

“Keeping the Peace”

**Lesson Plans for 7th grade study of water and the Peace River
area.**

**Written and implemented by 7th grade teachers of the Shark Team
at Port Charlotte Middle School**



**Materials and field trip experiences were made possible through a
grant by the National Estuary Program and the Southwest Florida
Water Management District**

"Keeping the Peace"

Our "Keeping the Peace" unit was ongoing throughout the 1997-1998 school year. Students had experiences in and out of the classroom relative to this theme during the entire year. The in class lesson plans have been provided. The following is a description of our field trips.

"Keeping the Peace" Field Trip Experiences

1st field trip:

Students were taken by bus to Ponce de Leon Park in Punta Gorda. Approximately 160 students experienced this trip over a 4 day period. At the park, 4 stations were established for students to experience.

1. Seining in the water. At the first station, students waded in the water with seine nets to obtain organisms and other items from the water. They used field microscopes to examine their findings.

2. Water testing--At the second station, using water from the Harbor and other water samples, students tested the water for salinity and pH and discussed their findings.

3. Wildlife Center--The third station was the Peace River Wildlife Center. Students toured the facility and viewed the wildlife of the area. They also became aware of potential hazards to wildlife in the region.

4. Tour of historic Punta Gorda. The fourth station was a 2 hour bus trip through historic Punta Gorda narrated by Mr. Lindsey Williams. We made 2 stops (arranged by Mr. Williams)--the Freeman House and the new bed and breakfast that was the former community center for old Punta Gorda.

2nd field trip:

Approximately 160 students participated in this second trip. This experience involved 4 days. On each day, students took a Peace River Boat tour with Captain Kirk of the Nav-A-Gator Boat Tours and then toured the Peace River/Manasota Regional Water Supply Authority facility on Kings Highway.

1. The boat tour was narrated by Dennis Kirk and was a great way for students to see an comparatively untouched, pristine portion of the Peace River. Mr. Kirk's narration included vegetation, wildlife, the nature of the water, historical sites like Liverpool, and a discussion of Pirates. Students saw alligators, manatees, a wide variety of birds, and many examples of vegetation in this region.

2. The tour of the water treatment by Mr. Jerry Tindall and his staff was an excellent way to understand the water treatment process. Students first viewed the intake point at the Peace River and the storage reservoir across Kings Highway from the plant. Then, students were able to see the control room and the various sections of the treatment process at the plant itself. Our tour was very complete and informative.. The staff was willing to answer our students' questions. It was particularly interesting to note that the following week we were out of school due to the water main break. Students could really relate to the location, people, and problems of this situation having just visited the plant. Students also experienced, first-hand, the change in life when a treated water supply is not available!!!

The following lesson plans were devised to introduce, supplement, and review the various goals of our year long unit.

These goals included the increase of student knowledge in the following areas:

- a. understanding of the importance of clean water
- b. understanding of the reasons that water becomes unclean
- c. understanding technology connected to reclaiming used water
- d. understanding the history and development of the mouth of the Peace River
- e. understanding the need for and methods of water conservation

A volunteer group of students met throughout the second half our school year to research, write, compile, and produce the "Keeping the Peace" booklet. A copy of this was distributed to each student at the end of the year. Teachers on our team intend to use the booklet as a "text" for next year's seventh graders whom we hope will have these same experiences.

Compare and Contrast the Peace River

Objectives:

1. Students will be able to research the Peace River and a major river of the world.
2. Students will discover specific information about the two rivers.
3. Students will compare and contrast the river of their choice with the Peace River.

Equipment/Teacher Aids:

1. Research material--encyclopedia, almanacs, Peace River information
2. Form for completion of information (see attached)

Classroom activities:

1. Students will choose from a list a river of the world that interests them. (or they draw the name randomly.)
2. Students do research on the river according to the form. Students also complete form about the Peace River (this could be completed as a class and the river to be compared could be completed individually)
3. Students prepare a Venn diagram to show contrasts and comparable attribute of the two rivers studied.
4. Students describe their river to the class, always referring to the Peace River in comparison.

Pre-Ponce de Leon Park Trip

Water Quality and its Importance to Us

Objectives:

1. Students will be able to list and describe the following:
 - a. Main sources of water for Florida inhabitants
 - b. Three main sources of water for the body of water, Charlotte Harbor
 - c. Pressure on water supplies and the Harbor
2. Students will define and contrast ground water and surface water.
3. Students will define population density and how it affects carrying capacity of the ecosystem.

Equipment/Teaching Aids

- a. Map of Charlotte Harbor
- b. Satellite photo of SW Florida
- c. Overhead of water use chart

Class activities:

1. Point out and discuss main sources of water for Florida.
2. Draw and discuss hydrological cycle including the surface of the earth and ground water.
3. Discuss the various surface waters that lead into Charlotte Harbor
4. Show location of Ponce de Leon Park on the Charlotte Harbor map.
5. On satellite map, point to areas of high population density.
6. With the help of students, a list of "pressures" on the water supply is constructed. Students develop their own list at their seats.
7. Discuss homework exercise—calculating personal water use.

Information stressed in this lesson.

1. All water for Florida comes from rain—many things happen to this rain.
2. We get 55"-60" of rain per year--of this 45" goes back into the atmosphere.
3. The 10" to 15" left goes into lakes, rivers, swamps, and soaks into the ground.
4. The surface water areas leading to Charlotte Harbor are the Peace River, the Myakka River, the Caloosahatchee River, and their tributaries. Rain is the other source.
5. The population of Florida is expected to be 93,000,000, or one third of the population of the U.S by the year 2050.
6. 91% of the water in Florida is taken from underground sources.
7. The other 9% comes from surface water.
8. Pressures on Florida's water supply: agriculture, energy production, household use, manufacturing, mining, urban development

Pre-Ponce de Leon Park Trip

What is an Estuary?

Objectives:

1. Students will be able to define an estuary.
2. Students will be able to list and describe the attributes of an estuary.
3. Students will be able to name at least 2 other estuaries in the world.
4. Students will be able to name the National Estuary Program (NEP) as the federal government program established to clean and maintain important U.S. estuaries.

Equipment/Teaching Aids:

1. dictionary
2. world map
3. personal water use charts

Class activities:

1. Students and teacher define an estuary...writing definition on the board.
2. A student looks up estuary in dictionary..comparison between class definition and dictionary definition.
3. Teacher points out other estuaries on the world and U.S. map and describes the function of the NEP.
3. Discuss personal use charts---ask students to share results of their study of their own personal use.
4. Discuss field trip activities involving testing of water.

Information stressed

1. An estuary is a mixing place for salt and fresh water
2. many species require an estuary to raise young--large predators can't handle the fresh water.
3. Salt water content varies daily. Mackerel are in the bay at one time and fresh water catfish are in the bay at another time.
4. The National Estuary Program (NEP) was formed with the intent of cleaning up the Chesapeake Bay and branching to other clean-up and preventive programs throughout the U.S.

Pre-Ponce de Leon Lesson

Timeline of Charlotte County History

Objectives:

1. Students will be able to list at least five major events in the history of Charlotte County.
2. Students will be able to accurately place certain historical events on a timeline.
3. Students will be able to identify at least 5 important people in the history of Charlotte County.

Equipment/Teaching Aids

1. Here's Charlotte County booklets
2. Punta Gorda and the Charlotte Harbor Area: A Pictorial History by Vernon Peeples
3. paper for students

Classroom Activity (3 class periods)

1. Students use the booklet Here's Charlotte County or the Vernon Peeples's, Punta Gorda and the Charlotte Harbor Area: A Pictorial History to research a selected list of events in the life of Charlotte County.
2. Students construct a timeline (size depends on the type of project--individual or group) and place the events in chronological order.
3. Students write 10 questions and answers about the timeline. The questions will be given to another student and should require the students to use math to figure the answers. (e.g. How many years elapsed between Ponce de Leon's visit to Charlotte County and the building of the Punta Gorda Hotel.)
4. Students will write a "Who Am I" riddle about 5 people mentioned in the list of researched events. (Example, Isaac Trabue, Sydney Lanier, Juan Ponce de Leon, Albert Gilchrist, Mackle Brothers, etc.)

Scrambled List of Events in Charlotte County History
(Place these events in their correct chronological order on the time line!)

- Ponce de Leon discovered Charlotte Harbor for the Spanish
- 1st Seminole War
- Punta Gorda Hotel was built
- General Development built the first building in Port Charlotte
- The Gilchrist Bridge was built crossing the Peace River
- Charlotte County was created as a county out of Desoto County
- Your 21st birthday
- Charlotte Harbor played a part in the Civil War
- Isaac Trabue obtained land from James Lanier for the town of Trabue (later called Punta Gorda)
- Calusa Indians driven into the Everglades by settlers
- Punta Gorda Hotel burned to the ground
- Florida became a British colony
- The town of Trabue's name is changed to Punta Gorda
- Florida became a state
- Railroad connected the Peace River to Boca Grande to ship phosphate
- Babcock family bought 156,000 acres in southwest Florida
- Last passenger train left Punta Gorda
- 4,011 people living in Charlotte County
- The population of Charlotte County was 12,594

Using Statistics to Help Us Understand Charlotte County

Objectives:

1. Using bar graphs, students will be able to calculate growth in population and describe population trends.
2. Students will be able to identify periods of major growth in our county and make comparisons with periods of population growth in the United States.
3. Using rainfall and temperature graphs, students will be able to identify trends in rainfall and temperature for Charlotte County.

Equipment/Teaching Aids

1. Charlotte County Statistical Abstracts
2. World, U.S., Florida statistical information from an almanac

Classroom activities:

1. Discuss population of world, U.S., state of Florida. List population of each of these on the board. Describe the effect of modern technology, medicine, expanded life spans, etc. on the population of the world.
2. Students read Charlotte County Statistical Abstract and complete accompanying worksheet. Students answer questions about population graphs.
3. Discuss median ages given in Abstract and the reason for the median age in Charlotte County (retirement community, etc.)
4. Discuss rainfall and temperature and how it affect lifestyles. (tourism is Florida's #1 industry—effect of tourism, agriculture, etc.)
5. Complete questions about Abstract's rainfall and temperature graphs.

Geography of the Peace River and Charlotte County

Objectives:

1. Students will be able to list and describe certain attributes of the Peace River (length, names of tributaries, counties through which it flows, etc.)
2. Students will be able to list and describe certain attributes of the entire county's physical geography.

Equipment/Teaching Aids:

1. Maps of the Peace River and Charlotte Harbor

Classroom activities:

1. Given a map, students will find the pertinent information about the river.
 1. length of river
 2. counties through which river flows
 3. names of cities on river
 4. names of tributaries
2. Students should draw over the river in blue, highlight the names of the counties, circle the names of the cities, and underline the names of the tributaries.
3. Using a variety of resources, students will find the information on the attached worksheet. Charlotte Harbor map, Charlotte County map, Peace River map

Water Pollution

Objectives:

1. Students will be able to describe 4 ways in which people pollute water.
2. Students will be able to describe 4 ways in which people can prevent water pollution.
3. Students will be able to define and contrast ground water and surface water.

Equipment:Teacher Aids:

1. Copies of National Wildlife Federation booklet--Pollution Solution

Classroom activities:

1. Students read and answer the questions.
2. Debrief activity with students and discuss the source of the problem.

Aquifers

Objectives:

1. Students will be able to list and describe the types of aquifers.
2. Students will be able to define recharge and saltwater intrusion.

Equipment/teaching aids:

1. "Water for South Florida", pages 5-7.
2. Transparency—View of Aquifer

Classroom Activities:

1. Read the material.
2. Draw and label Florida's Hidden Waters.
3. Students do the Water Quality Wordsearch from "Water for South Florida"

Water Treatment

Objectives:

1. Students will be able to list and describe the five step process of water treatment.

Equipment/teaching aids:

1. Booklet "Water for South Florida" by Southwest Florida Water Management District
2. Video--"Water, More or Less" by Southwest Florida Water Management District

Classroom activities:

1. Read pages 14-15.
2. Select volunteers to draw the treatment processes on the board.
3. View video, students diagram process as they watch video.

Ponce de Leon Park

Water Testing Activity

Objectives:

1. Students will be able to measure and evaluate ph of various types of water.

Park Activities

1. Students measure ph of fresh tap water, pond water and harbor water.
Demonstrate ph paper color change with vinegar and baking soda.
2. Measure salt content of water-record tide and weather conditions.
3. Discuss salt content as a function of tide and rain fall.

The Water Cycle

Objectives:

1. Students will be able to identify and draw the stages of the hydrologic cycle.
2. Students will be able to describe the occurrences at each stage of the hydrologic cycle.

Equipment/teaching aids:

1. Booklet "Water for South Florida."

Classroom Activities:

1. Discuss the relationship of weather forecasting to the water cycle.
 - a. Why will it rain where forecast?
 - b. What conditions might occur to change the weather and what happens to the water that falls as precipitation?
 - c. What does happen to water that falls as precipitation?
2. Students label the Water Cycle drawing and describe each process in at least 3 sentences.

Peace River Trip Activity

Important points in lesson

1. Peace River boat trip was 7 nautical miles north of the I-75 bridge.
2. Fresh water this time of year –fresh water plants, animals, fish bars, alligators, turtles, crappie, etc.
3. Peace River water quality considered excellent –dark because of tannic acid from decaying vegetation--tannins are same substance that colors tea and coffee.
4. Color of water is not always indicator of quality of water but people don't want to drink it.
5. Fish, turtles, gators, etc. all relieve themselves in the water.
6. 80% of earth's surface is covered with water.

Using a variety of resources about Charlotte County, including a map of the Charlotte Harbor area and various historical references, the following lessons can be completed by students individually, or in groups.

The Geography of Charlotte County

1. Visualize a map of Charlotte County. Read the following statements and answer them in the following way. A --North, B--South, C--East, D--West

1. Port Charlotte is _____ of Punta Gorda.
2. Murdock is _____ of Port Charlotte.
3. Englewood Beach is _____ of Port Charlotte.
4. Lee County is _____ of Charlotte County.
5. Sarasota County is _____ of Charlotte County.
6. Fort Myers is _____ of Punta Gorda.
7. The Gulf of Mexico is _____ of Port Charlotte.
8. Cape Haze is _____ of the Gulf of Mexico.
9. Bermont is _____ of Port Charlotte.
10. Port Charlotte is _____ of Punta Gorda.

Multiple Choice. Darken the letter of the phrase or answer that best answers the question.

11. Punta Gorda is Charlotte County's only incorporated city. That means
 - a. It has over 10,000 people
 - b. It has its own city government
 - c. the sheriff acts as its police department
 - d. it has a river in it
12. Vegetation is plentiful in our county. Which of the following is NOT an example of vegetation.
 - a. mangroves
 - b. citrus trees
 - c. pelican
 - d. palms
13. Punta Gorda means what in Spanish?
 - a. big mouth
 - b. small arm
 - c. broad point
 - d. long point
14. What number below is a realistic population of Charlotte County in the late 20th century.
 - a. 600,000
 - b. 87,000
 - c. 1,500,000
 - d. 135,000
15. The highest elevation in Charlotte County is probably in
 - a. Englewood
 - b. southern Charlotte County
 - c. Punta Gorda
 - d. eastern Charlotte County

16. The Peace River flows
a. northeast b. northwest c. southeast d. southwest
17. Charlotte Harbor is an example of where fresh water meets the ocean's tides.
What is this called?
a. estuary b. gulf c. tributary d. sea
18. A tributary is a branch of a river. Which of the bodies of water below is a tributary of the Peace River?
a. Alligator Creek b. Hunter Creek c. Myakka River d. Lemon Bay
19. The mouth of the Peace River is
a. the Myakka River b. Lake Hancock c. Charlotte Harbor
d. Alligator Creek
20. An estuary has what kind of water?
a. brackish b. fresh c. distilled d. entirely salt

True/False: Mark A if the sentence is true and B if the sentence is false.

21. Punta Gorda is the county seat of Charlotte County.
22. Port Charlotte was first built as a retirement community.
23. Our canoe trip down the Peace River took us in a southeasterly direction.
24. Punta Gorda is located at the source of the Peace River.
25. The islands in the western part of our county are known as the Barrier Islands.

Who Was Who in Charlotte County??

Match the description with the person(s) described.

1. Ponce de Leon
2. Hernando de Soto
3. Isaac Trabue
4. A.C. Frizzell
5. Mackle Brothers
6. General Development

- A. Elkcam Street is named for us.
- B. The Calusa Indians greeted me while I explored Charlotte Harbor
- C. I used to own most of the land that was Port Charlotte.
- D. I named my city after myself.
- E. I brought cattle to this area of Florida.
- F. These people started a retirement community in Port Charlotte.

Using other historical information, research a person in Charlotte County history or modern times. Give an autobiographical speech to the class leaving your name out of your presentation. Make your classmates guess who you are!!!

Cause and Effect

Choose the effect that best fits each cause.

Causes

1. Ponce de Leon visited the Charlotte Harbor area...
2. Hernando de Soto introduces cattle into Florida...
3. The railroad ends at Punta Gorda....
4. The railroad is extended to Fort Myers..
5. General Development buys land from A.C. Frizzell.....
6. People are moving to the Sunshine State.....
7. 4 men bought 550 acres of swampland in Punta Gorda.....
8. Trabue buys land from Lanier.....

Effects

-Punta Gorda becomes the crossroads of South Florida.
-Punta Gorda Isles is built and adds to the size of Punta Gorda.
-Port Charlotte develops as a retirement community.
-Port Charlotte's population has doubled since 1970.
-the fishing industry declined.
-the cattle industry is a major source of income for Florida.
-establishes a settlement that lasted 5 months.
-Punta Gorda becomes a town.

Scavenger Hunt

Use a variety of your Charlotte County Information to find answers to the following:

1. Name two examples of vegetation in Florida.
2. Name one endangered species found in Charlotte County.
3. Name the natural feature that divides the county into a northern and southern section.
4. Name 4 tributaries of the Peace River.
5. Name the three rivers that empty into Charlotte Harbor.

Match the following terms with the definition and example.

- | | |
|---------------|--|
| 6. estuary | A. small body of land surrounded by water; Little Gasparilla |
| 7. gulf | B. area where salt and fresh water meet; Charlotte Harbor |
| 8. cape | C. where a river begins; Lake Hancock |
| 9. island | D. land surrounded on 3 sides by water; Florida |
| 10. peninsula | E. river empties into a larger body of water; Charlotte Harbor |
| 11. source | F. an extension of ocean or sea onto the land; ____ of Mexico |
| 12. mouth | G. small extension of land jutting into water; ____ Haze |
| 13. bay | H. a large stream of flowing water; Peace ____ |
| 14. tributary | I. body of water formed by an irregular place in coastline; Tampa ____ |
| 15. river | J. ____ branch of a river; Horse Creek |

True/False:

16. Punta Gorda and Port Charlotte are both cities in Charlotte County.
17. Port Charlotte is the county seat of Charlotte County.
18. We are canoeing downstream on the Peace River...that means we're headed southwest.
19. Charlotte Harbor is the mouth of the Peace River and the Myakka River.
20. Cities often develop at the mouths of rivers.

