is virtually a lost art, although several individuals are attempting to revive the tradition, often with a modern flair.

Beads have figured prominently in Seminole and Miccosukee decorative arts, and have always been important to southeastern peoples. Throughout Native America, European glass trade beads largely replaced pre-Columbian beads made of shell, bone, and other natural materials. Prior to the 19th-century Seminole Wars, both Seminole men and women wore strung glass beads. Women also worked glass beads into men's clothing, including fancy shoulder pouches, beaded belts and shoulder sashes. Well into the 20th century, Seminole women commonly wore enormous numbers of beaded necklaces. Today, beaded bracelets and necklaces still find their way into many Seminole wardrobes.



Seminole doll



Seminole basketry



Seminole chickee

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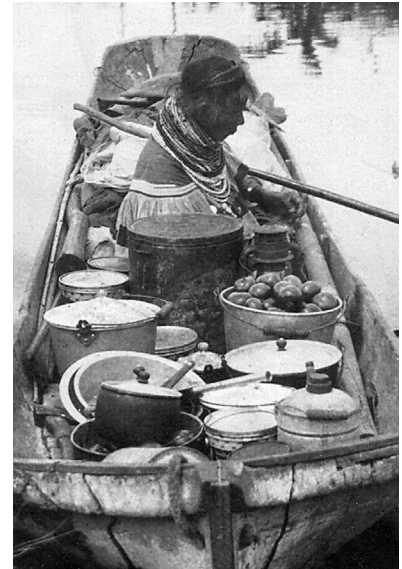
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Finger weaving is a technique of interlacing yarns onto a small hand-held loom by using fingers rather than a shuttle. Finger weaving was common among all southeastern peoples in the 18th and 19th centuries. Seminole and Miccosukee women produced finger woven sashes, garters, belts, and other specialized clothing for men. They sometimes added beads to decorate the woven designs. Although the art of finger weaving is no longer active today, a renewed interest in traditional arts and Seminole reenactments may bring it back to life.

Today, most traditional cooking occurs on special occasions, although fry bread and sofkee are still common. Sofkee is a hot drink or soup made of corn grits or roasted corn. In the past, a pot of sofkee or other hot soup would simmer all day on the fire for people to help themselves when hungry. Swamp cabbage (the heart of the cabbage palm), bread made from coontie flour (from the *Zamia* plant's root), turtle, garfish, and other wild foods were also on the Seminole menu.



Indian trade scene

Native people today speak English, but they are committed to teaching the traditional languages to their children. There are two distinct languages among the Seminole: Mikasuki (or Hitchiti) and Creek (or Muskogee). Miccosukee people speak Mikasuki while some Seminoles are fluent in both languages. Until recent years, Seminole and Miccosukee history has been strictly an oral tradition. Legends, which recount historical events, impart life values, or explain why the world is the way it is, are still a valuable way for elders to pass information to children and other tribal members.

The Seminole and Miccosukee still practice traditional ceremonies, the most important of which is the annual Green Corn ceremony that gives thanks to the Creator for providing food. Green Corn is a private tribal ceremony where dances, purification and manhood ceremonies, and resolution of disputes take place. Although non-Indians cannot attend Green Corn, the public can enjoy Seminole dance performances at events such as the Florida Folk Festival. Traditional doctors still play a vital role in Seminole and Miccosukee society. These medicine men and women do not replace western medical doctors, but rather complement western medicine. They use natural ingredients and customs such as chanting to treat a wide variety of physical and mental disorders. Traditional medicine can also influence a person's decisions, success, safety, and other life issues. Most details about traditional medicine are not discussed outside the Tribe.

2) Where do the Seminole and Miccosukee live today? What do they do?

Before the Seminole Wars and especially during the late 18th century, Seminole people actively engaged in trade with Europeans. Trading posts became centers for material and cultural exchange. Seminoles traded animal skins and farm produce such as rice, corn, pumpkins, peaches, and melons for European goods such as fabric, horse tack, knives, jewelry, guns, and ammunition.

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Section Four: Today's South Florida Indian People continued

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Most people associate the Seminoles with the Everglades of South Florida. But during the 18th and early 19th centuries, the Seminoles lived in North Florida until forced further south by aggressive military campaigns.

Members of the Seminole Tribe of Florida live on six Seminole reservations or on non-reservation land. Members of the Miccosukee Tribe live on or near four reservations or on non-reservation land.

The Seminoles and Miccosukees actively engage in a wide range of economic enterprises. Perhaps best known for their gambling casinos, they also operate cattle ranches, citrus groves, construction companies, an Everglades Restoration Initiative, a broadcasting service, a tribal newspaper, schools and health services, tourist attractions, and educational enterprises such as the Ah Tah Thi Ki Museum and the Miccosukee Indian Museum.

3) Who are the Black Seminoles?

The people who came to be known as “Black Seminoles” were Africans who escaped from slavery in the English colonies, fled to Spanish Florida, and allied themselves with Seminole Indian people. Black Seminoles created a culture of their own and reshaped relations among people of Indian, African, and European descent.

The Black Seminoles established towns near and sometimes with their Indian allies, and often served as interpreters and negotiators between Seminoles and Europeans. Nominally regarded as “slaves” to the Seminoles, the Africans provided their allies with a “tax” of agricultural produce, but otherwise lived much as equals and political partners. The Seminoles valued their abilities as interpreters, and relied on them as advisors and strategists, as well as fighters and farmers.

The relationship between Africans and Seminoles angered and frightened English colonists and later Americans. The U.S. Government forcibly removed most Black Seminoles along with other Seminole people to the Indian Territories in Oklahoma. Today, people of Black Seminole descent still live in Oklahoma, Texas, and Mexico. Some Black Seminoles escaped from Florida to the Caribbean, and their descendants continue to live on Andros Island in the Bahamas.

Little is known about Black Seminoles in Florida because their survival depended on their ability to avoid capture or notice, and they left few written records. Recent research has employed the tools of history, oral history, and archaeology to reconstruct the Black Seminole story.

One University of Florida project identified the location of Peliklikaha, a prominent Black Seminole town during the early 1800s, located in today's Sumter County. Peliklikaha was home to Abraham, a renowned Black Seminole interpreter. Seminole chief Micanopy, with whom Abraham collaborated throughout the Seminole Wars, probably resided there at least part-time. Excavations at the site uncovered fragments from everyday life, and indicate that the residents lived much like their Seminole allies and neighbors.



Ben Bruno, confidant of Chief Billy Bowlegs, was interpreter and advisor to the Seminoles.

Picture of Special Collectionns, University of Florida Libraries

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Pre Activity

Ah-Tah-Thi-Ki Museum: Ah-Tah-Thi-Ki meaning, a place to learn on the Big Cypress Seminole Reservation, is an excellent resource for Seminole history and culture.

Visit the Ah-Tah-Thi-Ki Museum at Big Cypress in person or on the Internet at www.ahatathiki.com. Keep an eye out for the upcoming virtual exhibit.

Field Trip Activity

- What are the different crafts students see?
- What do students notice about Seminole clothing? How is it similar or different to their clothes?
Do students have special clothing that they wear for ceremonies and special occasions?

Post Activity

Current Affairs: The Seminoles are a living, breathing people who deal with many of the same issues as the rest of the world.

Set Up:

- Visit www.seminoletribe.com and click on tribune.
- Print out several recent and archived articles.

Actions:

- Have students read articles from the Seminole Tribune.
- What topics are discussed in the articles?
- What information is important to the Seminole tribe?
- How is the information and topics similar or different from the news students see on TV or read in newspapers and magazines?

PART TWO: TEACHER AND STUDENT RESOURCES



Florida Museum of Natural History

Section One: Books

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PART TWO: TEACHER AND STUDENT RESOURCES



Florida Museum of Natural History

Section One: Books continued

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PART TWO: TEACHER AND STUDENT RESOURCES



Florida Museum of Natural History

Section One: Books continued

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PART TWO: TEACHER AND STUDENT RESOURCES



Florida Museum of Natural History

Section Two: Web Resources

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Estuary Plant and Animal Fact Sheets

<http://www.estuarylive.org>

Estuary plants and animals can be located at

<http://www.Enature.com>

Everglades National Park

<http://www.nps.gov/ever>

Exploring Florida Then & Now

<http://fcit.usf.edu/florida/lessons/lessons.htm>

Florida Everglades

<http://www.florida-everglades.com>

Florida Museum of Natural History Education Resources

<http://www.flmnh.ufl.edu/resources>

Florida Museum of Natural History Research and Collections

http://flmnh.ufl.edu/museum/research_collections.htm

Ichthyology (Fish Studies) at Florida Museum of Natural History

<http://www.flmnh.ufl.edu/fish/Education/GroupsFish/FishGroups.htm>

Mangrove Trees in Florida

<http://www.floridaplants.com/horticulture/mangrove.htm>

Miccosukee Seminole Nation

<http://www.miccosukeeseminolenation.com>

National Museum of the American Indian

<http://www.nmai.si.edu/>

Native American Literature on the Web

<http://www.indians.org/Resource/natlit/natlit.html>

Powwows and Native American events in North Central Florida

Chamber's Farm Powwow

<http://www.chambersfarm.org>

PART TWO: TEACHER AND STUDENT RESOURCES



Florida Museum of Natural History

Section Two: Web Resources continued

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Florida Folk Festival

<http://www.floridastateparks.org/folkfest>

Seminole Tribe of Florida

<http://www.seminoletribe.com>

Section Three: Videos and Music

Florida Anthropological Society. *Shadows and Reflections: Florida's Lost People*. 22 min. video: Florida Heritage Production, 1998.

Florida Museum of Natural History. *The Domain of the Calusa; Archaeology and Adventure in the Discovery of South Florida's Past*. 30 min. video. 1995.

Seminole Tribe of Florida. *Osceola's Journey: The Seminoles Return to Charleston*. 35 min. video: Dept. of Anthropology and Genealogy, Seminole Tribe of Florida, 1999.

Seminole Tribe of Florida. *The Corn Lady; Seminole Indian Legends*. 30 min video: Seminole Tribe of Florida, 1991.

PART TWO: TEACHER AND STUDENT RESOURCES



Florida Museum of Natural History

Section Four: Current research at the Florida Museum

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Florida Museum of Natural History Research and Collections

http://flmnh.ufl.edu/museum/research_collections.htm

Archaeology

<http://www.flmnh.ufl.edu/sflarch/research.htm>

Florida Museum of Natural History research in southwest Florida addresses issues of interest to scholars and a wide range of the American public. Research topics include:

1. The Calusa Domain
2. People and the Environment
3. Post-Contact Transformations

Herbarium

Staff, research associates and graduate students of the University of Florida Herbarium (FLAS) have been collaborators in the Generic Flora of the Southeastern United States, a NSF-supported project, for many years.

<http://www.flmnh.ufl.edu/herbarium/genflor/>

The Melastomataceae are the seventh largest family of flowering plants. They are liberally distributed throughout tropical and subtropical regions worldwide. Most species are instantly recognizable as melastomes by the acrodromous (“checkerboard”) venation.

The Melastomataceae are particularly notable for their diversity of hair types and modifications of the stamens. In many areas, the family comprises a large percentage of the flora and is generally of considerable ecological importance. Despite being a very conspicuous component of most tropical ecosystems, their patterns of explosive evolution, intriguing biogeography and natural history, the Melastomataceae remain, to a large degree, an understudied family. <http://www.flmnh.ufl.edu/herbarium/melastomes/>

PART TWO: TEACHER AND STUDENT RESOURCES



Florida Museum of Natural History

Section Four: Current research at the Florida Museum continued

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Ichthyology

<http://www.flmnh.ufl.edu/fish/sharks/nsrc/uf.htm>

The Florida Program for Shark Research (FPSR), directed by George H. Burgess, currently includes the Commercial Shark Fishery Observer Program (CSFOP), the International Shark Attack File (ISAF), other research initiatives, and a major website focusing on shark research, fishery management and conservation.

The CSFOP, now in its tenth year, monitors the U.S. East Coast commercial bottom longline fishery. This provides fishery and life history data for those in charge of monitoring fish populations. The CSFOP is particularly useful in assessing shark populations.

The ISAF is a database of all known shark attacks on humans. It is maintained at the Florida Museum of Natural History and is operated in cooperation with the American Elasmobranch Society (AES), an international scientific organization of researchers studying sharks and their relatives. The FLMNH website is the largest and most frequently accessed elasmobranch site on the World Wide Web and provides educational material about sharks and their kin.

The primary objectives and public service of projects conducted by FLMNH through the Florida Program for Shark Research include:

1. Determine the distribution and population number of sharks.
2. Study the biology, ecology and behavior of coastal elasmobranchs (cartilaginous fish).
3. Increase international public awareness for conservation concerns of elasmobranchs.
4. Conduct studies on the systematics, zoogeography and evolutionary relationships of sharks.
5. Investigate and compile information on shark attacks.
6. Provide educational and technical training of students.

PART THREE: RELATED EXHIBITIONS AND PROGRAMS



Florida Museum of Natural History

Section One: Permanent Exhibits

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Florida Fossils: Evolution of Life and Land

Drawing upon the Florida Museum’s internationally acclaimed fossil collections, this award-winning exhibit describes the last 65 million years of Florida’s history. Walk through time beginning with the Eocene, when Florida was underwater, to the Pleistocene when the first humans arrived 14,000 years ago. More than 90 percent of the 500 fossils are real and many were found within 100 miles of Gainesville.

Northwest Florida: Waterways and Wildlife

This exhibit follows water as it flows through the unique environments of northwest Florida, the most biologically diverse region of the state. Explore a hardwood hammock featuring a life-sized limestone cave, a seepage bog with its carnivorous plants, a Native American trading scene and more.

Butterfly Rainforests: Where Science Takes Flight

Stroll through this 6,400-square-foot screened, outdoor enclosure with subtropical and tropical plants and hundreds of living butterflies. View thousands of Lepidoptera species on the “Wall of Wings” and learn about butterfly and moth biology. See scientists working in the Butterfly Rearing Lab and the Research Labs.

PART THREE: RELATED EXHIBITIONS AND PROGRAMS



Florida Museum of Natural History

Section Two: School and Outreach Programs

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Programs Overview

School groups include home schools and public, private and faith-based PreK-12 schools within a school district.

The Florida Museum of Natural History offers the following field trip opportunities for school groups:

Guided School Programs

Join our museum docents for hands-on classroom activities and interactive walks through our state-of-the-art exhibits and outdoor natural areas. Guided programs are offered Tuesday through Friday mornings, Oct. 7, 2008, through May 22, 2009. Programs fill quickly, especially for the months of October, November, April and May. To avoid disappointment, reserve your date as early in the school year as possible. Reservations must be made a minimum of three weeks in advance of the program date.

http://www.flmnh.ufl.edu/education/guided_programs.htm

Indoor Programming

- 10-60 students per program
- Each program is 60 minutes in length
- \$3 student, 1/10 ratio chaperone free, additional chaperones \$3/each
- Butterfly-focused programs will have additional entry fee into the Rainforest
- Programs will work with grades pre-school to 12th grade. Each program will be individualized to provide age-appropriate activities

Indoor Program Options:

- Butterfly and Moth Explorations
- Fossils - No Bones About It!
- Trails in Time - Florida's Indian Peoples
- Waterways and Wildlife of Florida

Outdoor Programming

- 10-40 students per program
- Each program is 60 minutes in length
- \$3 student, 1/10 ratio chaperone free, additional chaperones \$3/each
- Outdoor Programs are available for pre-school through 5th grade students only

Outdoor Program Options:

- Eye on Insects - Fall Only
- Green Machine - Spring Only
- Stayin' Alive

PART THREE: RELATED EXHIBITIONS AND PROGRAMS



Florida Museum of Natural History

Section Two: School and Outreach Programs continued

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Self-Guided Visits

Suitable for groups that prefer to visit the museum without the benefit of docents or staff. Reservations are required for all self-guided visits of 10 or more students to ensure a positive experience for your group. Self-guided visits must be reserved at least two weeks in advance and are available Monday through Friday during Museum hours. A staff member will greet your group and facilitate the purchase of any tickets before you enter the Museum. After that, your group leaders are entirely responsible for the educational experience of the students.

School Group Self-Guided Tickets (10 or more individuals)

See link - http://www.flmnh.ufl.edu/education/self_guided.htm

Outreach – Inquiry Boxes

The Florida Museum of Natural History currently offers five Inquiry Box outreach programs for use in your classroom. They are also a great way to compliment your docent-led program or self-guided field trip to the Museum. Our Inquiry Boxes are correlated to the Sunshine State Standards and are designed to enhance FCAT preparation.

Each Inquiry Box contains selected natural history objects, games, a video, reference materials and a teacher's guide. Classroom teachers at any grade level may check out the Inquiry Boxes at a cost of \$25/box for a two-week period. Teachers will be responsible for the pick-up and return of the Inquiry Boxes to and from museum. If interested, please contact tours@flmnh.ufl.edu.

- Florida's Butterflies and Moths - grades K-4
- Florida's Reptiles and Amphibians - grades 2-6
- Northern Florida's Early Native People - grades 4-8
- Southern Florida's Early Native People - grades 4-8
- Florida's Seminole People - grades 2-6

Coming Soon!

- Florida's Fossils - grades 5-8
- The Geology of Florida - grades 5-8

http://www.flmnh.ufl.edu/education/inquiry_boxes.htm

PART THREE: RELATED EXHIBITIONS AND PROGRAMS



Florida Museum of Natural History

Section Three: General Visitor Programs and Special Events

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Programs for Children and Adults

The Florida Museum offers a wide variety of educational programming for visitors of all ages. These programs include summer and spring break camps, adult workshops and classes, field trips, lectures, weekend and school holiday classes for kids, and a preschool program for tots and parents. Programming for the general public also includes annual and special events such as Collector's Day, Museum Nights, Butterfly Fest, Earth Day and Family Days at each exhibition opening.

Discovery Room

Swim through the shallows of a coral reef, puzzle together a prairie and create creatures from Florida's diverse ecosystems in our self-guided discovery stations. Visit our hands-on Discovery Room filled with activities and join us during scheduled program times for stories, puppets, Museum exploration with Dr. Discovery and more! To utilize the Discovery Room, groups must have one adult chaperone for every 5 students. The Discovery Room attendant reserves the right to limit the number of room participants or ask visitors to leave.

www.flmnh.ufl.edu/education/

PART FOUR: EXHIBIT MAP



Florida Museum of Natural History

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