

THE HILLSBOROUGH RIVER

An Ecosystem Study Unit For Nature's Classroom

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and
The Hillsborough County Environmental Protection Commission

SUMMER 2000 EDITION

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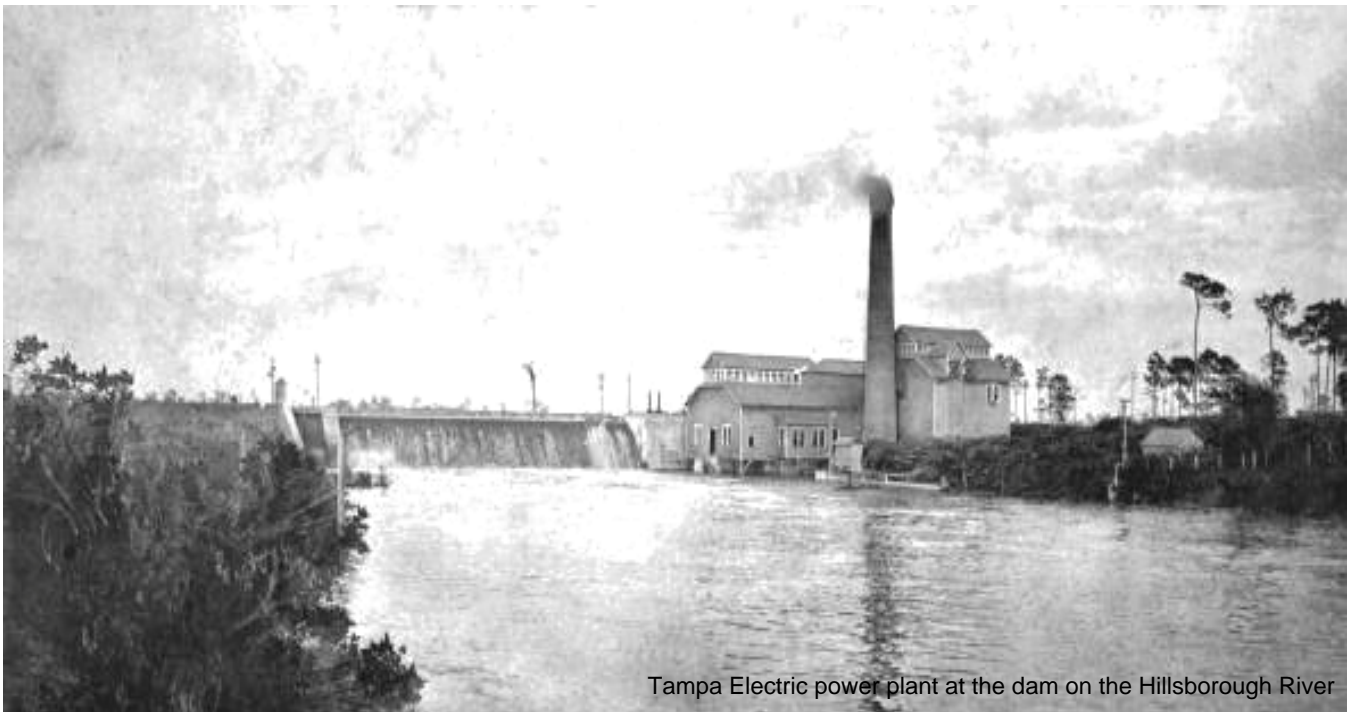
INTRODUCTION

The Hillsborough River curriculum, is designed to give sixth grade students an opportunity to investigate the dynamics of the Hillsborough River watershed and the problems that result from the conflicting demands on its limited resources.

This curriculum was designed to be used effectively with average ability sixth grade students. It incorporates many of the elements of constructivist learning theory. The essence of this theory is that people construct or build knowledge through interaction with their environment. In this construction process, individuals attempt to integrate new information and experiences with past knowledge and experiences. This constructivist approach was used to help increase both the long term knowledge gain and the conceptual understanding of the students.

The field study portion of the curriculum is designed to be used at Nature's Classroom in Hillsborough County, but is applicable to most freshwater wetland sites in Florida.

This curriculum is designed to be taught as a total team effort. Some concepts are addressed primarily in the classroom where as others are primarily taught at Nature's Classroom. The concepts and understandings that begin in the classroom are enhanced, expanded and illustrated during the three-day field investigations at Nature's Classroom. After the students return to the classroom the followup activities are designed to extend, enrich and apply these concepts to watershed issues.



Tampa Electric power plant at the dam on the Hillsborough River

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OVERVIEW

Because of its geographic location, geologic makeup, climate, and population distribution, southwest Florida is faced with a variety of water resource issues. Our seasonal rainfall pattern, in which some 75 percent of the rainfall occurs during the summer, has created drought or flood conditions within the region for a very long time. When this seasonal rainfall pattern is combined with changing land-use patterns and a rapidly growing population, the result is conflict over water resources. A few citizens of the region are faced with the problem of too much water while many more are faced with water restrictions and/or shortages. As the population of the region continues to grow, the citizens and the policy makers face many tough decisions about water allocation and protection of natural systems.

This curriculum focuses on one watershed within the region, the Hillsborough River basin. It provides students the opportunity to study the water source for the majority of the citizens of the county. These students will have the opportunity to investigate the many competing interests within the watershed, their own contribution to water issues within the watershed and the efforts underway by local, regional and state agencies to manage the Hillsborough River watershed as a total ecosystem.

Importance

Florida has both unique problems and unique strengths. Because, most people living here have migrated here from somewhere else or even those born here are often unaware of the connection that all Floridians have with the ecological systems. However, we have an available resource in our students. They are the ones who, armed with knowledge, can make a difference.

Therefore, it is the goal of this project to play a part in the development of citizens who think and act on the basis of factual knowledge about the importance of managing ecosystems to the future of our state.

Curriculum Development

The development of this curriculum has been a long-term process. The original curriculum guide for Nature's Classroom was developed during the mid 1970s. This original guide was revised and updated in 1994. When the number of days that students visited Nature's Classroom was reduced in the fall of 1995, there was a need for a curriculum that could be taught by a sixth grade classroom teacher. The concepts and understandings that begin in the classroom are enhanced, expanded and illustrated during the three-day field investigations at Nature's Classroom.

The development of this curriculum is an ongoing process supported by a variety of agencies and organizations.

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PROJECT DEVELOPMENT

YEAR ONE (1995-1996) - THE PILOT PROJECT

With the assistance of a grant from the Hillsborough County Environmental Protection Agency the development of this new curriculum for Nature's Classroom was begun in November of 1995. Elements of the curriculum were pulled together from various sources and field tested during the provisional one-day environmental program at Nature's Classroom. It was anticipated that this material would be developed, field tested, revised and tested again over the next two years.

YEAR TWO (1996-1997)- FULL FIELD TEST

During the 1996-97 school year, the curriculum was field tested with the entire sixth grade of Hillsborough County as a part of a new three-day environmental studies program. Throughout the year, it was carefully reviewed by a technical advisory committee. The Fall '97 revised edition reflected the feedback from the Nature's Classroom staff, teacher evaluations and suggestions and contributions from the technical advisory committee.

The full field test was supported by a variety of agencies and organizations.

The School Board of Hillsborough County provided support for facility operation and curriculum development.

Nature's Classroom Development Committee of the Hillsborough Education Foundation provided funding for operation and curriculum development.

The Southwest Florida Water Management District assisted with funding for operation and curriculum development.

The Hillsborough County Environmental Protection Commission provided support for instructional staff and curriculum development.

The Florida Department of Environmental Protection assisted with resources for curriculum development.

The Planning Commission provided curriculum resources.

YEAR THREE (1997-1998)

During the 1997-1998 school year the curriculum was refined based on feedback from the Nature's Classroom staff, classroom teachers, and the technical advisory committee. Plans were made for additional assessment instruments to be developed.

YEAR FOUR (1998-1999) AND BEYOND

Based on teacher and student assessment, the curriculum has been refined to better accommodate changes in the middle school curriculum and at the facility. A curriculum and instruction was appointed to assist with the continual improvement of the program.

Technical Advisory Committee:

Richard Bolar	Hillsborough EPC
Jack Burke	Florida DEP
Tom Dyer	Two Rivers Ranch
Scott Emery	Environment & Health, Inc.
Jadell Kerr	Hillsborough EPC
Donna McNeil	Cargill Fertilizer
Sandy Schlichting	Florida DOE EERSP IV
Sandra Schurr	University of South Florida
Sally Thompson	Hillsborough Env. Coalition
Alan Wright	The Planning Commission

Curriculum and Instruction Resource Committee:

Beth Bartos	Southwest Florida Water Management District
Linda Burdick	Busch Gardens
Chris Burkhardt-Smith	Cargill Fertilizer
Becky Clayton	Florida Aquarium
Scott Emery	Environment & Health, Inc.
Mary Margaret Hull	City of Tampa Water Department
Jadell Kerr	Hillsborough EPC
Bob Lawson	Dowdell Middle School
Heidi McCree	Hillsborough River Greenways Taskforce
Lt. Gary Morse	Florida Freshwater Fish and Game Commission
Henry Mushinski	University of South Florida
Courtney Schwarten	Lowry Park Zoo
Karen Pate	Museum of Science and Industry
Carol Snell Patton	University of Central Florida
Sandy Schlichting	Florida DOE EERSP IV
Ann F. Schnapf	National Audubon Society
Ed Steiner	University of South Florida
Fred Webb	Hillsborough Community College
Beth Wetschnig	CF Industries
Alan Wright	The Planning Commission

GOALS AND OUTCOMES

Program Goals

- To help students develop the concept of the Hillsborough River watershed as an ecosystem.
 - To increase student knowledge about ecological relationships within the watershed.
 - To provide students with experiences which allow them to see their relationship to each other and their environment.
 - To acquaint students with common plants and animals found within this ecological system and the adaptations that allow them to be successful.
 - To instill a concern for the impact humans have on the Hillsborough River watershed.
 - To help students learn wise and harmonious uses of our environment.
 - To help students understand their connections to and responsibility for their natural environment.
 - To provide students with the opportunity to understand best management practices.
 - To provide students with the opportunity to communicate their knowledge to others in a variety of formats.
-

Student Outcomes

Conceptual

Demonstrate an understanding that:

1. A healthy ecosystem is made up of a diverse group of populations interacting with each other and their physical environment;
2. The watershed of the Hillsborough River covers a large area and includes portions of three counties;
3. Within The Hillsborough River ecosystem, energy has to be constantly renewed but matter is recycled;
4. Organisms have special adaptations which allow them to make a successful living in the Hillsborough River watershed;
5. The Hillsborough River ecosystem is an important natural resource which is used in a variety of ways;
6. Rivers such as the Hillsborough should be managed as functional systems; *
7. Historically, human activities have had a negative impact upon Florida's riverine ecosystems.*

Affective

Demonstrate an appreciation that:

1. The Hillsborough River is an important resource for all citizens of Hillsborough County;
2. Human attitudes toward the Hillsborough River have changed;*
3. State and local agencies play an important role in managing ecosystems in Florida;*
4. Each of us has a role in preserving and protecting the Hillsborough River ecosystem.

Process

Demonstrate individually and in groups that they can:

1. Design and or carry out investigations to help them increase their knowledge and understanding of the Hillsborough River watershed;
2. Accurately record information about the watershed;
3. Develop reasonable conclusions from observations and investigations;
4. Develop a plan that will increase the awareness of others about the issues associated with managing the Hillsborough River as an ecosystem;*
5. Develop skills which will allow them to be thoughtful and careful users of the Hillsborough River ecosystem.

* Outcomes primarily taught at the school

CONNECTIONS

Accountability 2000

Accountability 2000 is the driving force behind school reform in Florida. It contains goals and outcomes to help school districts design educational programs that will produce well educated, productive citizens who are ready to enter the world of work.

This Hillsborough River watershed unit clearly addresses **Goal 3**, which requires students to compete "at the highest levels nationally and internationally and (be) prepared to make well-reasoned, thoughtful, and healthy lifelong decisions." Goal 3 contains 10 standards by which students will be held accountable. This unit addresses most of these standards but places major emphasis on standards 1,2, 3, 4, 7, 8, and 9.

Standard 1

Students will locate and collect relevant information about the Hillsborough River watershed using a variety of information sources. They will then sort through this information and determine how best to communicate their findings to their peers, parents and other adults in order to increase their awareness of the importance of protecting ecological systems in Florida.

Standard 2

Using a variety of information sources, the students will develop a concept map illustrating their understanding of their relationships with the Hillsborough River watershed.

Standard 3

Using both numeric data obtained from the use of water test kits and analysis of the diversity of species within the Hillsborough River watershed, the students will determine both the community type and its relative health. Students will demonstrate a knowledge of geometry through completion of both word problems and the orienteering course in the field.

Standard 4

As part of a simulation, students will analyze the effects of development, identify problems, generate solutions to the identified problems and present the solutions to their classmates and teacher.

Standard 7

Working in small groups, the students will analyze both the biotic (living) and the abiotic (nonliving) components of at least two communities. They will then compare the sites to determine similarities and differences. As a class, they will identify components which are common among the sites and compare these components to those of known ecosystems within the watershed to determine the classification of these sites.

Standard 8

Students, working in a group, will be assigned roles by the teacher. Each group member will conduct individual research and present the findings. The group will then reach consensus on the most important elements of each of the findings and make a presentation about the issues.

Standard 9

As part of a simulation on the development of a parcel of land within the Hillsborough River flood plain, students will assume roles which potentially put them in conflict with their peers. As a part of the simulation, they will have to work with others who hold different viewpoints in order to reach a consensus on the use of the land.

CONNECTIONS

Sunshine State Standards Grades 6 through 8

The Sunshine State Standards were developed as the foundation for instruction in our school system. These standards are grouped by discipline and are what we expect students to know and do as they progress from one level to another in school.

This curriculum addresses standards from the following academic subject areas.

Language Arts

- Reading
- Writing
- Listening, Viewing and Speaking

Mathematics

- Number Sense, Concepts, and Operation
- Measurement
- Geometry and Spatial Sense
- Data Analysis and Probability

Science

- The Nature of Matter
- Energy
- Processes that Shape the Earth
- Processes of Life
- How Living Things Interact With Their Environment
- The Nature of Science

Social Studies

- Time, Continuity, and Change
- People, Places, and Environments
- Government and the Citizen
- Economics

Correlations with the individual standards are found in the teacher resource section.



Old Postcard - Florida Archives

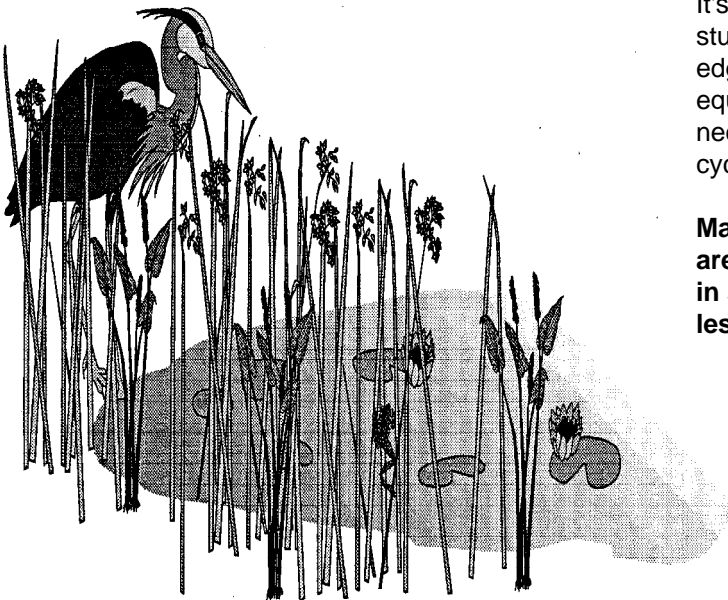
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TEACHER INSTRUCTIONS

This curriculum is designed to help students build a mental picture of the concept of a watershed as a complex dynamic system. Students should develop an understanding that the system is composed of both living (biotic) and nonliving (abiotic) parts.

Within this system, the flow of energy and the cycling of matter links organisms to one another and to their physical environment. Although ecosystems vary due to a number of factors, they all share this fact in common. Students who participate in this unit should also develop an understanding of why management of a healthy, ecologically and geographically diverse watershed is important to all citizens of Hillsborough County and how individuals, agencies and organizations can help to protect and manage ecosystems.

The teaching techniques used are designed to help build both individual and collective understanding. Tasks are frequently given to different groups and information is shared both within a group and among groups. This technique works best when the teacher has had training and experience with cooperative learning, but can also be carried out through conventional group management. This approach is used to provide students with practice in mastering selected state curriculum standards as well as outcomes described in **Accountability 2000, Goal 3.**



Graphic from: Southwest Florida Water Management District

This unit guides students to investigate the following questions.

- What is the Hillsborough River watershed?
- Historically, how ecologically diverse was it?
- What types of ecological communities are still found within the watershed?
- How are organisms adapted to live in ecological communities?
- What activities within this system have degraded both the quality and diversity of the system?
- How can this watershed best be managed to provide the greatest benefits to all stakeholders?

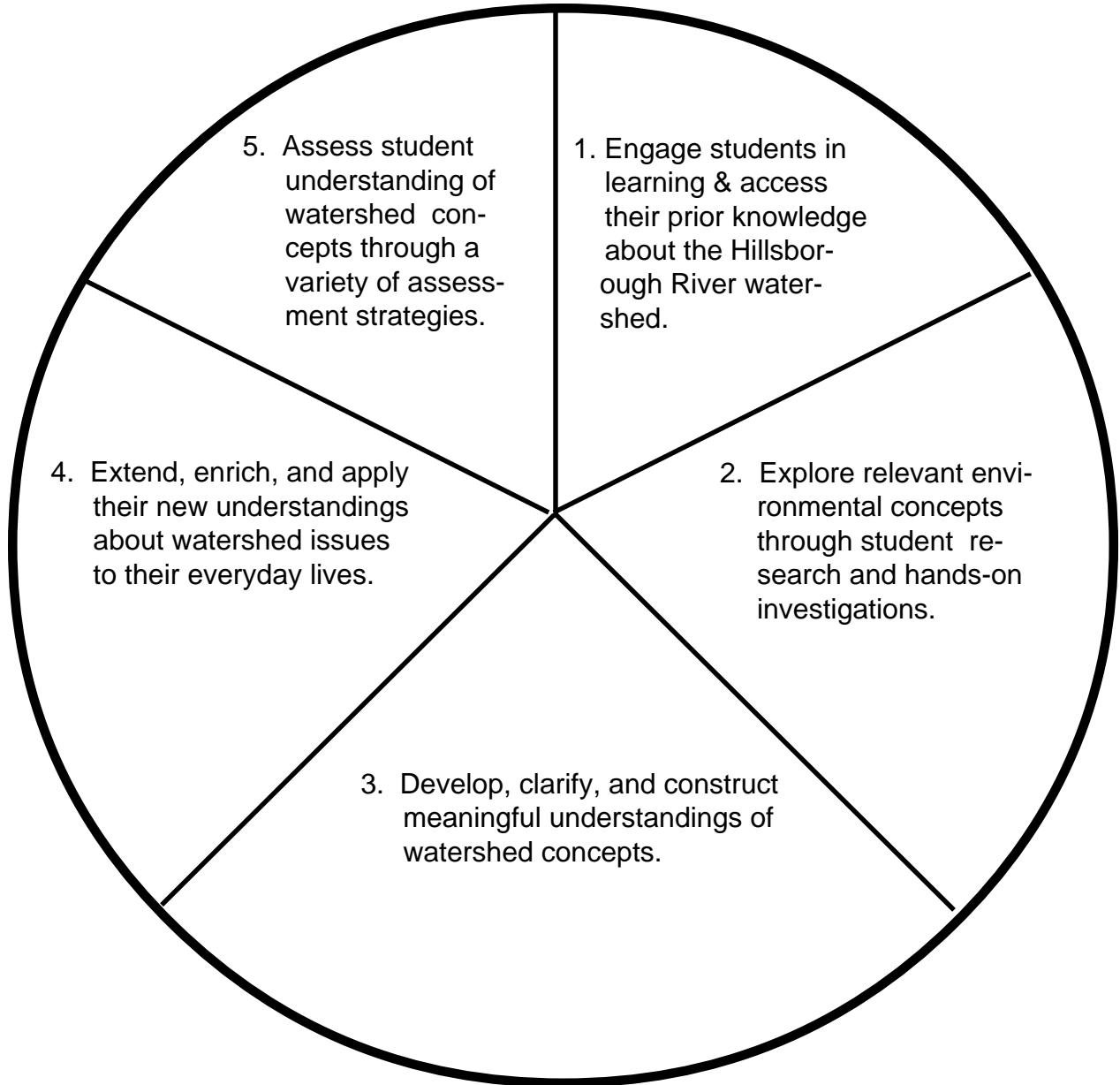
Guided by the lessons in the unit, your students will be searching for the answers to these questions as they develop their understanding of the Hillsborough River watershed.

The first units are primarily an introduction to the subject. They are designed to allow students to assess and explore their current understanding of the Hillsborough River watershed. The second set of units allow the students to explore the concepts and obtain background information on the various topics and issues. The third set of units takes place in the field and is designed to develop and clarify understanding. The final set of units builds on the students experiences and assesses understanding.

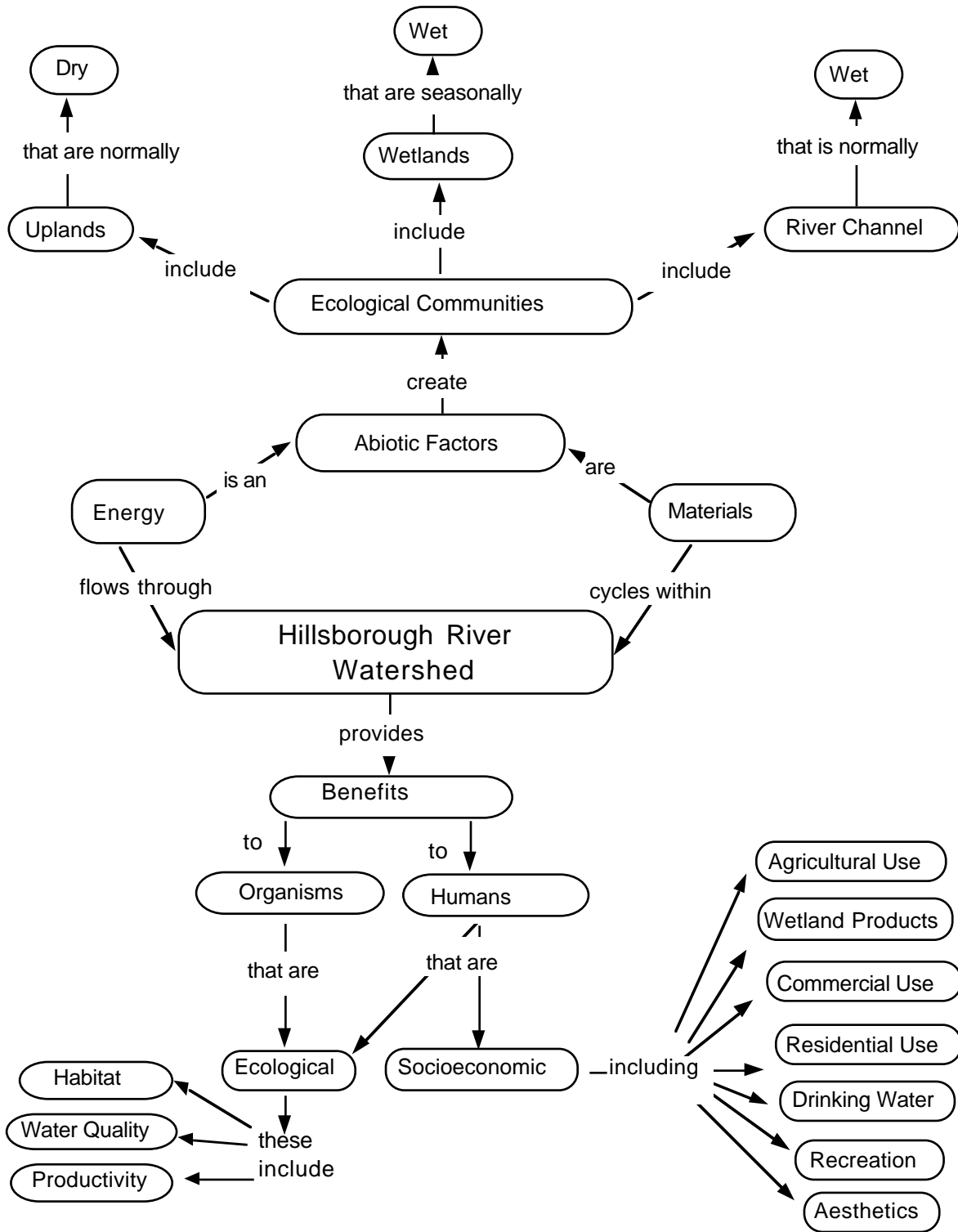
It's important that students are able to connect their study of the Hillsborough River with previous knowledge. The basic science curriculum should have equipped them with the basic ecological concepts necessary to understand energy flow and nutrient cycling in ecological systems.

Master copies of the readings and activity sheets are supplied in this booklet. Please duplicate these in sufficient quantities as required by the individual lessons.

CURRICULUM LEARNING CYCLE



HILLSBOROUGH RIVER WATERSHED CONCEPT MAP



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Unit 1

What Do They Know About The Watershed?

Overview

All of the area that collects rainfall and drains it into an individual river or stream system is called a **watershed**. The area that drains into a river is determined by the shape and elevation of the land surface. This is called the **topography**.

The Hillsborough River occupies a large basin on the west coast of Florida. In many ways it resembles a flat shallow pan that is tilted up slightly on one corner. The highest part of this watershed or basin is northeast of the borders of Hillsborough County in an area known as the **Green Swamp**. The lowest corner of the basin is at the mouth of the river where it empties into Tampa Bay. The southern boundary of this watershed roughly follows State Road 60 and Interstate 4 east from Tampa almost to Lakeland. The western boundary roughly follows U.S. Highway 41 north from Tampa Bay into Pasco County.

There is a great deal of variation in teacher and student knowledge about the Hillsborough River and its watershed. This unit will allow you to assess the students' understandings about the river, and its watershed.

A preassessment **word web** will give you an idea of how much your students currently understand about the concept of the Hillsborough River watershed. The other activities will probe this understanding.

The use of a graphics program such as C-Map or the draw module in M.S. Works or Clarisworks, on a computer is most appropriate for this group activity. The web can easily be expanded and modified throughout the unit.

Another technique is to have the students write single words or two word combinations on 3X5 cards or POST-IT notes. They can then group and arrange the words to show relationships before they make their webs on paper.

Directions

1. Tell the students that you are about to begin a new study unit and you need an idea of what they already know about the topic. Assign them to investigative teams or cooperative learning groups of four to six students.
2. Write the terms **Hillsborough River** and **Watershed** where all the students can easily see them.
3. Ask the students to think silently about the terms for a couple of minutes. Then ask them to list as many words as they can that relate to these two terms. Ask each student to construct word webs for the two terms.

4. Allow time for the teams to share their efforts and collaboratively develop a group web for **Hillsborough River Watershed**.
5. If any teams would like to share their webs, give them an opportunity.
6. Ask the following questions in a class discussion:
Have you ever seen the Hillsborough River?
Where did you see it?
What was it like?
What types of plants and animals did you see?
Where do you think the water in the Hillsborough River comes from?
7. Direct the students to start a Hillsborough River Watershed Notebook in a loose-leaf folder. At the end of this program of study, this notebook should contain a collection of all of their experiences with the river system. It will be both a scrapbook and a journal. Have the students decorate the cover.
8. Have them place their webs in their Hillsborough River Watershed Notebook.
9. Finish the introduction by charting on the board or on paper what your students would like to learn about the Hillsborough River, its watershed and the plants and animals that live in these habitats. Discuss how they might find the answers to their questions. Refer to these questions as you progress through the curriculum.
10. (Optional) You may want the students to keep a list of new words in their notebooks. This list can be used for a variety of writing and language arts activities.



A glossary of terms is provided in the teacher resource section. All bold terms in the student readings should be defined in the glossary.



Unit 2

Components of the Watershed Overview

The Hillsborough River Watershed has a large and varied **ecology**. This ecology is influenced by **abiotic** (nonliving) and **biotic** (living) forces as well as humans. The geography of the watershed has been altered over a long period of time by these abiotic and biotic forces and over a short period of time by the changing needs of humans.

Understanding complex concepts involves making connections between what students already know and new information they encounter. This unit expands upon the preassessment in Unit 1 by providing an organized way in which students can cluster their pre-existing knowledge and begin to build upon it.

Directions

1. Assign students to study teams (cooperative learning groups).
2. Each member of the team should review their word webs from Unit 1 and the team should review their collective word web.
3. Provide each team with a **Hillsborough River Watershed Component Sheet**.
4. Give the students a brief description of each component. Have the team decide where their preexisting knowledge should be classified on the component sheet. The name of the person providing the information should be recorded next to their comment.
5. Distribute a set of the **RIVER FACT SHEETS** to each team. Have them sift through the fact sheets for important information and add this to their component sheets.
6. The information collected should be transferred to chart paper and posted in the room. Students will use these charts throughout the unit as graphic organizers to help them construct an understanding of the river system.
7. Tell the students that they will make additions and changes to these charts as they move through the unit.
8. Individual team members should copy the component information into their wetland notebooks.

Classification

Reading
Comprehension

This reading for comprehension activity can be jigsawed among the groups.

You may want to use Reading For Information Sheets to help them with this task.

Unit 3

Communities Within the Watershed

Overview

A river watershed can be viewed as a complex machine with many component parts. Each of these parts is important to the successful functioning of the machine. The health of the machine is dependent on maintaining ecological diversity.

In this lesson the students will analyze readings to gain information about the various communities found in the Hillsborough River watershed ecosystem. They will use a cooperative learning jigsaw process to share their information with their group.

Directions

1. Place the students in groups and have them number off from 1-5 within each group. Pass out a different **ECOSYSTEM FACTSHEET** reading to each numbered student.
2. Students should read their assigned article and take notes using the **Reading For Information** sheet so they can teach the information to the other members of their group. Allow the students approximately 10 minutes to analyze their readings, take notes, and begin developing a presentation.
3. Each student should then pair with another student with the same number from a different group. They should share their information, collaborate on improving their presentation, and create a graphic organizer to use when teaching their peers.
4. The students should return to their teams and take turns presenting. Group members should use their own copy of the **Ecosystem Readings Summary Sheet** to capture the important information.
5. Summarize the information on the board or on chart paper for the entire class.
6. Update the charts started in Unit 2.



Reading
Comprehension

Cooperative Learning



Editing Skills

Calculation
Measurement
Graphing
Interpreting

Unit 4

A Journey Along The River

Overview

The Hillsborough River changes appearance and character as it flows from the Green Swamp to Tampa Bay. In this unit the students will take an interdisciplinary tour of the river using a variety of methods.

Directions

1. Have the students review the Hillsborough River Fact Sheets.
2. Have the students work in groups to view the video, The Treasures of the Hillsborough River, in three parts. Stop the tape between each part and discuss the important concepts. Each group should find the answers to the guide questions.
3. **LANGUAGE ARTS** - Have the students work in groups. They should first locate where their Language Arts Worksheet photographs were taken on a map of the river and then they should edit the sentences to make them grammatically correct. Use the Composition Section of the worksheet as a whole class discussion or as a starter for independent work.
4. **MATHEMATICS** - Have the students work independently on the Watershed Mathematics problems in the student activities section. These problems involve activities and information related to the Nature's Classroom field trip and will help set the stage for this trip.
5. **SOCIAL STUDIES** - The students should work in groups to read through the RIVER HISTORY FACT SHEETS. Use the River History FCAT/Social Studies Activity at the end of this section.
6. Have the students record in their notebooks what they learned about how humans use the river and the watershed.

Unit 5

Preparing for Nature's Classroom Field Study

Overview

This pre-field trip activity is designed to allow students to prepare for their trip to Nature's Classroom.

Directions

1. Tell the students that they are going to take a trip to Nature's Classroom. Explain to them that they will be participating in six activities while they are at the site; an uplands/wetlands nature hike; a visit to the Interpretative Center; a tour through the Animal Compound; sampling the river for aquatic specimens; exploring the river by boat; and an orienteering activity in the uplands.
2. Have them do a group brainstorming on what they would like to learn while they are there. Each group should record its responses on chart paper in a location that is visible to the whole class.
3. Add to the list as necessary by asking questions such as:
 - **What plants, animals, or other organisms would you expect to see?**
 - **Where do you think they would live?**
 - **What type of adaptations would they need to live along the Hillsborough River?**
 - **How would we detect the presence of unseen organisms?**
 - **What biotic factors might affect life in the environment?**
 - **What are some of the important abiotic factors that might affect life in the environment?**
4. Review the pre-visit information in the Nature's Classroom Field Study with the students for each of the activities. Use the student's activity sheets as appropriate to enhance the students' background.
5. Have a class discussion on how each of the activities on the field trip will be carried out.
6. Describe expectations for data collection and information gathering.
7. Have each team develop an action plan of who will carry out what activity for their team on the field trip.



Review the Nature's Classroom Field Study in this curriculum guide for general information and specific instructions on each field activity.

Read TEACHERS' PRETRIP INFORMATION on next three pages. Post and review the NATURE'S CLASSROOM MANNERS sheet from the Field Study section before you come out to the site.

Teachers Pretrip Information

The teachers and staff of Nature's Classroom are looking forward to working with you during your three-day field study. **To make this experience for your students as enjoyable as possible, please read the following information carefully.**

WHERE IS NATURE'S CLASSROOM?

Nature's Classroom is located in Northeast Hillsborough County on 365 acres provided by the Southwest Florida Water Management District (SWFWMD). The acreage is located on the Hillsborough River and contains a variety of natural communities (i.e., riverine swamp, sandhills and pine flatwoods). The ecosystem study program at Nature's Classroom offers a variety of activities and learning experiences for all sixth grade public school children.

TEACHER AND CLASS PREPARATION

YOUR POSITIVE EXAMPLE AND ENTHUSIASM WILL GREATLY HELP YOUR STUDENTS. Perhaps you have already been through the Nature's Classroom experience. Remember, this is your students' first time and your first time **WITH THESE PARTICULAR STUDENTS.** Your students will greatly benefit if they are prepared for their visit. Please use this curriculum guide to help prepare them before they arrive at Nature's Classroom.

PERMISSION SLIPS

Regular field trip permission slips must be signed. These must have an emergency phone numbers. A copy of these emergency phone numbers should be brought with you to Nature's Classroom and the originals kept on file at your school.

NAME TAGS

Each student must wear a name tag. Your bus driver will have masking tape and a marker should you need it.

GROUPING

Your class will work in teams while at Nature's Classroom. They will need practice in working as teams before they come out. The Nature's Classroom staff will divide the class into appropriate size teams depending on the activity.

CHAPERONES

Chaperones can play an important role in support and student management while your class is at Nature's Classroom. They are only required on the day your class goes out on the river in boats. You may choose to share chaperones between classes for the River Exploration - thus a chaperone may go out in the boats twice on the same day.

RESTROOMS

It is your responsibility to take your class to and from the restrooms and to monitor their behavior during that time.

SEATING

Your bus driver will show you the shelter and tables that are to be utilized by your class during your three- day visit. Each shelter has a storage container for lunches packed in paper bags.

DRESS

Clothes should be appropriate for field trip activities. The clothing should be suitable for spending the day in the woods. Please be warned that mosquitoes may be active while you are at Nature's Classroom so you might want to bring repellent. In the winter warm clothing is a necessity. The teacher should also dress for participating in outdoor activities. Proper comfortable shoes are a must for both teacher and student. Shoes such as sneakers are recommended. No thongs, sandals or other open-toed shoes are permitted. Students will need to wear old shoes on the day they sample aquatic organisms in the river. We have a supply of shoes on hand that your students may borrow on this day.

LUNCH

You are to report the number of student and/or adult lunches required by your class on a daily basis to your bus driver. You will be required to pay cash for adult lunches and for students extra milk. The driver will give you the tickets required to obtain student lunches and provide you with trash bags. A sign is posted at the lunch pickup post indicating the time when lunch will be served. One-half hour is the scheduled lunch period. Please adhere to this schedule as you will be changing activities after lunch. Please pick up your lunches at the designated lunch point. Please have your students pick up all trash around their area after lunch and before leaving at the end of the day. Place all trash in your trash bag and deposit it in the dumpster across the street from the shelters.

RULES

The teacher is responsible for INSURING THAT DISCIPLINE IS MAINTAINED on the bus and at Nature's Classroom, and that students follow all instructions given by the Nature's Classroom teachers. As Nature's Classroom is a Hillsborough County School all school regulations will apply. Please remind your students that they are not to bring knives, toys, radios, gum, candy, or matches to Nature's Classroom. It is to be stressed that all of the activities and experiences at Nature's Classroom are LEARNING ACTIVITIES.

NATURE'S CLASSROOM MANNERS (Review with class before arrival)

- Be gentle and quiet - noise frightens wildlife into hiding.
- Be kind to plants - they need their leaves to make food and their flowers to make seeds. Please do not pick or pluck them - leave them for others to enjoy!
- Be kind to animals - chasing, teasing or pestering them makes them timid. Let's just watch them and learn how they live and try hard not to frighten them.
- Stay on the trails - for your comfort and safety and because we don't want to trample small plants, animals and delicate soil communities.
- Keep up with the group - you have such a short time at Nature's Classroom - don't waste it by dragging behind and making everyone wait for you.
- Be kind and courteous to each other - help make the three days at Nature's Classroom pleasant for all.

NO NOISE OR LOUD PLAY IN THE SHELTER AREA PLEASE....AND REMEMBER....DON'T BE A LITTERBUG.

TEACHER RESPONSIBILITIES

- Please have your class ready to leave school as soon as possible each morning.
- Please know the rules of Nature's Classroom and actively support enforcement of these rules.
- Facilitate and monitor your students' investigations.
- Please assist the Nature's Classroom teachers with their activities.
- Take responsibility for the general welfare and maintenance of discipline of your class.
- Be sure the students are dressed appropriately for the weather.
- Stay with your class.
- Send home parent information sheet supplied by your school.
- If you have any questions regarding your Nature's Classroom experience please don't hesitate to call (987-6969).

TRANSPORTATION

The Hillsborough County School Board provides Nature's Classroom with special school buses and bus drivers who receive specialized training to serve a dual capacity. They drive the buses to Nature's Classroom and then become boat operators. There is a \$7 transportation charge per child for the transportation but the children and their teachers experience Nature's Classroom at no additional costs.

PROGRAM ACTIVITIES

During the three-day field study all classes will participate in the following activities:

1. **Birds of Prey, Mammals & Reptiles Investigations** - Animal Compound
2. **Upland & Wetland Investigation** Trails and Boardwalk
3. **River Exploration & Boating Safety** - Boats
4. **Adaptations of Aquatic Organisms** - Riverfront dipping
5. **Adaptation of Organisms** - Interpretative Center
6. **Upland Orienteering** - Upland compass area