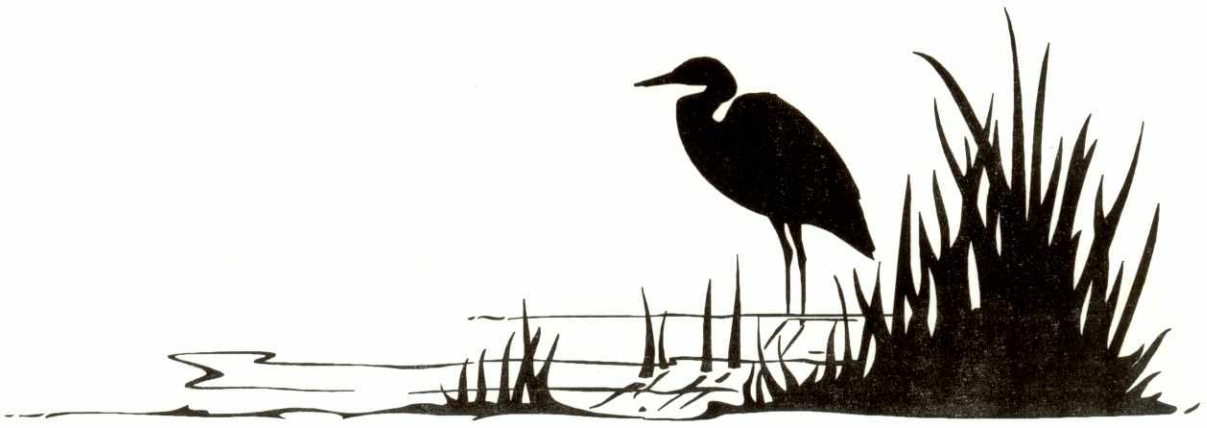
VANISHING WETLANDS

CURRICULUM-BASED EDUCATION PROGRAM

FOR GRADES 6-8



JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE

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MISSION STATEMENT FOR EDUCATIONAL PROGRAMMING

It is the mission of Jean Lafitte National Historical Park and Preserve's education program to satisfy curriculum needs as specified in the State of Louisiana Curriculum Guides utilizing the park as a classroom. The programs and activities included in the Educational Guide to Jean Lafitte National Historical Park and Preserve are designed to meet these requirements while introducing students to the key qualities of the park.

By engaging in pre-visit, on-site, and post-visit activities, students will focus on learning concepts appropriate to their grade level while developing an appreciation for the natural and cultural resources of Louisiana's Mississippi Delta region and the diversity of its people.

The activities included in this guide enable students to investigate, to discover, and to participate in "hands-on" learning experiences. They will build a strong foundation in the use of scientific method, critical thinking, problem-solving, and communication skills. These activities also have cross-curriculum applications.

In Jean Lafitte National Historical Park and Preserve, students will learn about the cultural diversity and the environment which make this region unique. As one of our national parks, Jean Lafitte National Historical Park and Preserve is both a protected treasure and an open-air classroom.

The following contents page details how the park serves as such a classroom. It describes unit activities and refers to the concepts, objectives, generalizations, and learner outcomes from the State of Louisiana's Curriculum Guides which they satisfy.

TABLE OF CONTENTS FOR "VANISHING WETLANDS"

Grade Level Expectations

Sixth Grade: SI-M-A5; SE-M-A6; SE-M-A6
Seventh Grade: LS-M-C4; LSM-D1; LS-M-D2; SE-M-A1; SE-M-A4; SE-M-A8
Eighth Grade: SE-M-A10

Learning Activities for Children Grades

"Vanishing Wetlands" is a unit of activities designed to educate children on the impact humans have on the wetlands and our responsibility preserve them.

Pre-Visit Activities

- Vocabulary: Designed to help students become familiar with the terms used in the activities
- No Salt Please: Students compare the effects of salt water solutions on the growth of plants
- Wondering about Wetlands: Students become acquainted with wetlands through reading comprehension and vocabulary.

On-Site Activity

- Vanishing Wetlands: Students study non-native plants and animals and their effect on the ecosystem

Post-Visit Activities

- Wetlands Scamper: Students use creative thinking skills while learning about the wetlands
- Mixed Up: Students discover the effects of growing different plant species together.

Related Reading

PRE-VISIT VOCABULARY

Biosphere: the part of earth's crust, waters and atmosphere that can support life

Conservation: the use of natural resources in a way that keeps from being wasted

Delta: the sediment that builds up where a river reaches an ocean or sea

Ecology: the study of the relationship between organisms and their environment

Ecosystem: the interaction of a community of organisms with their environment

Endangered species: species of plants or animals in danger of becoming extinct; these are protected by law

Estuary: an area typically at the mouth of a river where salt and fresh water mix

Extinct: plant or animal that is no longer found on earth

Food chain: the community of plants and animals that are dependent on each other for food

Habitat: an animal's home, the place where it finds what is needs to survive: food, water, shelter, and space

Marsh: a type of wetland which is covered with water year-round and dominated by grasses and grass-like plants such as sedges, rushed, and cattails.

Natural resources: raw materials provided by the earth, such as water, plants, animals and minerals

Non-native species: a plant or animal that is introduced to the habitat in which it lives

Swamp: a flooded forest or an area that is flooded for only part of the year and is dominated by trees and shrubs

Threatened: a species that is limited in number and may become endangered

Wetland: an area that is regularly flooded and where the water table is above ground for part of the year and can be identified by the types of plants found there.

PRE-VISIT ACTIVITY

NO SALT, PLEASE?

Objective: Students will compare the effects of saltwater solutions on the growth of plants.

Subject: Science, Math

Materials: 10 paper cups, soil, salt, bean seeds

Procedure:

1. Poke a hole in the bottom of each cup for drainage. Label the cups 1 through 10.

2. Fill each cup with soil and plant a bean seed about one inch below the surface.

3. Place the cups in a sunny window where each plant will receive equal exposure to sunlight.

4. Prepare 10 watering solutions increasing the amount of salt by 1/4 teaspoon per cup of water. For example, the plant in cup 1 will receive pure water, cup 2 will receive 1/4 teaspoon of salt per cup of water, cup 3 will receive 1/2 teaspoon of salt per cup of water, etc.

5. Water the plants with the 10 salt solutions every other day.

6. After 2 to 4 weeks, measure the height of each plant in centimeters. Chart the result on a line graph.

7. Formulate a conclusion from the results of the study. Discuss the possible effects of saltwater intrusion on wetland ecology.

PLANT GROWTH IN SALT WATER SOLUTIONS

Name _____ Date _____

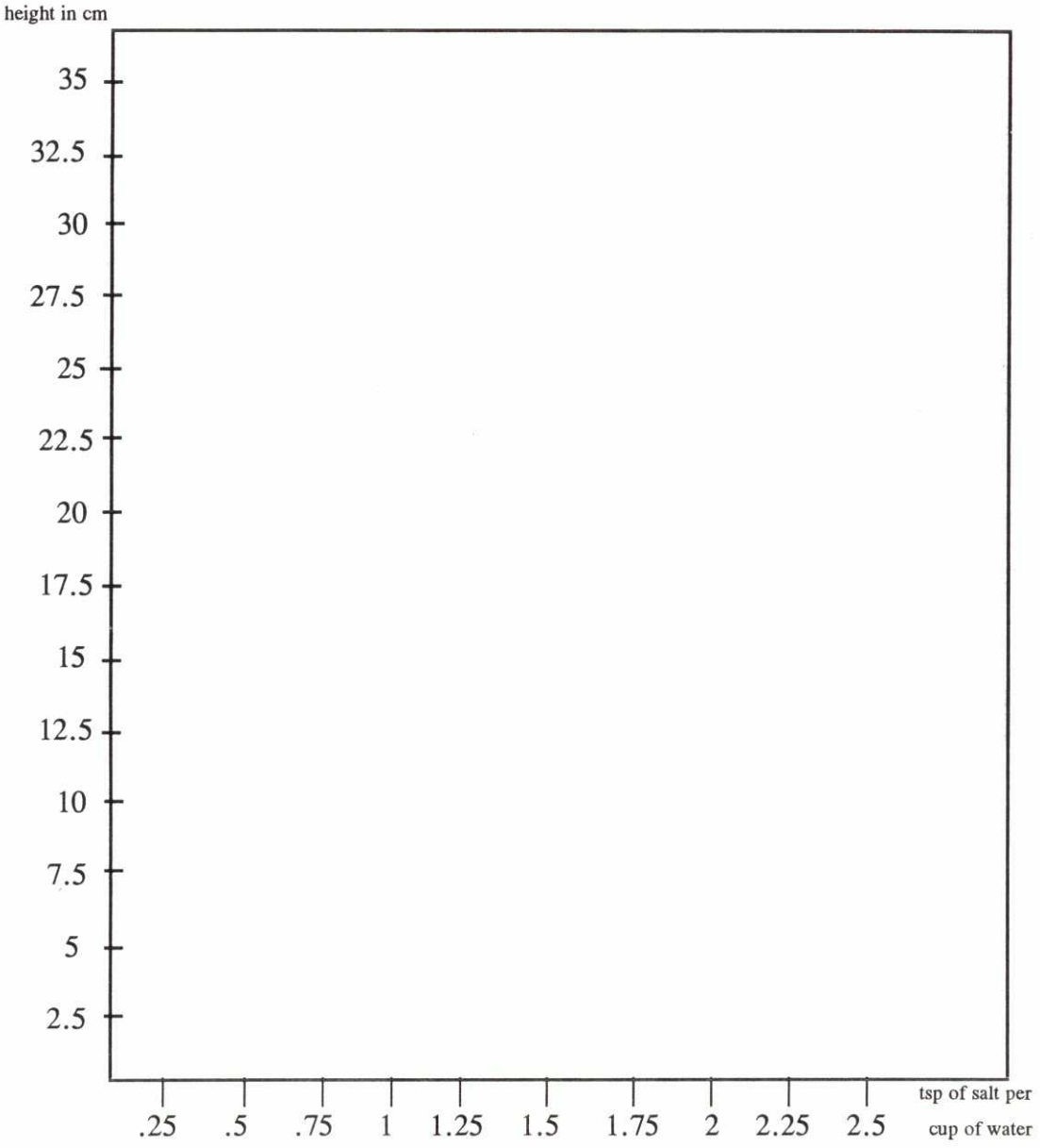
Purpose of study _____

Question _____

Hypothesis _____

Conclusion _____

LINE GRAPH



PRE-VISIT ACTIVITY

WONDERING ABOUT WETLANDS

Objective: Students will be acquainted with wetland types, functions and values, the problems facing them today, and the necessary vocabulary for understanding wetland concepts.

Subject: Ecology, Language Arts

Materials: Wondering About Wetlands comprehension sheet and word scramble (photocopy next two pages), pen or pencil

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Procedure:

1. Give students a copy of the comprehension sheet and word scramble.

2. Have them read the comprehension and work on the word scramble.

3. Discuss questions and concerns students may have about the wetlands.

WONDERING ABOUT WETLANDS

There are many types of wetlands including bottomland hardwood forests, swamps, bogs, and freshwater and saltwater marshes. Generally, wetlands are defined as low lying areas which are covered with water or have saturated soils all or part of the year. Wetlands stay wet for several reasons: they stay saturated by rain, they are fed from below by groundwater that is at or near the surface, they are near rivers or other bodies of water that flood them, or they are saturated by the tides along the coast. In all wetlands, the presence of water creates conditions that favor the growth of specially adapted plants.

Bottomland hardwood forests and swamps are forested wetlands. These wetland areas are characterized by the presence of trees and they only stay wet for part of the year. Bogs and marshes are wet year-round. Marshes are characterized by having grasses and grass-like plants. These plants have adapted to living in soil that is always saturated.

For years, many people considered wetlands to be unproductive wastelands that should be filled in or drained. However, in recent years, most people have come to appreciate the importance of maintaining this natural resource. Wetlands are valuable to us in many ways. They control floods by slowing down and temporarily storing rushing water, thereby letting it spread out over a broader area. Wetlands remove pollution and help to purify our drinking water. As waters slow down in a wetland, sediments and their impurities are deposited around the roots of plants or trees. The wetland acts as a natural filter. Wetlands along coasts or large lakes take the brunt of storms, reducing damage from erosion. Finally, wetlands provide one of the most richly populated wildlife habitats in our nation. They serve as important sources of fish, shellfish, furbearers, timber, wild rice, cranberries, and blueberries. Louisiana leads the nation in productivity of seafood, furbearing mammals, alligators, and waterfowl. They provide places for nature study, photography, canoeing and boating, hunting and fishing. Increasingly, wetlands are coming to be viewed as valuable simply for the natural beauty they offer.

You might be surprised to learn that, in the United States, of the 221 million acres of wetlands that existed prior to the year 1800, only 104 million (53%) remain today. This change is dramatic. Louisiana is losing its wetlands at a rate of approximately 16,000 acres per year! At this rate, scientists believe that in 50 years the Gulf of Mexico could be splashing up against the French Quarter! The reasons for wetland loss is a combination of natural and human causes. These include canal and levee construction which restrict the flow of water, subsidence, which is the natural sinking of the delta we live on, saltwater intrusion, and tropical storms and hurricanes.

The broad wetlands functions and values listed and discussed above illustrate why we should join together to protect this extremely valuable national treasure. We are only beginning to understand how important wetlands are to our quality of life. It's up to each one of us, one hundred four million acres and fading.

WONDERING ABOUT WETLANDS

Word Scramble

IHTABTA	An animal's home	_____
STAL TREAW TRUSINION	A type of threat to wetlands	_____
MRAHS	A wetland with grass-like plants	_____
WPASM	A forested wetland	_____
TARNULA EORERCUS	Natural materials provided by the earth	_____
ATNDWESL	Areas that are regularly flooded	_____
TRATESUDA	Always holding water	_____
ONDUGR WRETA	Not surface water	_____
PTADIOATNA	A change to fit the environment	_____
LOTIOULPN	Harmful substances released into the air, water, or land	_____
SOREINO	The wearing away of the earth's crust by wind or water	_____
ROSEFTDE	Having trees	_____
DILLEFIW	Animals in their natural environment	_____

WONDERING ABOUT WETLANDS

Word Scramble
Teachers Key

IHTABTA	An animal's home	HABITAT
STAL TREAW TRUSINION	A type of threat to wetlands	SALT WATER INTRUSION
MRAHS	A wetland with grass-like plants	MARSH
WPASM	A forested wetland	SWAMP
TARNULA EORERCUS	Natural materials provided by the earth	NATURAL RESOURCES
ATNDWESL	Areas that are regularly flooded	WETLANDS
TRATESUDA	Always holding water	SATURATED
ONDUGR WRETA	Not surface water	GROUND WATER
PTADIOATNA	A change to fit the environment	ADAPTATION
LOTIOULPN	Harmful substances released into the air, water, or land	POLLUTION
SOREINO	The wearing away of the earth's crust by wind or water	EROSION
ROSEFTDE	Having trees	FORESTED
DILLEFIW	Animals in their natural environment	WILDLIFE

POST-VISIT ACTIVITY

WETLANDS SCAMPER

Objective: Through "SCAMPER" questioning, students are inspired to use creative thinking and new ideas when learning about Louisiana's wetlands.

Subject: Science, Language Arts

Materials: Paper, pencils

Procedure:

1. Divide the class into 7 groups. Give each group one of the following SCAMPER questions.

S - Substituting
How would the marsh be different if it had trees?

C - Combining
What kind of animal would you get if you combined an egret and an alligator?

A - Adapt
How is a nutria like water hyacinth?

M - Modify/Magnify*
How would we collect oysters if they were covered with leather instead of shells?
If mosquitoes were the size of frogs, how would that affect the food web?

P - Putting to other uses
How would the swamp be different if loggers harvested the cypress wood and replanted the swamp with pine seedlings?

E - Eliminating
If levees were removed or made smaller, how could flooding of homes be controlled?

R - Reverse
How would the homes of humans have to be changed if we prevented wetlands erosion?

* M - can be used as two questions if you wish to divide the class into 8 groups.

2. Have groups present their answers to each other.

3. Discuss. Do you feel differently now about the wetlands? Are wetland areas important? Why or why not?

POST-VISIT ACTIVITY

MIXED UP

Objective: Students will discover the effects of growing different types of plants together.

Subject: Science, Math

Materials: 6 cardboard boxes cut at least 3 inches high, 8 inches wide, and 10 inches long, soil, corn seeds, unsalted sunflower seeds, bean seeds

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Procedure:

1. Fill the 6 boxes with soil.

2. In one box, plant 20 corn seeds. Space the seeds 2 inches apart. Label the box.

3. In the second box, plant 20 unsalted sunflower seeds. Plant the seeds 2 inches apart. Label the box.

4. In the third box, plant 20 beans seeds. Plant the seeds 2 inches apart. Label the box.

5. In the fourth box, plant a mixture of 10 sunflower seeds and 10 corn seeds. Carefully plant a corn seed next to each sunflower seed, 2 inches apart. Label the box.

6. In the fifth box, plant a mixture of 10 sunflower seeds and 10 bean seeds. Carefully plant a sunflower seed next to each bean seed, 2 inches apart. Label the box.

7. In the sixth box, plant a mixture of 10 corn seeds and 10 bean seeds. Plant a bean seed next to each corn seed. Plant the seeds 2 inches apart. Label the box.

8. Put the boxes in the sun. Moisten the boxes everyday.

9. Once a week for four weeks measure the tallest and the shortest plant in each box. Graph the measurements weekly.

10. Did some of the plants benefit from growing together? Which plants grew better alone? Formulate a conclusion.

11. Discuss why specific plants may thrive or decline by introducing different plants to the area.

Growing Seeds

Name_____ Date_____

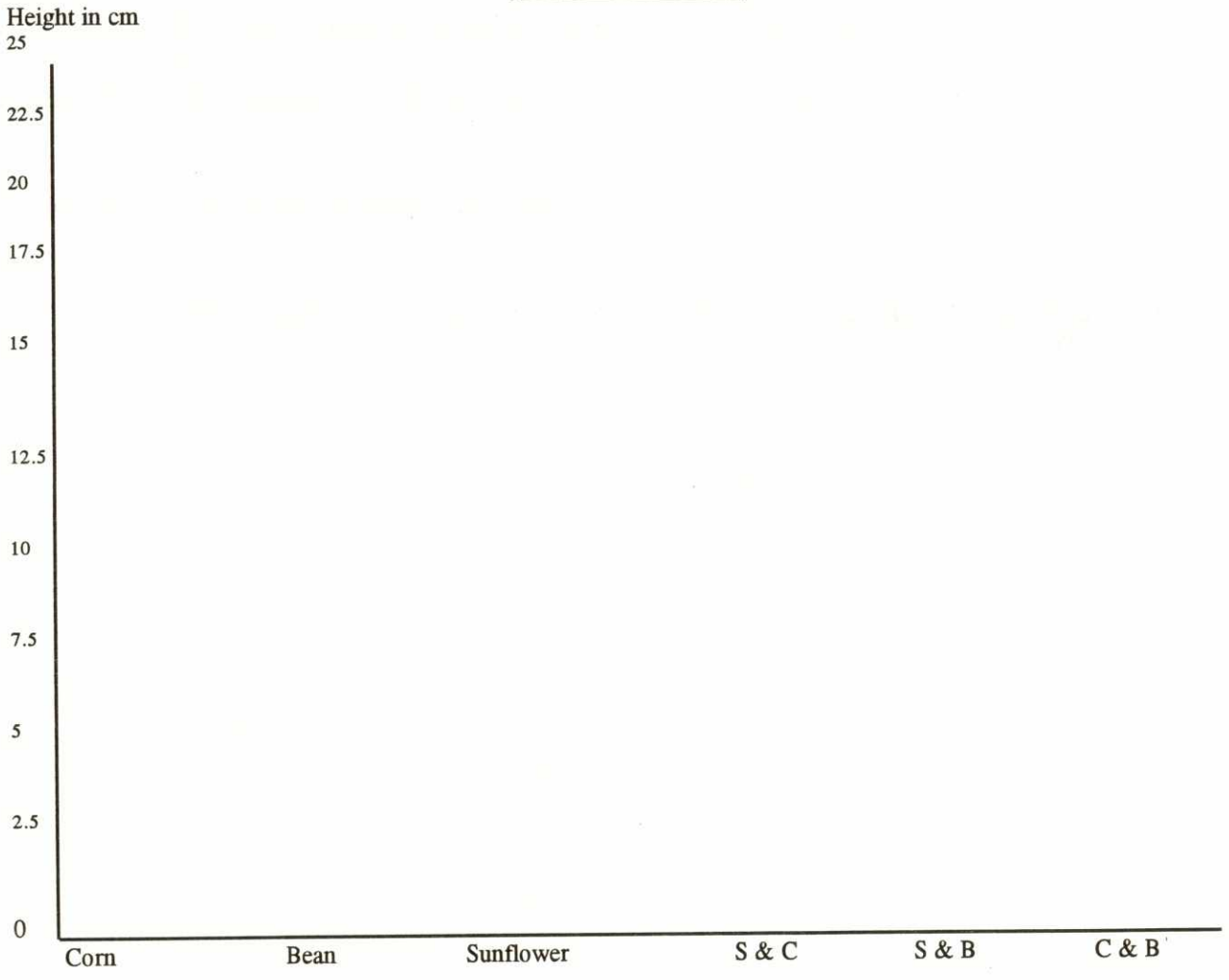
Purpose: _____

_____

Hypothesis: _____

_____

Week _____



RELATED READING

Burnice, David. *How Nature Works - 100 Ways Parents and Kids Can Share the Secrets of Nature*, Darling Kindersly Ltd., 1991.

Hare, Tony. *Habitat Destruction* (Save Our Earth Series) Illustrations (grades 5 - 8), Watts Gloucester Press, 1991.

Harlow, Rosie and Morgan, Gareth. *One Hundred Seventy Five Amazing Nature Experiments*, Random Books Young Readers, 1992.

Holmes, Anita. *I Can Save the Earth. A Kid's Handbook for Keeping Earth Healthy and Green*, Messner. S & S Trade, 1993.

Javina, John. *Fifty Simple Things Kids Can Do To Save The Earth*, Andrews and Mc Meel, 1990.

Mullins, Patricia. *V is for Vanishing - An Alphabet of Endangered Animals*, Harper Collins Publishers, 1993.

Whitman, Sylvia. *This Land is Your Land, The American Conservation Movement*, Lerner Publishing, 1994.

Wong, Herbert H. *The Backyard Detective: A Guide for Beginning Naturalists*, Nature Vision, 1993.