FLORIDA'S TEACHER PACKET

Included in this packet: Introductory letter, Lesson Plans, Resources

Lesson plans:
- Animals in Fact
- Habitat Sweet Habitat
- Create a Community
- Create a Creature
- Only Crabs Can Be Crabby
- Layers of Life
- The Crane Connection
- Backyard Exploration
- River Otters of Florida
- The Florida Panther
- Find Those Critters!
- A Virtual Field Trip to Wild Florida
- Oyster Habitat of Florida

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- Mikey Marini
- Laurie Molina
- Carrie Paige
- Elizabeth Smith

FLORIDA GEOGRAPHIC ALLIANCE
fga.freac.fsu.edu/gaw/
Hello Geography Teachers,

The 2003 Geography Awareness Week (GAW) approaches and the Florida Geographic Alliance has worked up some interesting activities for you. The 2003 National Geographic Society’s theme is Habitats, so the Florida packet shares the same focus. We are always concerned about educating learners of all ages about the importance of preserving Florida habitats. This year we would like to give special recognition to the Florida Natural Areas Inventory, Florida Fish and Wildlife Commission, the Water Management Districts, Florida Panther Net and the Florida Department of Environmental Protection for providing us with both data and imagery to enhance our Geography Action Program. Without their generous support we could not have produced this year's program!

You will find a wealth of resources for use with the activities and the poster on the GAW website (http://fga.freac.fsu.edu/gaw/). The website also provides a number of links to related sites as well as media contacts so you can let the community know what you are doing for Geography Awareness Week in your classroom. Geography Awareness Week is a great time to get your students involved with real life activities that impact their world. The student’s creative products can often times be our best advertisements, so be sure to contact those media folks and let them know what you are up to.

Once again there is a Geographic Information Systems Day (GIS) scheduled during the week. One link that we would like to call your attention to is the ESRI website (www.esri.com). Here you will find the information for a great community atlas project. If you are one of the schools that complete the project by the deadline, ESRI will send you free GIS software for your school. The Florida Geographic Alliance will help prepare you for the project with an inservice workshop and assist you and your students as they complete their community atlas. Please consider participating and do not hesitate to call or e-mail (esmith@admin.fsu.edu) to set up an inservice. The Community Atlas is another project that the media may want to highlight.

As usual, we would love to hear about all of the activities that your students participate in during the week so please complete the reporting form on the website. Your responses help us write the reports that provide the funding for future programs. We know that our Florida teachers are some of the best in the country and we like to share your successes at the national level.

Thanks for participating and we hope to hear from you soon. If you need extra posters, materials, or assistance, please do not hesitate to contact the Alliance office at (850) 644-2007.

Sincerely, Laurie and Ed
Animals in Fact

**Topic:** Learning about animals and their habitats

**Grade Level:** K-6

**Concept/Overview:** Students will research fiction and nonfiction material about a selected animal. Students will then create an animal and use it as a tool to introduce, or quiz each other about facts learned from reading.

**Objectives/Goals:** Students will:
1. research and read about their selected animal.
2. make a list of facts learned about the animal.
3. create an animal from construction paper.
4. utilize created animal as a tool for presenting information about their animal.

**Materials:**
- Butcher paper
- Poster board
- Construction paper - all colors
- Card stock - various colors
- White paper
- Stapler and/or glue
- Markers and/or colored pencils

**Procedures:**
**Initiating Activity:**
After reading and writing facts about their selected animal, students can divide up, and introduce, or even quiz each other on their particular animal.

**Strategies:**
1. Cut your chosen animal from butcher paper, poster board etc.
2. Write facts of other information, perhaps question and answers, on white or colored paper with pen.
3. Staple or glue as many facts to the animal as will fit.
4. Staple or glue construction paper flaps over facts.

**Culminating Activities:** Have students present their animal to the class and discuss what they learned about the animal and its habitat by participating.

**Extension Activity:** If you would like your animal to crawl or creep, create the animal out of a paper egg carton. Cut the egg carton in the shape you wish. This may take a bit of creativity. Other materials of choice can be used depending on the animal you want to create. Paint or use
markers to color your shell. Poke a hole in the top of the shell and attach a long piece of yarn. Cut out the body for your animal if you wish. Fold or adjust a head and draw a face. Glue the shell to the body. Let it dry. Put your fact flaps on your animals and take it for a walk. This could be a cute and creative parade of animals.

**Evaluation:** The presentation of materials and the final animal.

**National Standards:**
Standard 3: How to analyze the spatial organization of people, places, and environments on the earth’s surface.
Standard 8: The characteristics and spatial distribution of ecosystems on Earth’s surface.

**Sunshine State Standards:**
SS.B 2.3.6: Student understands how the interaction between the physical and human systems affect conditions on the Earth.
LA.B.2.3: Writes to communicate ideas and information effectively.
SC.D.2.3.3: Understands the need for protection of the natural systems on earth.
Habitat Sweet Habitat

Topic: Habitats

Grade Level: K-6

Time: Several class periods

Concept/Overview: Teaches the importance of understanding our connection to the environment and how fragile each habitat is.

Materials:
- Children’s literature (see resource section)
- Materials for masks or costumes
- Paper plates
- Large bags
- Construction paper
- Glue, Markers, Scissors

Objectives:
The students will:
1. develop awareness of how fragile and connected all things are.
2. recognize that each creature on earth has a house of its own, specially fitted for it.
3. identify ways we can help to protect habitats.
4. assume the role of a plant or animal to describe how that plant or animal is impacted by changes created by humans.
5. identify a goal or form of action to help in protecting habitats and/or communities from life-threatening actions.

Procedures:
1. Read A House Is A House For Me. Discuss the importance of everything having a home developed specifically for its needs. Discuss the importance of protecting these homes.

2. To illustrate the meaning of habitat for young children, have the students discuss why they live in the place they do. List basic needs provided by and in their home. What if your home excluded one of these basic needs?

3. To illustrate how things can happen to create change in habitats, have students read selected books or articles which demonstrate how the choices we make each day have an impact on plant and animal communities. Discuss many varied effects of the changes made by humans on other living things.

4. Prepare students for a Council of All Beings. Explain that a council meeting of the creatures, plants, and beings that live on Earth. Explain that they will “become” (in their imaginations) an animal, plant, or ecological feature (such as a mountain or river) and take part in a meeting to
discuss their feelings about Earth and its future.

5. Give each person quiet time alone to reflect about the plants, animals, birds, insects, etc. that share our Earth. They should think very hard because they will “become” one of the beings and speak as that being at the council.

6. After they have selected their being, they should prepare for the meeting by creating a mask or costume of their chosen being. Each child will design their own mask. Make this a quiet experience so they can think about their chosen being. Once they complete and wear their mask, they will “become” their being.

7. To begin with the council, have all beings sit in a circle facing each other. The leader of the meeting will take on the role of Chief Seattle and open the council with this brief speech:

Each part of the Earth is sacred. Every shining pine needle, every sandy shore, every mist in the dark woods, every meadow, and every animal, bird or humming insect is holy. You are part of the Earth and it is part of you. The perfumed flowers are your sisters; the deer, the house, the great eagle, these are your brothers. The tall mountain, the stream in the meadow, the body heat of the pony, and man—all belong to your family. All things on this Earth are connected, like the blood that connects one family so that whatever happens to the Earth, also happens to you. We have gathered here today to speak of our Earth. We want you to hear our words and learn from them.

8. Allow beings to come to the center one-by-one, identify themselves, and tell the council how they feel about what is happening to Earth and how it is affecting them. (If for example, they speak for an endangered animal, they can tell the council what is happening to threaten their existence.)

9. Before closing the council, have each participant commit him/herself to some form of action to accomplish the goals expressed. To end the meeting, have Chief Seattle close with these words:

This we know. Whatever happens to the Earth happens to the people of the Earth. Try to imagine the whole Earth as a spider’s web. Man did not weave this web of life, he is merely a strand in it. So whatever he does to the web, he does to himself.

National Standards:
Standard 8: The characteristics and spatial distribution of ecosystems on Earth’s surface.
Standard 14: How human actions modify the physical environment.

Sunshine State Standards:
SS. B.1.2.1: Students use maps, globes, charts, and graphs and geographical tools to gather and interpret data and to draw conclusions about physical patterns.
SS. B.2.3.6: Students understand how the interaction between physical and human systems affect current conditions on the Earth.
SC.D.2.3.3.: Students understand the need for protection of the natural systems on Earth.
Create a Community

**Topic:** Research animals and their habitats.

**Grade Level:** upper Elementary/Middle School

**Time:** 1-2 Weeks

**Concept/Overview:** Design a habitat from one of the attached lists.

**Objectives:** Students will be able to recognize and categorize habitats in different environments.

**Materials:**
- 6x6 foot paper or posterboard
- magazines or the internet for pictures
- supplies for decorating and painting

**Procedures:**

**Initiating Activity:** Research animals in their habitat. Use the internet, zoo books, and other resources to explore the animals on the attached list.

**Strategies:** Design a habitat from one of the attached lists: *Urban, Wetland, Desert, Arctic, Forest, Coral Reef, Tide Pool, Mountain.*

- Suggested ways to design a Habitat:
  1. Habitat Collage- Place a 6x6 foot piece of butcher paper on the wall. Posterboard could also be used. Students research and find pictures and information in the butcher paper. Students could also use this idea to prepare a wall hanging collage to exchange with another class or school.
  2. Use animals from the lists and illustrate a food chain.
  3. In lieu of a habitat perhaps develop a pond or forest community. Be accurate with the biodiversity and place animals and accurate information correctly within the community. Show how each faction of community life depends on another.

**Culminating Activity:** Create a rain forest in your classroom. Cover the walls with paintings of great Kapok trees and other types of natural vegetation that form the canopy, understory, and forest floor. Make paper models of animals native to the rain forest, such as birds, monkeys, snakes, jaguars, and the three-toed sloth. Investigate dangers to the rain forests, groups that are concerned about them, and what role you can play in preserving rain forests around the world.

**Evaluation:** Students discussion and finished products can be graded for their research, quality of craftsmanship, and creativity.
National Standards:
Standard 8: The characteristics and spatial distribution of ecosystems on Earth’s surface.

Sunshine State Standards:
SS.B.1.3.1: The student uses various map forms and other geographic representations, tools and technologies to acquire, process and report geographic information.
LA.2.3.5.: Locates, organizes and interprets written information for a variety of purposes.
A Desert Habitat
Golden Eagle
Elf Owl
Gila Woodpecker
Saguaro
Desert Tortoise
Mexican Gold Poppies
Mesquite
Cottontails Shrimp
Roadrunner
Jumping Cholla
Cactus Wren
Collared Lizard
Rattlesnake
Darkling Beetles
Mule Deer
Long-nosed Bat
Organ-pipe Cactus
Kit Fox
Kangaroo Rats
Evening Primroses
Coyote
Bobcat

The Tide Pool
High Tide
Low Tide
Sea Gull
Shore fly
Rockweed
Sea Lettuce
Sea Anemone
Sea Slug
Sand Dollar
Sponge
Kelp
Goby
Whelk
Mussel
Irish Moss
Blenny
Rock Crab
Sea Stars
Chiton
Periwinkle
Barnacle
Hermit Crab
Sea Louse
Limpet
<table>
<thead>
<tr>
<th>Forest Habitat</th>
<th>Coral Reef Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hawk</td>
<td>Whitetip Shark</td>
</tr>
<tr>
<td>Poplar Tree</td>
<td>Lionfish</td>
</tr>
<tr>
<td>Porcupine</td>
<td>Green Turtle</td>
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<tr>
<td>Nuthatches</td>
<td>Cuttlefish</td>
</tr>
<tr>
<td>Skunk</td>
<td>Pillar Coral</td>
</tr>
<tr>
<td>Poison Ivy</td>
<td>Bushy Gorgonian</td>
</tr>
<tr>
<td>Beaver</td>
<td>Coral Grouper</td>
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<tr>
<td>Ferns</td>
<td>Sea Fan</td>
</tr>
<tr>
<td>Garter Snake</td>
<td>Saddleback Butterflyfish</td>
</tr>
<tr>
<td>Box Turtle</td>
<td>Soft Coral</td>
</tr>
<tr>
<td>Moss</td>
<td>Hard Corals</td>
</tr>
<tr>
<td>Deer</td>
<td>Golden Jewelfish</td>
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<tr>
<td>Black Bear</td>
<td>Humbug Damselish</td>
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<tr>
<td>Raccoon</td>
<td>Regal Angelfish</td>
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<tr>
<td>Gray fox</td>
<td>Elkhorn Coral</td>
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<tr>
<td>Gray squirrel</td>
<td>Clown Triggerfish</td>
</tr>
<tr>
<td>Ovenbird</td>
<td>Lettuce Coral</td>
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<tr>
<td>Mushrooms</td>
<td>Lined Butterflyfish</td>
</tr>
<tr>
<td>Chipmunk</td>
<td>Sea Anemone</td>
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<tr>
<td>Oak Tree</td>
<td>Clown Anemone Fish</td>
</tr>
<tr>
<td>Pine Tree</td>
<td>Staghorn Coral</td>
</tr>
<tr>
<td>Maple Tree</td>
<td>Brain Coral</td>
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<tr>
<td>Opossums</td>
<td>Emperor Angelfish</td>
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<tr>
<td>Owl</td>
<td>Queen Angelfish</td>
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<td></td>
<td>Long-beaked Butterflyfish</td>
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<td></td>
<td>Moorish Idol</td>
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<td></td>
<td>Mandarinfish</td>
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<td></td>
<td>Spotfin Butterflyfish</td>
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<td>Striped-face Unicornfish</td>
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<td></td>
<td>Blue Tang</td>
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<tr>
<td></td>
<td>Blue Parrotfish</td>
</tr>
</tbody>
</table>
Urban Habitat
Pigeons
Goldfish
Cypress Tree
Oak Tree
Dog
Canada Geese
Starlings
Willow
Spruce Tree
Skunk
Sparrow
Raccoon
Mallard Ducks
Bittersweet
Opossums
Lady's-thumb
Mouse
Garden Spider
Turtle
Milkweed
Chipmunk
Butterfly
Rabbit
White Clover
Cat
Children
Buildings (include a school)
People
Pond
Grass
Hedges
Flowerbeds
Park

Wetland Habitat
Black Bear
Whooping Crane
Water Buttercup
Green-backed Heron
Dragonfly
Purple Gallinule
Bullfrog
Cattail
Otter
Water Lily
Catfish
Green Water Bug
Wild Iris
Water Strider
Painted Turtle
Eastern Newt
Loosestrife
Wood Ducks
Easter Ribbon Snake
Deer
Great Blue Heron
Cinnamon Teal
Snowy Egret
<table>
<thead>
<tr>
<th>Arctic Habitat</th>
<th>Mountain Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polar Bear</td>
<td>American Dipper</td>
</tr>
<tr>
<td>Caribou</td>
<td>Bighorn Sheep</td>
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<tr>
<td>Musk Oxen</td>
<td>Great Horned Owl</td>
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<tr>
<td>Arctic Char</td>
<td>Mule Deer</td>
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<tr>
<td>Arctic Hare</td>
<td>North American Porcupine</td>
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<td>Sandhill Crane</td>
<td>American Black Bear</td>
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<tr>
<td>Willow Ptarmigan</td>
<td>Moose</td>
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<td>Red-necked Phalarope</td>
<td>Forget-Me-Not</td>
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<tr>
<td>Ermine</td>
<td>Red Fox</td>
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<tr>
<td>Arctic Cotton Grass</td>
<td>Dark-eyed Junco</td>
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<tr>
<td>Collard Lemmin</td>
<td>Primrose</td>
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<tr>
<td>Ground Squirrel</td>
<td>Rainbow Trout</td>
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<tr>
<td>Caribou Lichen</td>
<td>Mountain Beaver</td>
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<tr>
<td>Small Cooper Butterflies</td>
<td>Raccoon</td>
</tr>
<tr>
<td>Arctic Foxes</td>
<td>Deer Mouse</td>
</tr>
<tr>
<td>Snow Geese</td>
<td>Mountain Lion</td>
</tr>
<tr>
<td>Snowy Owl</td>
<td>Rosecrown</td>
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<tr>
<td>Beluga</td>
<td>Elk</td>
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<tr>
<td>Ringed Seals</td>
<td>Golden Eagle</td>
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<tr>
<td>Dall Sheep</td>
<td>Mountain Goat</td>
</tr>
<tr>
<td>Walruses</td>
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<tr>
<td>Arctic Terns</td>
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<td>Blue Lapine</td>
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<td>Puffins</td>
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Create-a-Creature (Adaptability)

Topic: How do animals adapt to their habitats?

Grade Level: K-6

Time to teach lesson: 3-4 class periods

Concept: Students will gain an understanding of the ways animals have adapted to their habitats.

Overview: Students will learn that some animals have special physical features that are adapted to their habitats.

Objectives/Goals: Students will:
1. use the Internet and other sources to gather information.
2. create a new animal to live in a specific habitat.
3. write a description of the creature and how it is specially adapted to its habitat.
4. share.

Materials:
Internet access for research
Encyclopedias or other printed materials on habitats
Art supplies
Recycled or household materials

Procedures:
Initiating Activity:
Engage students with a discussion of animals with special features for their habitat. For example: Did you know that manatees have big flat teeth (molars) in the back of their mouths? Why do you think they have flat teeth instead of sharp, pointed teeth?

Strategies:
1. Give examples of physical features. (big eyes, long beaks, long tails, etc.)
2. Explore habitats. Begin with the website The Indian River Lagoon: A Mosaic of Habitats (http://www.sms.si.edu/IRLSpec/Whatsa_Habitat.htm). Scroll down to the table, which includes animals and plants.
3. Give students art supplies and recycled materials. Students will create an original creature specially suited to its habitat.
4. Write. Each student will write 1 or more paragraphs describing the creature and how it is adapted to its habitat. Be sure to name the creature, tell what it eats, where it lives, where it sleeps, etc.

Culminating Activities:
Share your creature and explain its adaptations.
**Evaluation:**
Teacher observation
Presentation

**National Standards:**
Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report geographic information.
Standard 8: The characteristics and spatial distribution of ecosystems on Earth’s surface.

**Sunshine State Standards:**
L.A.A.1.3: uses the reading process effectively.
L.A.A.2.3.5: locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.
L.A.B.1.3.1: organizes information before writing according to the type and purpose of writing.
L.A.B.1.3.2: drafts and revises writing.
L.A.B.1.3.3: produces final documents that have been edited.
L.A.B.2.3: writes to communicate ideas and information effectively.
L.A.C.1.3: uses listening strategies effectively.
L.A.C.2.3: uses viewing strategies effectively.
L.A.C.3.5: uses speaking strategies effectively.
SC.D.2.3: understands the need for protection of the natural systems on Earth.
SS.B.1.1.1: determines the absolute and relative location of people, places, and things.
SS.B.2.1.1: identifies some physical and human characteristics of places.

List of Websites:
The Indian River Lagoon
http://www.sms.si.edu/IRLSpec/Whatsa_Habita.htm

Everglades National Park Habitats
http://www.nps.gov/ever/eco/habitats.htm
Only Crabs Can Be Crabby

Topic: Different Species of Crabs

Grade Level: 3-8

Time to teach lesson: 2-4 class periods

Concept: Students will

Overview: Students compare and contrast different species of crabs.

Objectives/Goals: Students will:
1. search the Internet and other sources for information.
2. use a Venn diagram to classify crab characteristics.
3. write 2 or more paragraphs explaining the similarities and differences between species of crabs.
4. present research.

Materials:
Internet access for research
Internet Scavenger Hunt
Encyclopedias or other printed materials on crabs
Websites:
www.enchantedlearning.com/subjects/Crab.shtml
www.enchantedlearning.com/subjects/invertebrates/crustacean/label/hermitcrab
www.enchantedlearning.com/subjects/invertebrates/crustacean/Hermitcrab.shtml

Procedures:
Initiating Activity:
Student pairs or teams will use the Internet Scavenger Hunt as a springboard for research.

Strategies:
1. Discuss responses to the Internet Scavenger Hunt.
2. Direct students to choose 2, 3 or all four of the crabs to compare/contrast.
3. Using a Venn diagram, record information about crabs. Students may need to do more research as questions arise.
4. Write. Students will write 2 or more paragraphs comparing and contrasting the crabs. Remind students to include descriptions of the crabs and their habitats. Students could also add pictures or original artwork to their writing.

Culminating Activities:
Present writing.

Extension idea:
Compile writings into a class book and share.
Evaluation:
Students will read their writing out loud and share pictures or artwork with their classmates.

National Standards:
Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report geographic information.
Standard 8: The characteristics and spatial distribution of ecosystems on Earth’s surface.
Standard 14: How human actions modify the physical environment.

Sunshine State Standards:
LA.A.1.3: uses the reading process effectively.
LA.A.2.3.5: locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.
LA.B.1.3.1: organizes information before writing according to the type and purpose of writing.
LA.B.1.3.2: drafts and revises writing.
LA.B.1.3.3: produces final documents that have been edited.
LA.B.2.3: writes to communicate ideas and information effectively.
LA.C.1.3: uses listening strategies effectively.
LA.C.2.3: uses viewing strategies effectively.
LA.C.3.5: uses speaking strategies effectively.
SC.D.2.3: understands the need for protection of the natural systems on Earth.
SC.D.2.3.2: knows the positive and negative consequences of human action on the Earth’s systems.
SS.B.1.1.1: determines the absolute and relative location of people, places, and things.
SS.B.2.1.1: identifies some physical and human characteristics of places.
SS.B.2.3: understands the interactions of people and the physical environment.
SS.B.2.3.9: understands how the interaction between physical and human systems affects current conditions on Earth.
**Crabs Internet Search**

1) Move your mouse over the blue crab, listen and locate the gills, chelipeds, carapace, and heart. [Sea Grant Marine Advisory Program “Talking Crab”](https://www.seagrant.org/maradvisor/talkingcrab.htm)

2) What is the purpose of chelipeds? [Sea Grant Marine Advisory Program](https://www.seagrant.org/maradvisor/talkingcrab.htm)

3) What is it called when a crab sheds its outer skeleton? [Seashells.Com Home Page](https://www.seashells.com/)


7) Both land hermit crabs and aquatic hermit crabs need water to survive. How are their needs different? [Seashells.Com Intro](https://www.seashells.com/intro.html)

8) Describe the five stages of the crab life cycle. [Tales of the Blue Crab](https://www.talesofthebluecrab.com/)

9) Why do crabs absorb water when they molt? [Tales of the Blue Crab](https://www.talesofthebluecrab.com/)

10) Put these living things in order beginning with the first to appear on Earth: people, dinosaurs, pelicans, and horseshoe crabs. [The Horseshoe Crab.Org](https://www.horseshoecrab.org/)

11) What role do horseshoe crabs play in the food web? [The Horseshoe Crab.Org](https://www.horseshoecrab.org/)

12) What are the horseshoe crab’s lateral eyes used for? [Horseshoe Crabs](https://www.horseshoecrab.org/)

13) Why is the horseshoe crab called the original “blue blood”? [Medical Uses](https://www.medicinal-uses.com/horseshoe-crab.html)


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18
List of Websites
Sea Grant Marine Advisory Program
Virginia Marine Institute College of William and Mary
http://www.vims.edu/adv/ed/crab/guts2.html

Seashells.Com
http://www.seashells.com/hermitcrabintro.htm

Smithsonian Environmental Research Center
http://www.serc.si.edu/education/bluecrab/exhibit/start.htm

The Horseshoe Crab.Org
http://www.horseshoe crab.org/nh/hist.html

Horseshoe Crab
http://www.dnr.state.md.us/education/horseshoe crab/anatomy.html

eNature.Com
http://www.enature.com/fieldguide/
showSpeciesSH.asp?curGroupID=8&shapeID=1063&curPageNum=6&recnum=SC0010

Land Crabs Draft Rule Review pdf file
http://monroe.ifas.ufl.edu/LANDCRABDRAFTRULEREVIEW.pdf

Mystic Aquarium Institute for Exploration
http://www.mystic aquarium.org/animals/facts/
animalfacts.asp?otheranimals=&animal=16&Submit=Go

The Hermit Crab
http://www.xs4all.nl/~pal/hermit.htm
Layers of Life

Grade Level: Elementary – Middle

Time: 3-5 days

Concept: Habitat loss as a cause of threatened and endangered species of Florida.

Background Information:
There are more than 100 threatened and endangered plant and animal species in Florida. While there are many factors that contribute to endangerment of a species, habitat destruction is one of the most common and widespread. The primary cause of habitat destruction is human activity. In this lesson, students will identify threatened or endangered species in their state and explain how human activity is forcing habitat loss of this species.

Objectives: Students will:
1. develop an understanding of the causes of endangerment of a species.
2. recognize and name at least ten endangered or threatened species in Florida.
3. describe the physical characteristics and habitat of two or more endangered or threatened species.
4. explain how the consequences of human development affects the future of each species.

Materials/Resources:
Endangered & Threatened Species Fact Sheets
Chief Seattle’s Letter http://www.csun.edu/~vcpsy00h/seattle.htm
white & colored construction paper 12 x 18 and 9 x 12
white & colored 8.5 x 11 paper
crayons, markers, colored pencils
Layered Look Book Instructions
Websites:
http://www.endangeredspecie.com/states/fl.htm
http://www.floridaconservation.org/pubs/endanger.html
http://www.fpl.com/environment/contents/environmental_resources.shtml
http://cccturtle.org/eduform.htm
http://www.ameritech.net/users/macler/endangered.html

Procedures
Initiating activities: Read “Chief Seattle’s Letter.” See http://www.csun.edu/~vcpsy00h/seattle.htm. Briefly discuss with the students history surrounding Chief Seattle’s speech. Ask students what they think Chief Seattle would write about today if he were alive?
**Strategies:**

1. Display a list of endangered and threatened species in Florida. Discuss with students how plants and animals are given such status.

2. Discuss habitat loss as the primary cause of endangerment for plants and animals. Emphasize that rapid change due to human development and activity is the major cause of loss of habitat. Have students brainstorm a list of examples of this type of activity.

3. Make resources available in the classroom or in a computer lab to allow students to research at least four threatened or endangered species.

**Culminating Activity:**

1. Each student is to create a layered book that includes textual and visual information about at least two threatened or endangered species.

2. Each book should include a description of the habitat of each species, a statement of how human interaction has affected the species and a prediction of the future of that species.

3. Attach two books to one 12 x 18 sheet of construction paper.

4. Ask students to share books in class upon completion.

**Evaluation:** Layered Look Book

**National Standards:**
Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report geographic information.

Standard 3: How to analyze the spatial organization of people, places, and environments of earth’s surface.

Standard 8: The characteristics and spatial distribution of ecosystems on Earth’s surface.

Standard 14: How human actions modify the physical environment.

Standard 18: How to apply geography to interpret the present and plan for the future.

**Sunshine State Standards:**
SS.B.1.3.1: The student uses various map forms and other geographic representations, tools, and technologies to acquire, process and report geographic information.

SS.B.2.3.6: The student understands how the interaction between physical and human systems affects current conditions on Earth.

LA.A.2.3.5: locates, organizes, and interprets written information for a variety of purposes.

LA.B.1.3.1: organizes information before writing according to the type and purpose of writing.

LA.B.1.3.2: drafts and revises writing.

LA.B.1.3.3: produces final documents that have been edited.

LA.B.2.3: writes to communicate ideas and information effectively.

SC.D.2.3.3: understands the need for protection of the natural systems on Earth.

SC.D.2.3.2: knows the positive and negative consequences of human action on the Earth’s systems.
Layered Book Instructions

1. Stack two sheets of 8.5 x 11” paper so that the back sheet is one inch higher than the front sheet.
2. Fold up the bottom edges of the paper to form four tabs. Align the edges so that all of the layers or tabs are the same distance apart.
3. When all tabs are the same size, crease the paper to hold the tabs in place and staple or glue the sheets together.
4. Glue the sheets together along the inner center fold or staple them along the top.
5. Students should select a visual for the top page of the book. Each underlying layer should include textual information about the species. Each tab should be labeled: Habitat, Human Interaction, Future
6. Repeat steps 1-5 above for second book. Attach two books to one 12 x 18 sheet of construction paper.
The Crane Connection

Level: Middle

Time: 5 days

Concept: Human & Animal Inventions that allow us to adapt to our environments.

Background Information:
All species are unique in one form or another. Some species only survive in particular habitats. Others can survive in a variety of habitats. Although Whooping Cranes migrate and nest over an expansive geographic range, they can only live and feed in a wetland habitat. In the winter whooping cranes depend on blue crabs for food. If the crab population crashes, the whooping cranes population will suffer. This lesson helps the student understand how bird bodies and behavior are adapted to their habitat.

Objectives: Students will:
1. develop an understanding of the status of the Whooping Crane as an endangered species.
2. describe the physical characteristics, migration behavior and nesting habits of the Whooping Crane.
3. discuss the consequences of human development and how it affects the future of the Whooping Crane.

Materials/Resources:
Whooping Crane Fact Sheet
White Construction Paper
Crayons, Markers, Colored Pencils
Triarama/Quadrama Pattern and Directions
Websites: http://www.portup.com/~nacwg/whooping.htm
http://www.learner.org/jnorth/tm/crane/WWiscBackground.html
http://www.learner.org/jnorth/tm/crane/ICFFacts.html
http://www.learner.org/jnorth/tm/crane/USFWSRoad.html
http://www.learner.org/jnorth/tm/crane/BlueCrabs.html
http://www.learner.org/jnorth/tm/crane/CrabConnection.html

Procedures:
Initiating activities: Ask students to match a human invention with a behavior that cranes do naturally. Use the worksheet attached.

Strategies:
1. Divide class into groups of four. Distribute information sheets on the Whooping Crane to each group. Assign each group member one of the following areas to research: Body Parts & Physical Description, Migration Behavior, Nesting Habits,
Threats to Habitat. As an alternative, students could go to the Internet to research these topics.

2. Each group will create a quadrama foldable to display the information they have learned. Each member of the group will create a triarama which includes a visual and key points about their assigned topic. For example, the student assigned Threats to Habitat may include bobcat predation, recreational or commercial boat traffic, and water pollution. The visual might be an illustration of a commercial barge. Four triaramas will be combined to make a group quadrama. Display completed quadramas in the media center to raise awareness to the plight of this species.

Culminating Activity:
1. Ask groups to share their quadramas. Hold a discussion about their findings.
2. Ask each student to create a Synthesis Poem about the Whooping Crane. For more information on Synthesis Poems see http://www.learner.org/jnorth/tm/InstrucStrat33.html.
   Example: Whooping Crane, Gentle Giant of the Clouds, Forever Flyer, Summer Seeker, Winter Wary, Makes my heart miss a beat, Hopeful for recovery, Whooping Crane.
3. Teacher may choose better poems to print in school or local newspaper to raise awareness.

Evaluation:
1. Triaramas/Quadramas
2. Synthesis Poem

Extension Activity: This lesson can be applied to eagles, bats, owls, manatees and other species.

National Standards:
Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report geographic information.
Standard 3: How to analyze the spatial organization of people, places, and environments of earth’s surface.
Standard 8: The characteristics and spatial distribution of ecosystems on Earth’s surface.
Standard 14: How human actions modify the physical environment.
Standard 18: How to apply geography to interpret the present and plan for the future.

Sunshine State Standards:
SS.B.1.3.1: The student uses various map forms and other geographic representations, tools, and technologies to acquire, process and report geographic information.
SS.B.2.3.6: The student understands how the interaction between physical and human systems affects current conditions on Earth.
L.A.A.2.3.5: locates, organizes, and interprets written information for a variety of
purposes.
L.A.B.1.3.1: organizes information before writing according to the type and purpose of writing.
L.A.B.1.3.2: drafts and revises writing.
L.A.B.1.3.3: produces final documents that have been edited.
L.A.B.2.3: writes to communicate ideas and information effectively.
SC.D.2.3.3: understands the need for protection of the natural systems on Earth.
SC.D.2.3.2: knows the positive and negative consequences of human action on the Earth’s systems.
Triarama instructions

1. Fold a sheet of paper (8.5 x 11) forming a square. Cut off the leftover piece.
2. Fold the triangle in half. Unfold. The folds will form an X dividing four equal sections.
3. Cut up one fold line and stop at the middle. Draw and X on one tab and label the other three.
4. Fold the X flap under the other flap and attach. This makes a three sided pyramid.
5. Turn the pyramid on its side (X side down). Students are to include an illustration on the top half of the pyramid and the text on the bottom.
6. Staple four triaramas together to make a quadrama for the group.
7. Teachers may choose to dissemble the quadramas at a later date so each student can keep their own work.
## Crane Adaptations and Human Inventions

<table>
<thead>
<tr>
<th>Crane Need</th>
<th>Human Invention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Crack open blue crabs</td>
<td></td>
</tr>
<tr>
<td>2. Walk in shallow lakes and rivers without getting tummy wet</td>
<td></td>
</tr>
<tr>
<td>3. Walk on soft, goopy mud without sinking in</td>
<td></td>
</tr>
<tr>
<td>4. Swallow great big crabs without choking</td>
<td></td>
</tr>
<tr>
<td>5. Breathe at high altitudes</td>
<td></td>
</tr>
<tr>
<td>6. Make loud “music”</td>
<td></td>
</tr>
<tr>
<td>7. Migrate long distances</td>
<td></td>
</tr>
<tr>
<td>8. Keep warm and dry in bad weather</td>
<td></td>
</tr>
<tr>
<td>9. Communicate with family over a mile away</td>
<td></td>
</tr>
</tbody>
</table>

List of Human Inventions

- A. Snowshoes
- B. Oxygen tank
- C. Hat, jacket, raincoat
- D. Cars, buses, trains, or airplanes
- E. Nutcracker
- F. Telephone
- G. Stilts
- H. Trumpet
- I. Knife and Fork
Backyard Exploration

Grade level: K-5

Time: 3 lessons 45 min. sessions

Concept: Observe habitats in the schoolyard

Overview: This activity helps students explore their own school backyard and gives them background information for further studies in areas around them.

Materials/Resources:
school backyard
paper and pencil
bulletin board paper
construction paper
crayons and glue
Optional: magnifying glasses, binoculars

Objectives: Students will:
1. gain a deeper understanding of their environment through observation.
2. record data on a schoolyard exploration trip.

Procedures:
Day 1
1. Have students write a definition for the word *habitat*.
2. Discuss definitions.
3. Come to a conclusion on a class definition for the word *habitat*.
5. Compare students’ definition with examples of habitats in the book.

Day 2
1. Review the meaning of word habitat.
2. Divide students into groups of four.
3. State rules for outdoor exploration. Ex. Students must leave everything the way it is found.
4. Check that students have pencils, paper and magnifying glasses.
5. Students will:
   a. tour the schoolyard looking for various habitats.
   b. write about and draw the habitats they observe.
   c. pencil rubbings of tree bark, leaves, animal tracks and building walls are encouraged.
Day 3

1. Students will share findings.
2. Each group can decide on the method of presentation. Have bulletin board paper, construction paper, crayons and glue available.

Evaluation:

1. Observation
2. Writings
3. Drawings
4. Presentations

Extensions:

1. Students can choose one of the habitats observed and research the animals/insect.
2. Students can make posters on ways to help keep the environment safe for the different species.
3. Invite speakers to discuss the environment and its habitats Ex. local gardeners, bird watchers, herpetologists, Audubon members.
4. Plant a small area that will attract and benefit wildlife. Website:
   Landscape for Wildlife: www.wec.ufl.edu/extension/

National Standards:
Standard 4: The physical and human characteristics of places.
Standard 14: How human actions modify the physical environment.
Standard 18: How to apply geography to interpret the present and plan for the future.

Sunshine State Standards:
LA.A.1.3 Student uses the reading process effectively.
LA.B.2.3 Student writes to communicate ideas and information effectively.
LA.C.1.2 Students uses listening strategies effectively.
SS.B.2.3.9 Student understands the interactions of people and the physical environment.
SS.B1.1.1 Student determines the absolute and relative location of people, places and things.
SC.D.2.3. Student understands the need for protection of the natural systems on Earth.

Websites:
www.wec.ufl.edu/extension/frog
www.audubonofflorida.org/ - bird information
www.nsis.org/butterfly/
www.npwrc.usgs.gov/resource/geograph.htm#FL dragonfly, moths and beetle info
http://pests.ifas.ufl.edu/ — various bugs and link to Florida Kids Bug Club
www.geobop.com/World/NA/US/FL/ — state tree and FL facts
http://www.nwf.org/education/ — Backyard Wildlife Habitat Program
http://www.nwf.org/frogwatchUSA/ — information of Florida frogs and Frog Watch program
http://www.ex.ac.uk/bugclub/penpal2.html — Kids Bug Club Pen Pals
River Otters of Florida

Topic: River Otters

Grade Level: 4 - 8

Time: 1-2 Days

Concept: Habitats of Florida River Otters and Human-Environment Interaction

Objectives/Goals: The students will be able to:
1. describe the habitats of the river otter.
2. describe the physical characteristics of the river otter.
3. discuss the geographic range of the river otter.

Materials:
Computer and Internet Access
Atlas of Florida—edited by Edward A. Fernald and Elizabeth D. Purdum
Transparency paper
Erasable markers

Procedures:
Initiating activity: Pass out a transparency of the range map of river otters to students grouped in pairs. (This can be found on page 76 in the Atlas of Florida). They will be able to immediately see that range for the Florida Otter (Lutra Canadensis) is all over the state.

Strategies: Next, pass out a transparency of the population map also found in the Atlas of Florida on page 132. Have the students lay the population map over the range map and begin discussing what they see. Example questions for the teacher to ask:

- Where is the largest concentration of people?
- How do you think this has affected the range of the Florida Otter?
- How have the otter living conditions changed due to increases in the number of people?
- Do you think the otters have used different water resources as a result of the people population increase?
- What kind of water resources do they depend on most and what are they relying on now?

Culminating Activity: Invite a biologist to the classroom to give a presentation on river otters. Have them discuss how the otters cope when they are under stress. Stress meaning: water pollution, disappearing water resources, too many people using the otters water resource for recreation, etc. Ask the presenter to use the map transparencies of “Traffic Volume” and “Transportation Networks” and have them discuss how otters are being affected by transportation routes and the volume of people using these routes. Both are found in the Atlas of Florida on pages 238 and 257.
Background Information:
I became interested in how otters use some type of man-made roads to get to other water resources. When we were in Brazil we came across an otter carcass on a dirt road. The researchers hypothesized that the otter may have been caught by the elements while searching for a new water source, as he seemed to be relatively healthy at the time of death.

Evaluation: After the presentation and transparency lesson have the students propose a plan on how to ease the population stress on the river otter. The students could then contact a representative at the Florida Department of Environmental Protection.

National Standards:
Geography Standard 14- Environment and Society-How Human Actions Modify the Physical Environment

Sunshine State Standards:
SS.B.1.3- The student understands the world in spatial terms.
SS.B.2.3-The student understands the interactions of people and the physical environment.

FCAT:
Making Inferences
Cause and Effect Relationships

Websites:
http://www.otternet.com/habitat/
http://www.luddist.com/otter.htm
home.worldnet.att.net/~t.h.lin/learning/riverotter.htm
http://www.otternet.com/ROA/legend.htm
The Florida Panther

**Topic:** The Florida Panther

**Grade Level:** 10-12

**Time:** 1-2 Weeks

**Concept:** The habitat and range of the Florida Panther (Felis concolor)

**Objectives/Goals:** The students will be able to:
1. describe the habitat and range of the Florida Panther.
2. map the habitat and range of the Florida Panther.

**Materials:**
GPS Units or markers to locate sites
Digital or regular cameras
Arcview 3.2 –(GIS) Geographic Information System or ArcVoyager (free download at www.esri.com/industries/k-12/voyager.html)
Park Ranger and/or representative from the Fish and Wildlife Commission

**Procedures:**
**Initiating activity:** Have students look at the poster map of panthers and people. To introduce the topic of Florida Panthers pass out a map of the range of Florida Panthers. It can be found in this packet or on page 77 in the *Atlas of Florida*. Discuss the historic and present range of panther. Next, pass out a population map of Florida, also found in the *Atlas of Florida* on page 132. Have the class discuss what panther now face because of population increases throughout the state.

**Strategies:** Invite a park ranger, biologist, or a representative from the Fish and Wildlife Commission to present on the Florida Panthers. Schedule a field excursion for students to south Florida to meet with researchers in the field. Place students into groups of three and then have a researcher team with each group. Each group should have a GPS unit, a digital camera, and a field notebook. If a GPS receiver is not available, you can have students use a marker to note the location. The photo and written description will assist others in locating the spot in the future. Traditional orienteering skills could also be practiced.

Have the researchers take the groups out to document panther scat by taking GPS points, pictures of the surrounding environment, and a written description of the place. If tracks are found, students can also take plaster casts of the panther tracks.
**Culminating activity:** Have the students download the digital images and the GPS points into Arcview 3.2 to create an image of the habitat and range of the Florida Panther. The primary data collected as a result of this project can be passed along to the Florida Department of Environmental Protection and the Fish and Wildlife Commission. If the technology is not available, students can design a poster using their photos and descriptions to share with the class.

**Evaluation:** Students will be graded upon their final project, the layout they created in Arcview 3.2 or traditional poster.

**National Standards:**
Geography Standard 14 Environment and Society- How Human Actions Modify the Physical Environment

**Sunshine State Standards:**
SS.B.1.3- The student understands the world in spatial terms.
SS.B.2.3- The student understands the interactions of people and the physical environment.
L.A.C.1.3- The students uses listening strategies effectively.
L.A.A.1.2- The student uses the reading process effectively.

**FCAT:**
Making Inferences
Primary source information
Find Those Critters!

Topic: Looking for Bear Prints

Grade Level: 6-10

Time: One week

Social Studies Concept or Theme: Population of Florida Animals

Generalization: Human development has forced the Florida Black Bear into urban/suburban areas to search for food, water, and shelter.

Objectives: Students will:
1. map the location of Florida Black Bears.
2. discuss patterns of Florida Black Bear population.
3. discuss consequences of human development and how it will affect future generations of the Florida Black Bear.

Materials:
Florida population map
Florida Black Bear Range Map
drawing paper
writing paper
cameras
GPS Units

Procedures: 
Initiating Activity:
1. Pass out maps of black bear core areas and a population map of Florida. The black bear map can be found at http://wld.fwc.state.fl.us/critters/livingwithbears/wherearebears.asp and the population map can be found in the Atlas of Florida. Each school library in the state of Florida has a copy of this atlas. If one cannot be found, please contact esmith@admin.fsu.edu.
2. Discuss how these maps overlap. How does this affect the bears? The people? What problems may stem from this overlapping? Other questions to consider: Are there other places we can find bears? What do bears eat? How are humans and bears alike? What kind of habitat is best suited for the Florida Black Bear? (Refer to the Your Land, My Land, Our Florida poster to see a composite map of Florida population and black bear habitats.) A great source of information on the Florida Black Bear can be found at http://wld.fwc.state.fl.us/bear.default.htm.

Strategies: How to create awareness in you community? One way is to find and record the tracks of bears and other Florida animals, threatened and endangered. Create suggestions on how to live peacefully and safely with the bears. (For more content and great lessons, please visit: http://www.floridaconservation.org/educator/blkbear.htm)
Directions on how to make casts of bear prints and other animal prints.

Materials: plaster of paris and a cardboard form.
1) The cardboard form should be placed around the print to isolate the print.
2) Mix the plaster of paris and pour into the print; not too fast, or the print will be distorted.
3) Set for an hour and then carefully place into a garbage bag for the ride home.
4) Set it out overnight, outside of the bag.
5) Softly clean the plaster cast with an old t-shirt and then set it out for display.

Culminating Activities: After finding and making the plaster casts of the black bear prints, have the students take GPS (Global Positioning System) points at the location of the tracks. Students should also draw and take pictures of the tracks and the surrounding area. Have students write a description of the surroundings: describe the vegetation, is there drinking water nearby? Other animals? Signs of humans? For a high-tech project, students could use Arcview (GIS-Geographic Information Systems) to make a map of where they found the tracks. For a low-tech project, students could hand draw a map or place pins on a topographic map to locate where tracks were found.

Evaluation: Have students present their findings to the class, their principal, Chamber of Commerce, or City Councilman stressing the importance of living peacefully and safely with the bears.

National Geography Standards:
Standard 16: The changes that occur in the meaning, use, distribution, and importance of resources.

Sunshine State Standards:
SS.B.1.3.1-The student uses various map forms and other geographic representations, tools, and technologies to acquire, process, and report geographic information including patterns of land use, connections between places, and patterns and processes of migration and diffusion.

FCAT Statement:
LA.A.2.2.7-The student recognizes the use of comparison and contrast in a text.
LA.A.2.4.4-The student locates, gathers, analyzes, and evaluates written information for a variety of purposes, including research projects, real-world tasks, and self-improvement.
A Virtual Field Trip To Wild Florida
(An Adaptation from a Problems and Prospects field lab produced by The Academy of Public Service, Umatilla High School, Lake County Florida)

Grade Level: Adaptable for all grades.

Time: 1-2 days

Concept: environment, human impacts on the natural environment

Generalization: The physical environment will suggest and limit people’s activities, but does not dictate.

Objectives: Students will:
1) use critical thinking skills and observation to investigate and record characteristics of the natural environment in Florida.
2) compare and contrast the impacts that people have made on these environmentally sensitive areas of Florida.

Materials:
Things To Think About Guide (this can be made into an overhead and handout for students)
Environmental Observation Data Collection Sheet
Computers with internet access (If you have only one computer or limited computers, you can print the data sets and supporting materials for groups to work with until their turn comes up.)

Procedures:
Initiating Activity:
Ask students to think about how much damage a single person on a deserted island could cause, (they will most likely say very little) and then ask them what would happen if that same person was on a bulldozer. Tell the students that today they are going on a field trip to some special places throughout Florida without leaving the classroom. This virtual field trip is going to let them make some observations of nature without disturbing the natural surroundings. Place the Things To Think Guide on the overhead and give students a few minutes to think about their responses and any questions it may bring to mind. Have students share their responses and ask their questions. If a particular question seems like it could be answered during their virtual field trip, have them write it on their Things To Think About Guide.

Virtual Field Trip Activity:
Students are now ready to explore the environments of Florida. Set up the field trip by handing out their Environmental Observation Data Collection Sheets and putting the students in groups. (The groups will be determined by the number of computers with internet access, if every student is sitting at a computer, it is still recommended that they work together so they have someone to discuss their observations with.)

Assign the students to one of the webcam sites at the Web World Wonders website (http://webworldwonders.firm.edu). Let them explore the camera sites and work on their observational
skills by filling out the Data Collection Sheets and sketching what they see. Once they have finished their personal observations, have them explore the site for ecosystem data, weather data and other pieces of information that will help them answer their Things To Think About questions.

Once they have finished their data collection, ask them to talk with their partner about what they observed and the answers to their Things To Think About Guide. When they have successfully completed the Data Sheet and Things To Think About Guide, have the group find another group that looked at the same site and compare notes. Remind the students that if they have discrepancies, they can always go back to the site together to do another observation.

**Culminating Activity:** Have students in their original groups find another group that observed a different site. Ask the two groups to discuss what they saw. Ask them to find the similarities and differences between the sites as well as the impacts that people have made to each site. After a few minutes of discussion ask the groups to share with the class what they came up with.

**Evaluation:** Completion of their Things To Think About Guide and Data Collection Sheet along with their group discussions will provide the data for the students to create a field trip log or report that discusses what they learned on their virtual field trip. The supporting data (Things To Think About and Data Sheet) should be turned in with the final report or log.

**National Geography Standards:**
Standard 8: Student knows and understands the characteristics and spatial distribution of ecosystems on the Earth’s surface.
Standard 14: Student knows and understands how human actions modify the physical environment.

**Sunshine State Standards:**
SC.D.2.3: the student understands the need for protection of the natural systems on Earth.
SS.B.2.3: the student understands the interactions of people and the physical environment.

**Resources:**
The Web World Wonders website (http://webworldwonders.firm.edu) and the related links off the site.
Things To Think About Guide

Before you visit the Web World Wonders site, think about ways you can sharpen your senses and your observational powers.

1. When you visit the Web World Wonders site, think about the value that these locations hold for you and others who live in or visit the state of Florida.

2. Do you see any evidence of vegetation?

3. Do you see any evidence that the water level may sometimes be higher than it is now? Do you see water marks on trees or shrubs? Do you see any leaves or other debris washed up against the trunks of trees?

4. Do you find any evidence of human activity in or around the area?

5. Do you see any evidence of animals? Example: feathers, tracks, bones, nests, etc.

6. Do you see places that look like they would make good areas for nests, dens, or homes? (sketch the location)

7. Do you see any evidence of animal feeding, such as holes in trees?

8. Do you see any animal constructions, such as spider webs?

Sketch anything interesting you observe:
Environmental Observation Data Collection Sheet

Date: ________

Observer's Name:____________________

Weather Conditions: Sunny______  Cloudy______  Rainy______
                   Hot______    Cold______  Moderate______

Location and comments:_____________________________________________

General Topography:________________________________________________

Land Use:
  Human Alterations:______________________________________________
  Nearby Uses:____________________________________________________
  Disturbances:___________________________________________________

Birds/comments:____________________________________________________

Insects/comments:___________________________________________________

Animals/comments:___________________________________________________

Vegetation/comments:________________________________________________

Water/comments:____________________________________________________

Sketches:
Lesson Plan 1: History of the Oyster Industry

Topic: Florida Oyster Industry

Grade Level: 4-8

Time to teach lesson: 5-10 days

Concept: to gain a better understanding of a vital agricultural industry to the Florida economy.

Overview: Students will explore the internet and answer key questions about the oyster industry. This information will be used as the basis for a final presentation.

Objectives/Goals: Students will:
1. analyze primary sources (photographs) to answer a key set of questions.
2. gain a better understanding of the Florida oyster industry.

Materials:
1. set of questions
2. http://draweb.dos.state.fl.us

Procedures: Initiating Activity:
Teachers and students will complete a “KWL” chart to start a discussion about the Florida oyster industry.
The teacher can also have a brief discussion on how to use photographs or primary sources.

Strategies:
Once students have gone to the Florida State archives website and brought up images documenting the oyster industry, the teacher can then pass out the key set of questions for them to consider over the next couple of days.

Culminating Activities:
Students will present their report to class. Students should choose five pictures and present their answers to the questions. The teacher should also invite an oyster man or woman to class for a first-person interpretation on how it is to make a living harvesting oysters.

Evaluation: Students will be graded on the photos they chose to go along with the key questions.

National Standards:
Standard 14- How human actions modify the physical environment
Standard 17- How to apply geography to interpret the past.
Sunshine State Standards:
SS. A.6.2- The student understands the history of Florida and its people.
SS. B.2.2- The student understands the interactions of people and the physical environment.

FCAT:
- Reading sheets
- Drawing conclusions
- Reference materials

More websites to learn about the oyster industry:
http://www.assateague.com
http://hiltonheadisland.com
http://www.fl-seafood.com/new-seafood/kids/industry.htm
http://www.baynvyater.com/BriefHistory/briefhistory12.ctm
http://www.nefsc.noaa.gov/fag/fishfaqs.html
http://www.cumauriceriver.org/downjersey/maritime/on-lesson1.html
http://www.forgotten-florida.com/seafoodapalach.htm

Set of Questions:
1. What kind of tools did they use?
2. Who made the tools? Local or were they bought and shipped from a faraway business?
3. Did the companies seem to be owned by locals? How can you tell?
4. What time of day do you think they started work?
5. Were employers hired locally or brought on?
6. How has the oyster industry changed? How has it remained constant?
7. How did the oyster industry change in response to the economy?
8. How did the oyster industry view the community and act toward it?
9. Who primarily works in the oyster industry? Men, women, children?
10. Does it seem like a prosperous industry for Florida? How can you tell?
11. What is the best time of year for the oyster industry?
12. How did the oyster industry change the physical environment?
13. How did the physical environment influence and change the oyster industry?
Lesson Plan 2: What is it Like Being an Oyster?

Topic: The Life of an Oyster

Grade Level: K-4

Concept: Students will gain an understanding of what life is like for an oyster.

Overview: Students will read and be read to about the important job an oyster has during its lifetime.

Objectives/Goals: Students will understand
1. what an oyster is made of
2. how a pearl is formed inside an oyster.

Materials:
1. Book - *Pearlie Oyster: A Tale of an Amazing Oyster* by, Suzanne Tate and illustrated by James Melvin
   Edited by Suzanne Tate and Susan Maloney

Procedures: Initiating Activity:
Teacher will introduce the book, “Pearlie Oyster” to the class and read it all the way through.

Strategies:
During a second reading, the teacher should write down any questions the students will have to encourage discussion after the reading.

Culminating Activities:
Students will write their own story about an oyster character or write a conclusion to Pearlie Oyster.

Evaluation:
Students will read their stories out loud to the class and provide a drawing of their oyster.

Sunshine State Standards:
LA.A.1.2- The student uses the reading process effectively.
LA.B.22- The student writes to communicate ideas and information effectively.

FCAT: Reading Skills:
Drawing conclusions
Read and organize information for multiple purposes

For further reading on organisms and animals lurking in the ocean, get the book *The Magic School Bus-On the Ocean Floor*, by Joanna Cole.
Lesson 3: The Habitat of Oyster

Grade level: 4-10

Concept: Students will gain an understanding of the vital habitat that oysters need to thrive and grow.

Students will explore the Internet to gather information.

Objectives/ Goals: Students will:
1. understand the need for a stable oyster habitat.
2. gather information on how contaminating water is hurting the oyster and habitat.

Materials: List of websites for students to explore:
1. http://www.mds.g.umd.edu/oysters
10. www.floridaaquaculture.com/SEAS/SEAS_centralgulf.htm
12. www.epa.gov/gmno/gmnet/oyster04.htm
18. www.hiltonheadisland.com/oysmap.htm
24. www.euromab.org/brprogram/origin.html
25. www.euromab.org/brprogram/who.html
27. www.euromab.org/misc/uscontact.html
28. www.ocrm.nos.noaa.gov/nerr/issues.html
29. www.ocrm.nos.noaa.gov/nerr/reserves/nerrrapalachacola.html
**Procedures: Initiating Activity:**
Divide the class into pairs and give them a list of the websites (see above). Each pair is researching the oyster industry and how it is being threatened (pollution, development, recreation). Develop a KWL with the class so that there is a brief discussion on what they know and what they want to know about oysters. This will help them to focus their research and the teacher can assess prior knowledge.

**Strategies:**
With each website the pair visits, have them document the website and write down 5 key concepts that the website provides.

**Culminating Activity:**
Each pair will then write a short story with pictures explaining the reasons why Florida’s oyster habitats may be threatened. Invite a lower grade level class so that each pair may read their stories to the younger children.

**Evaluation:** Students will be graded on documentation of the websites used for their project, concepts, and their final story.

**National Standards:**
Standard 14- How human actions modify the physical environment.

**Sunshine State Standards:**
LA.A 1.3- The student uses the reading process effectively
LA. B.2.2- The student writes to communicate ideas and information effectively.
S.C.D.2.3- The student understands the need for protection of the natural systems on earth.
S.S. A 6.3- student understands the history of Florida and its people.

**FCAT Reading Skills:**
Drawing conclusions
Read and organize information for multiple purposes
“A” if for Adaptation

Adaptations help living things to survive. See if you can find these adaptations in the plants and animals around you. (Circle the ones you see.)

from: The Gulf Islands National Seashore Guide, prepared by Teachers of Gulf Coast Counties
"S" is for Similarities and Patterns

Can you find the items listed below?

<table>
<thead>
<tr>
<th>Something round</th>
<th>Something shaped like an X</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Something that comes in twos</td>
<td>Something with a wavy pattern</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Something that comes in threes</td>
<td>Something with spots</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Something that comes in fours</td>
<td>Something with an interesting pattern</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Something that comes in fives</td>
<td>Two things that are the same, yet different</td>
</tr>
</tbody>
</table>
“H” is for Habitats

Pretend that you are an animal of the forest. Draw a picture of your animal here.

I am a(n) ____________________. I find shelter ____________________ and breathe air with my _________________. When I’m thirsty, I find water ____________________.
I eat ____________________.
“R” is for Roles

Look around you. Find a producer, a consumer, and a decomposer. Draw a picture of each.

PRODUCER

CONSUMER

DECOMPOSER
Poster Transparency Masters
Florida Population, 2000

Each dot represents approximately 350 people
Reference Materials
Vocabulary

**Amphibian**: An animal, such as a frog, which lives both on land and in water but must lay its eggs in water.

**Benthic**: Bottom-dwelling.

**Commensal**: A relation between two kinds of organisms in which one obtains food or other benefits from the other without damaging or benefiting it.

**Conservation**: The preservation and careful management of the environment and of natural resources.

**Crustaceans**: Any of the various types of animals which live in water and have a hard outer shell.

**Cycads**: Palm-like in appearance and have typically large seeds that are also borne in cones. They are non-flowering.

**Ecosystem**: An integrated group of biological organisms located in a particular type of habitat, and the physical environment in which they live. The ecosystem includes the living organisms, habitat structure, factors (such as temperature, wind, elevation, etc.) and their interactions.

**Ecotourism**: The practice of touring natural habitats in a manner meant to minimize ecological impact

**Endangered**: A species in danger of becoming extinct throughout a significant portion of its habitat range (the areas where it lives).

**Endangered Species Act**: Congress overwhelmingly passed this Act (ESA) in 1973 to “provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of these species.”

**Environment**: The area in which something exists or lives.

**Food Chain**: A sequence of steps through which food and energy move through the environment from the primary source (plants), through the animals that consume plants, up to the animals which consume other animals.

**Habitat**: The collective term for the food, water, shelter and nursery areas that all wildlife needs to survive.

**Hammock**: In the southern United States, an area of forested land that rises above a marsh.

**Invertebrate**: Any animal lacking a backbone or notochord; the term is not used as a scientific classification.
**Lichen**: Not a single organism the way most other living things are, but rather it is a combination of two organisms which live together intimately.

**Metamorphosis**: An extreme change occurring between the stages of life, such as from a tadpole to a frog, or from a caterpillar to a butterfly.

**Migration**: The movement of a group of people from one country or locality to another; the periodic passage from one region to another for feeding or breeding.

**Mutualism**: The relation between two different species of organisms that are interdependent; each gains benefits from the other.

**Parasitism**: The relation between two different kinds of organisms in which one receives benefits from the other by causing damage to it (usually not fatal damage).

**Poaching**: Illegal hunting, capture, or collecting of wildlife. Poachers may target organisms that are protected from all hunting, such as elephants, or they may target animals outside of the regulated hunting season or inside the boundaries of a protected area.

**Prairie**: A treeless grassy plain.

**Predator**: One that preys, destroys, or devours.

**Slough**: A place of deep mud or mire.

**Symbiotic**: Living together but not necessarily in a relationship beneficial to each.

**Threatened**: Species are those that are likely to become Endangered in the foreseeable future.

**Wetlands**: A low area where the land is saturated with water.
Geography Awareness Week (GAW) 2003 Book List


Appelt, Kathi. *Bayou Lullaby*. ASIN 0688128564


Arnosky, Jim. *Otters Under Water*. ASIN 039922842X


Brust, Beth Wagnerstaff. *Otters (Zoobooks series)*. ISBN 0937934704

Burnett, Gene M. *Florida’s Past, Volume One*. ISBN 1-56164-115-4


Douden, Anne. *Sea Otters, River Otters (The Wonder Series)*. ASIN 1879373416


Fleming, Denise. *In the Small, Small Pond*. ISBN 0805059830

Forney, Melissa. *Oonawassee Summer*. ISBN 1928961045


Kalman, Bobbie. *Sea Otters (Crabapples)*. ISBN 0865057346


Lithgow, John. *I’m a Manatee*. ISBN 0689854277


McMullen, James P. *Cry of the Panther*. ISBN 1-56164-118-9


Miller, Edna. *Mousekin Finds A Friend*. ASIN 0136042163


Parker, Nancy Winslow. *The Working Frog*. ASIN 0688099181


Reed-Jones, Carol. *The Tree in the Ancient Forest*. ISBN 1883220319


Romanova, Natalia. *Once There Was A Tree*. ISBN 0140546774


Smith, Patrick D. *The River is Home and Angel City*. ISBN 0-910923-64-7


Tresselt, Alvin. *The Beaver Pond*. ASIN 0688411231

Turner, Ann. *Heron Street*. ASIN 0060261854


White, Robb. *The Lion’s Paw*. ASIN 039922842X


Resources

Web Resources:
National Parks in Florida
http://usparks.about.com/blpkfl.htm

National Wildlife Federation
http://www.nwf.org
http://www.nwf.org/action -- Act for the Environment: Make Your Voice Heard/Lend a Hand

National Audubon Society
http://www.audubon.org/

Nature Conservancy
http://nature.org

U.S. Geological Survey
http://www.usgs.gov

World Wildlife Fund (WWF)
http://www.worldwildlife.org/

U.S. Fish and Wildlife
http://www.fws.gov/
http://educators.fws.gov/students.html
http://www.wildthingsfws.org/

National Fish and Wildlife Foundation
http://www.nfwf.org/index.htm

National Wildlife Federation KidZone
http://www.nwf.org/kids
http://www.nwf.org/campusecology/index.cfm -- Campus Ecology Programs

Journey North Teacher's Manual
http://www.learner.org/jnorth/tm

Manatee Lessons
http://projects.edtech.sandi.net/dailard/manatees/

North American Crane Working Group - Whooping Cranes
http://www.portup.com/~nacwg/whooping.htm

Endangered Species in Florida
http://www.endangeredspecies.com/states/fl.htm
California State University Northridge Online Social Studies activities
http://www.csun.edu/~hcedu013/onlineactivities.html

Poster Education/Performance Education
http://www.performance-education.com/

U.S. Census Bureau Geography Topics
http://www.census.gov/geo/www/index.html

National Geographic Geography Lessons & Activities
http://www.nationalgeographic.com/resources/ngo/education/ideas.html

The Academy Curriculum Exchange
http://ofcn.org/cyber.serv/academy/ace/

EPA Environmental Explorers Club
http://www.epa.gov/kids

Environmental News Network
http://www.enn.com

Community Classroom Consortium
http://dlis.dos.state.fl.us/barm/ccc/

Florida Department of Environmental Protection
http://www.dep.state.fl.us

EPA EnviroMapper

GeoCommunity GIS data and information
http://www.geocomm.com

National Geographic Society
http://nationalgeographic.com/geographyaction

Southwest Florida Water Management District
2379 Broad Street
Brooksville, Fl. 34609
800-423-1476
http://www.swfwmd.state.fl.us
virtual watershed excursion, free teacher materials, Splash (intermediate lesson plans) excellent educational outreach program
South Florida Water Management
student corner, free materials, great environmental information

St. John’s Water Management District
http://sjr.state.fl.us
general information/water resource education, free materials

Northwest Florida Water Management District
Office of Public Information
Route 1, Box 3100
Havana, Florida 32333
(850) 539-5999
http://www.state.fl.us/nfwmd/index.html

Suwannee River Water Management District
9225 County Road 49
Live Oak, FL 32060
http://www.srwmd.state.fl.us