SARASOTA bay COASTAL HABITATS

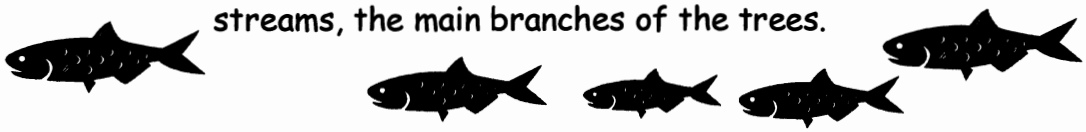
Classroom Activities

Kindergarten, 1st, 2nd and 3rd Grade

As the teacher you are the expert at creating lesson plans that integrate Sarasota Bay materials with your overall curriculum. This section provides suggestions and materials for classroom activities and techniques to get you started, but we encourage you to let your imagination and enthusiasm run WILD!

Lesson 1: Coastal Watersheds What is a Watershed?:

In this activity students become part of the water flow and move around the room as if they are flowing through the watershed. A tree branch is used to introduce the concept. Viewed from high above, drainage patterns in watersheds resemble a network similar to the branching pattern of a tree. Tributaries, similar to twigs and small branches, flow into streams, the main branches of the trees.



Lesson 2: Coastal Habitats Everybody Needs a Home

Students will be able to generalize that people and other animals share a basic need to have a home. Animals need enough space in which to live and find the food, water and shelter they need. "Home" is bigger than a "house". Home is more like a "neighborhood" that has everything in it that is needed for survival.

Developed by Around the Bend Nature Tours for P.I.E.R., a program of the Sarasota Bay National Estuary Program

Kindergarten, 1st, 2nd and 3rd Grade

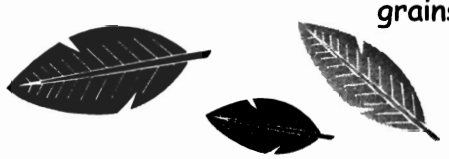
Lesson 3: Coastal Wildlife Is There Wildlife in Your Classroom?:

The major purpose of this activity is for students to understand that people and wildlife share environments. By investigating micro- habitats, the students should be encouraged to generalize from the information they acquire to the entire planet, coming to the understanding that wildlife exists in some form in all areas of the earth.

Lesson 4: Native and Non-Native Plants Nature Journal:

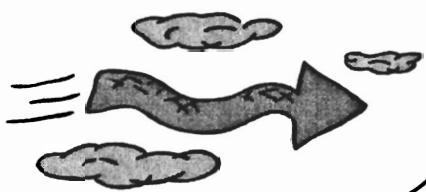
Journals are utilized so that students may observe and describe their surroundings, particularly in outdoor settings, in a variety of ways. This journaling activity can be used effectively as a means to record data and personal observations in combination with any of the activities in this guide.

In addition to recording impressions, feelings, and observations, a journal can become a log of important data to be referred to later. It can show changes in ecosystems, plant types, and animal populations. A journal can hold images as well as words. It can be a great place to keep artifacts such as leaves or grains of sand!



Lesson 5: Stormwater Run-off/ Pollution Where Does it Flow?:

A model watershed is created and students observe water flow to understand surface water runoff and absorption. As water flows downhill it carries particles with it. Some of the water is absorbed or soaked up by the soil; the rest flows across the surface of the earth as run-off and eventually enters a water body (such as Sarasota Bay).



SARASOTA bay COASTAL HABITATS

Lesson 1: Coastal Watersheds

What is a Watershed?

Grade Level: K - 3
Subject: Science, Geography
Duration: 30 minutes
Materials: Small branch.

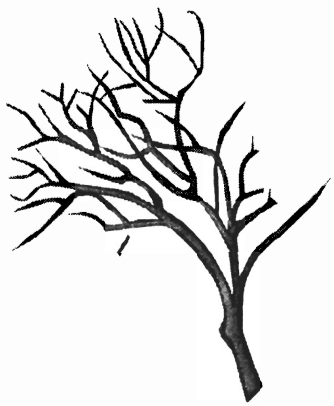
Objectives: Students will predict where water will flow in a watershed.

Overview: In this activity students become part of the water flow and move around the room as if they are flowing through the watershed.

Florida Sunshine State Standards: SC.B.1.3, SC.G.1.1

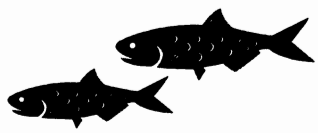
Background: When the ground is saturated due to water during heavy rains, excess water flows over the surface of land as ***runoff***. Eventually, this water collects in channels such as streams. The area of land that drains water into the channels is called the ***watershed*** or ***drainage basin.***

Watersheds are separated from each other by areas of higher elevation. As smaller streams merge together, the width of the channel increases. Eventually, water collects in a larger body of water such as Sarasota Bay. The Sarasota Bay Watershed extends from Terra Ceia Bay in the north, to Lemon Bay in the south.



From the air, drainage patterns in watersheds resemble a network similar to the branching pattern of a tree. Tributaries, similar to twigs and small branches, flow into streams, the main branches of the trees. Streams eventually empty into a large river, comparable to the trunk. Like other branching patterns, the drainage pattern consists of smaller channels merging into larger ones.

Sarasota Bay is an estuary. An ***estuary*** is a coastal area where fresh water from rivers and streams mixes with saltwater from the ocean or gulf. Estuaries are the nurseries of the sea. They provide important spawning grounds and nurseries for the nation's fisheries and bird life.



Suggested Procedure:

1. Gather pruned branches and let students investigate how the main branches "branch out into smaller ones.

2. Help students imagine a drop of water flowing down the twig to the larger branches and finally to the main branch. Into what body of water might the drop of water (main branch) flow?

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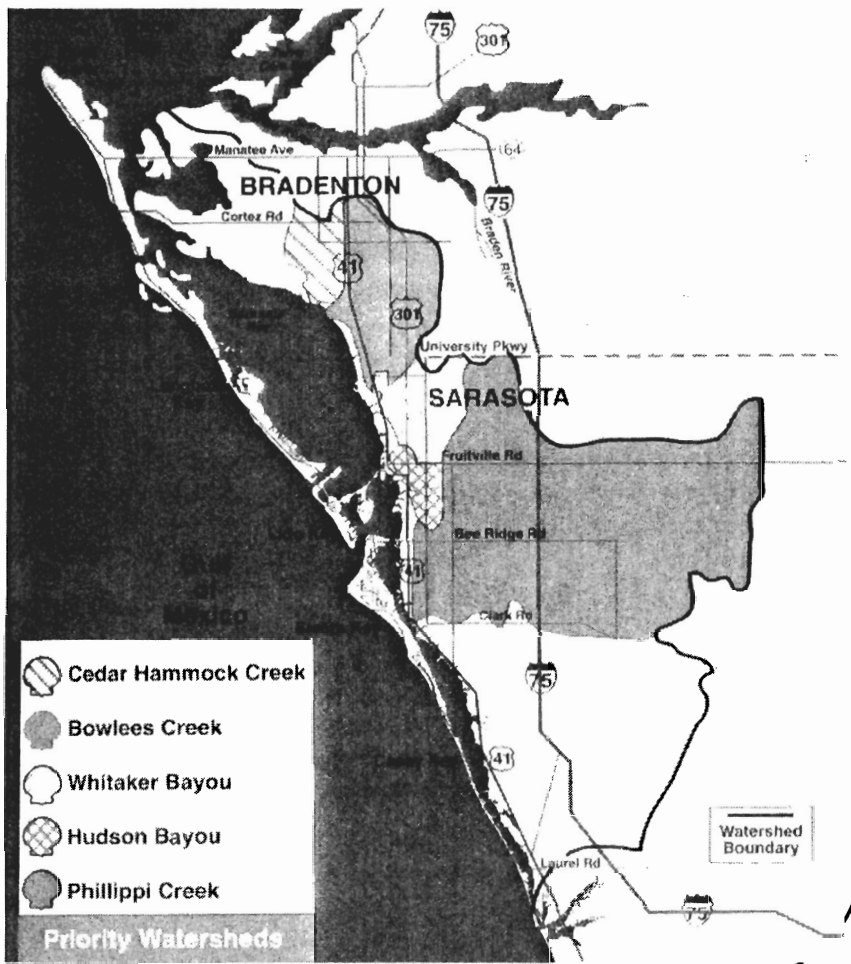
3. Relate the branch to a river flowing near or through the community (i.e. Manatee River, Ware's Creek, Philippi Creek).
    - What smaller channels might feed into this river?
    - Where do students think the water in the river goes?
    - Help them to imagine the water flowing into a larger river and finally to Sarasota Bay and the Gulf of Mexico.

Water Flow Activity:

1. A flowing creek (hold arm in front of body and wiggle fingers – ask a few students to join you in the creek's flow)
2. Flows into a small river (place both arms together and wave them in a serpentine motion – ask a few more students to join you in the river's flow)
3. The water from the smaller river flows into a large river (have students merge together in a column – ask a few more to join them)
4. The large river travels to Sarasota Bay (students join together in a place in the room designated as the bay
5. The water from Sarasota Bay merges with the water from the Gulf of Mexico at one of the passes (Longboat Pass, New Pass, Big Pass) (students can dance in the gulf like waves splashing about).



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SARASOTA bay COASTAL HABITATS

Lesson 2: Coastal Habitats

Everybody Needs a Home

Everybody Needs a Home is used with permission from *Project WILD K-12 Curriculum and Activity Guide* 2000 edition p.59. For further information about Project WILD, contact the Florida Project WILD Coordinator at 620 S. Meridian Street, Tallahassee FL 32399 Phone: (877) 450-WILD(9453), Fax: (850) 488-1961

Grade Level: K - 3

Subject: Language Arts, Science

Duration: 30 - 45 minutes

Materials: Drawing paper, crayons, markers, colored pencils, etc.

Objectives: Students will be able to generalize that people and other animals share a basic need to have a home.

Overview: Students draw a floor plan of their home and then compare with an animals home. The major purpose of this activity is for students to identify the components every animal needs in its home: food, water, shelter and space in which to live, arranged in a way so the animal can survive.

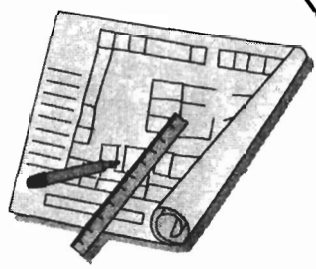
Florida Sunshine State Standards: LA.C.1.1, LA.C.2.1, SC.F.1.1, SC.F.2.2, SC.G.1.1, SC.G.2.1, A.4.A.1.1

Background: Humans and other animals have some of the same basic needs. Every animal needs a home. But that home is not just a "house like those in which people live. Home, for many animals is a much bigger place, and it is outdoors.

The scientific term for an animal's home is "habitat. An animal's habitat includes **food, water, shelter** or cover, and **space**. Because animals need the food, water, shelter and space to be available in a way that meets the animals' needs, we say that these things must be available in a **suitable arrangement**.

Homes are not just houses. A house may be considered shelter. People build houses, apartments, trailers, houseboats and other kinds of shelter in which to live. Animals don't need a home that looks like a house, but they do need some kind of shelter. The shelter might be underground, in a bush, in the bark of a tree, or in some rocks.

Animals need a place in which to find food and water. They also need enough space in which to live and find the food, water and shelter they need. Everybody needs a home! And "home is bigger than a "house . Home is more like a "neighborhood that has everything in it that is needed for survival.



Suggested Procedure:

1. Ask the students to draw a picture, or floor plan, of where they live – or to draw a picture of the place where a person they know lives. The drawing or floor plan should include the things the students need in their home – a place to cook and keep food (food, water), a place to sleep (shelter) and a neighborhood (space).

2. When the drawings are complete, have a discussion with the students about what they drew. Ask the students to point out the things they need to live that they included in their drawings.

3. Ask the students how their homes are similar to animals' homes.

4. Make a "Gallery of Homes out of the drawings. Explain that everyone has a home. All the homes together form a community. A community of animals includes animals (and plants) of different species. How are human communities like animal communities?

5. Ask the students to close their eyes and imagine a bird's home, an ant's home, a raccoon's home, the president's home, and their homes.

6. Show the students pictures of different places that animals live. Discuss the differences and similarities among the homes with the students.

7. Have the students identify the components every animals needs in its home: food, water, shelter and space in which to live, arranged in a way so the animal can survive.

8. Summarize the discussion by emphasizing that although the homes are different, every animal needs a home.

SARASOTA bay COASTAL HABITATS

Lesson 3: Coastal Wildlife

Is There Wildlife in your Classroom?

Grade Level: K - 3

Subject: Language Arts, Science

Duration: 30 - 45 minutes

Materials: Optional: journals for recording observations.

Objectives: Students will compare human and wildlife habitat. Students will generalize that wildlife is present in areas all over the earth.

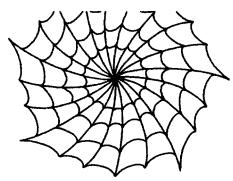
Overview: The major purpose of this activity is for students to understand that people and wildlife share environments. By investigating microhabitats, the students should be encouraged to generalize from the information they acquire to the entire planet, coming to the understanding that wildlife exists in some form in all areas of the earth.

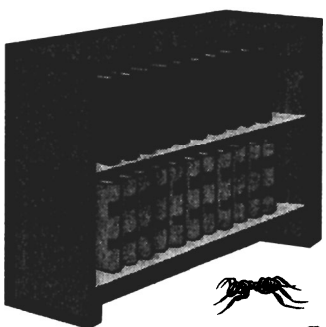
Florida Sunshine State Standards: SC.D.1.2, SC.F.2.2, SC.G.1.1, optional: LA.B.1.2, LA.B.2.1, LA.B.2.2

Background: Many people think of wildlife as the large animals of Africa, such as the lion and elephant, or the large animals of our forests such as the black bear and deer. However, wildlife includes all animals that have not been domesticated by people.

What may be surprising is that wildlife includes the smallest animals – even those that can be seen only through a microscope. Spiders, insects, reptiles, amphibians and most species of fish, birds and mammals may be considered wildlife. Wildlife occurs in a tremendous variety of forms and colors. Even when animals are silent and not visible, they exist somewhere around us. Thousands of organisms live in and on human skin, hair and bodies. Some form of animal life is always near.

The major purpose of this activity is for students to understand that people and wildlife share environments. By investigating microhabitats, the students come to the understanding that wildlife exists in some form in all areas of the earth.





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Suggested Procedure:

NOTE: Ask students to observe but not touch or disturb animals they see.

1. Have students explore the classroom, looking for signs of wildlife. Even in the most cleanly swept classrooms, you can usually find some signs of life either past or present. It might be a spider web in a corner, dead insects near lights, or insect holes along base-boards and behind bookshelves.

2. After the classroom search – discuss with students what, if anything, they found. Intro-duce the idea that people and other animals share environments. Sometimes we don't even notice that we are sharing our environment with other living things.

3. Take the search for animals outside. Divide the students into pairs or small groups and give them 5 minutes to find an animal or some sign that an animal has been there. Look for indirect evidence such as tracks, webs, droppings, feathers and nests.

4. Gather the groups together and share what each group discovered. Discuss with the stu-dents what they have learned. Emphasize that the experience shows that people and wildlife share the same environment.

5. Think of other places you can observe wildlife: yards, homes, neighborhoods, and city parks.

6. Predict what wildlife you may find on your field trip. When you return, compare your observations to your predictions.

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Lesson 4: Native and Non-Native Plants

Nature Journal

Grade Level: K - 3

Subject: Language Arts, Science

Duration: Varies

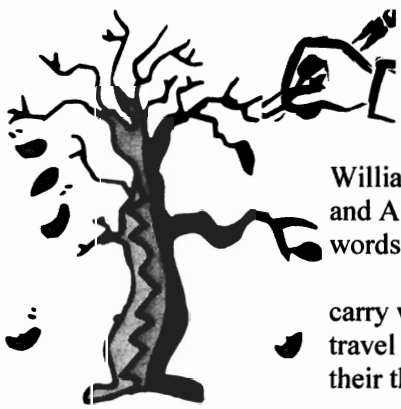
Materials: Journal (construction paper, blank unlined paper, stapler or hole punch and string), pencil (optional: colored pencils, crayons, markers), field guides (see list below).

Objectives: Students will observe and describe their surroundings, particularly in outdoor settings, in a variety of ways.

Overview: This journaling activity can be used effectively as a means to record data and personal observations in combination with any of the activities in this guide. With some activities it may be important to differentiate between field notes and creative journal entries. Field notes are typically factual accounts of nature; journal entries allow for personal and creative interpretation.

Florida Sunshine State Standards: LA.B.1.2, LA.B.2.1, LA.B.2.2, SC.D.1.2, SC.F.1.5, SC.G.1.1, SC.G.1.2, SC.G.1.3, A.VA.B.1.1

Background: A naturalist is a person who studies nature, especially by observing plants, animals and their environments. Naturalists spend a lot of time outdoors, and they often record their observations in forms such as sketches, drawings, paintings and photos, and even poetry and prose. Each student's motivation will be unique and may include sheer joy in learning more about natural systems, interest in contributing to scientific research, love for the art of writing or drawing, or simple satisfaction in being outside.



People benefit today from the insights and observations of those who have delighted in, and been fascinated by the wonders of the natural environment. Henry David Thoreau, Walt Whitman, William Bartram, John Muir, Rachel Carson, Anne Morrow Lindbergh, and Aldo Leopold are among those who have captured their insights in words and offered them to others.

Most naturalists who put their observations in poetry and prose carry with them a small journal as they walk the woods and trails and travel streams, rivers and bays and other natural environments, recording their thoughts as they journey.

Suggested Procedure:

1. Create journals: simply fold blank paper in half with construction paper cover, staple or punch holes and tie with string along the seam. You may purchase journals as well if you prefer.
2. You may prefer to have a class journal instead of, or in addition to individual journals.
3. Take students outside to a pleasant outdoor setting. Ask students to sit quietly and listen carefully for any sounds. ***Hint:*** A good way to calm a group down is to have them close their eyes and take three deep breaths: in through the nose, hold it, and out through the mouth. Instruct students to remain in place with their eyes closed and simply listen to the sounds around them. Smell the scents in the air. Feel the breeze on your skin and in your hair. Open your eyes and use

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all of your senses to become aware of your surroundings.

4. After students have become more in tune with the environment, allow them time to draw or write what they experience in their journals. This could become a daily or weekly exercise to observe your nature spot through the seasons.
5. It is important to stress that the journal belongs to the student – to fill with whatever they choose as long as it relates. Journaling is a special way to keep memories and ideas about things in the natural environment. Encourage students to take their journals with them sometimes when they are outside without the class, perhaps tucked in a backpack or purse. One of them might be the next John Muir or Rachel Carson!.
6. Discuss the value of journals. In addition to recording impressions, feelings, and observations, a journal can become a log of important data to be referred to later. It can show changes in ecosystems, plant types, and animal populations. A journal can hold images as well as words. It can even be a great place to keep artifacts such as leaves or grains of sand!.
7. Have students draw a picture of something that they observed or did while on the field trip. Post the pictures in the classroom to extend the field trip experience! Alternatively (or in addition), have students draw a picture in their journal and describe it.

Field Trip Journaling

Lesson 4
Native and Non-Native Plants

1. Before your field trip, have students **predict** what plants you will see at the park you will visit.
2. Record their predictions in the class journal.
3. During the field trip list plants that are **observed** in your class journal.
4. Back in the classroom make a **list** of native and non-native plants found in the habitat you have visited. Refer to suggested references below.
5. On your list of observed plants, which are native? Which are non-native?

Lesson 1
Coastal Wildlife

1. Before your field trip, have students **predict** what wildlife you will see at the park you will visit.
2. Record their predictions in the class journal.
3. During the field trip, make **observations** and record them in your class journal.
4. Upon return to the classroom **discuss** your predictions and observations. Were the original predictions accurate? Can the students make predictions about wildlife activity at different times of the day? Different times of the year?

Field Guides - Suggested References

National Audubon Society Field Guide to Florida by Peter Alden, Frick Cech, Gil Nelson. Alfred A. Knopf, Inc. 1998.

The Guide to Florida Wildflowers by Walter Kingsley Taylor. Taylor Publishing Company, Dallas, Texas 1992.

Florida Wild Flowers and Roadside Plants by C. Ritchie Bell , Bryan J. Taylor. Laurel Hill Press, Chapel Hill, 1982.

Field Guide to the Birds East of the Rockies by Roger Tory Peterson. Houghton Mifflin Company, Boston, Fifth Edition 2002.

Native and Naturalized Plants of Florida photos by Shirley Denton. Biological Research Associates. website only: http://www.biologicalresearch.com/Plants/

SARASOTA bay COASTAL HABITATS

Lesson 5: Stormwater Run-off/ Pollution
Where Does it Flow?

Grade Level: K - 3

Subject: Science, Geography

Duration: 30 - 45 minutes

Materials: cake pan, moist sand, button, small confetti (debris), cup of water.

Objectives: Students will observe and orally explain that water flows downhill. Students will observe and understand surface water absorption and runoff.

Overview: In this activity a model watershed is created and students observe water flow to understand surface water runoff and absorption.

Florida Sunshine State Standards: SC.A.1.1, SC.B.1.3, SC.D.2.1, SC.G.2.2

Background: When the ground is saturated due to water during heavy rains, excess water flows over the surface of land as runoff. Several factors effect surface runoff:

1. Type of soil (some soil types absorb more water than others
2. Conditions of the soil (dry soil will absorb more than wet soil)
3. Slope of the land
4. The number of plants in the soil (more plants mean more roots absorbing water and less runoff)

As water flows downhill it carries particles with it. Some of the water is absorbed or soaked up by the soil much like a sponge absorbs water, this is called *surface water absorption.* The rest of the water flows across the surface of the earth and eventually enters a water body (such as Sarasota Bay).

The quality of water can change as it flows over the land. These changes in water quality may be due to natural factors or human activities. Some materials, such as soil or organic matter, become suspended in the water and flow with it. Human activities that effect water may result from moving soil around (as in building development) or from the addition of pollutants. When water is degraded to a point that affects its use for a particular purpose, it has become polluted.

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Suggested Procedure:

1. Use wet sand or clay to shape a small hill on a pan.
2. Have the class predict the final destination of the water. Place a button or marker at this spot.
3. Slowly pour one cup of water from a measuring cup on to the top of the hill.
4. Discuss the absorption and runoff that is observed.
5. Repeat the process of pouring water, but this time add confetti to the water representing pollution.

Confetti represents particles/pollution