

South Slough Estuary Live 2003

Curriculum Outline & Plans For Third Grade

I. Major Topics

- **Historic and current land use activities that degrade estuarine habitat**
- **Estuaries as nurseries**
- **Functional and biological value of eelgrass beds**
- **Restoration of salt marsh and tidal channel habitat**
- **Importance of good water quality to a diversity of estuary life**

II. Activities – 1 per theme

A. Pre, During, Post activities based on 5 themes.

B. Activities

- 1. Vocabulary & Word Skills**
- 2. Research**
- 3. Individual and Small Group**
- 4. Interactive – Hands On**
- 5. Observation**
- 6. Games**
- 7. Art**

Introduction Activities

Wetland Introduction

1. Wetland Brainstorm

Time: 15 – 20 min.

Objectives

Students will...

1. Determine what they already know about wetlands,
2. Classify and order information.

Materials

1 large pad of chart paper

Colored Markers

1 journal (notebook) per student

*Sample that may be reproduced included

Overview

Students will brainstorm what they know and what they want to find out about wetlands.

Procedure

Label chart paper with the following headings: “What we know”, “What we want to find out”, and “What we have learned”. Label another piece of chart paper “Vocabulary”. These charts will be used through out the unit.

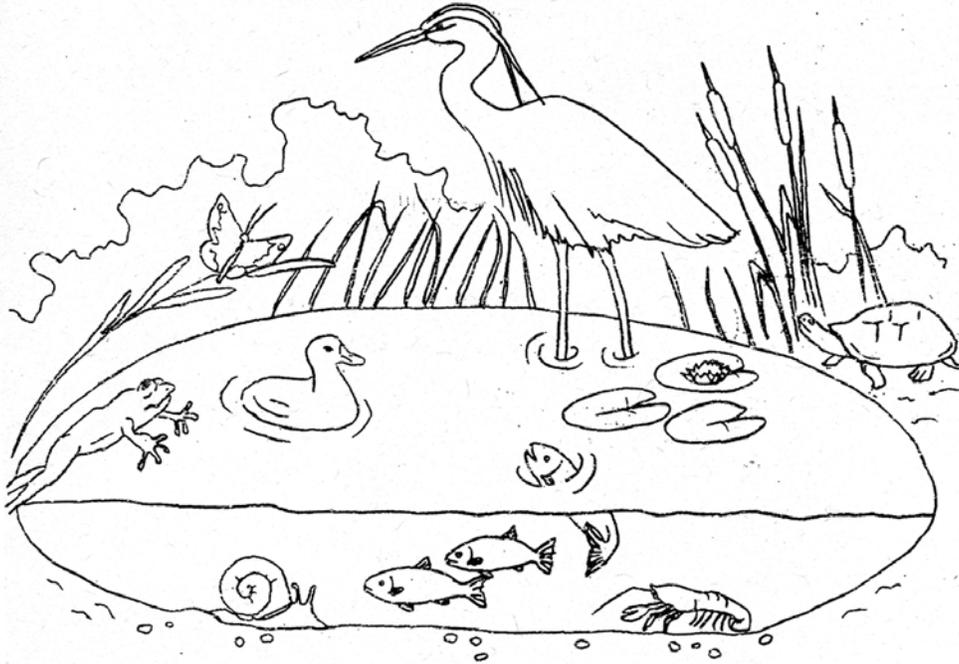
Begin the activity by having the students head the first page of their journal with the heading “What I Know About Wetlands”. Give them a short amount of time on their own to right down what they know. Next, have them break into small groups and compare and discuss their ideas. Last, come together in a whole group and discuss their findings. Record this and pertinent vocabulary on the chart paper. As questions occur, record on the “What we want to find out” chart.

When the chart is complete, read over the list and look for re-occurring ideas or common links. Have the students classify and order ideas. For example kids may focus in on animals or plant habitat.

Have the kids make a place in their journals for recording vocabulary and definitions.

****Keep charts assessable throughout the unit.**

WETLAND ANIMALS



By: _____

2. What is an Estuary?

Time: 2 - 45 min. sessions

Objective

Students will...

1. Gather and record information,
2. classify and order information

Materials

Gather Assorted Wetland and Estuary resources such as pictures, books, slides, video presentation, Internet web sites, charts, and posters

4 Folders with paper in which kids can record and compile new information and pictures.

Student Journals

Overview

Students will develop and understanding of what a wetland is and how it compares and differs to an estuary. They will be able to name several plants and animals that live in an estuary and describe the habitats.

Procedure

Explain to students that there are 4 zones to an estuary. Identify and give examples of each zone.

1. Open Water Channel.
2. Tidel flats (often mudflats)
3. Salt Marsh or Tidal Fresh Water Marsh
4. Uplands

Form 4 cooperative groups, one for each zone. Each group gets a folder to store their information. Have each group sort through the resources provided and compile information in their journals that pertains to their habitat. If video or slides are shown, let students draw and take notes as necessary. Have them look through magazines or the Internet to find pictures and other information that represents their habitat.

Tell the students to use evidence from the resources to support their ideas and findings.

Using the "What I Have Learned" Brainstorm Chart, come back together in a whole group and share new information and questions.

3. Build an Estuary – 3-D Mural

**Time – several 45 min.
sessions**

Objective

Students will...

1. Gather and record new information,
2. work both individually and in small groups,
3. learn to structure their creativity

Materials

Estuary Illustration Poster

Butcher paper – assorted colors and sizes as needed

Construction paper, news print

Glue, paste, glue sticks, tape, and stapler

Markers, paint, crayons, chalk

Assorted Arts & Crafts materials for constructing plants and animals

(feathers, sticks, small stones, egg cartons, pipe cleaners, q-tips).

Blue cellophane (to be used as water over open channel).

*Allow kids to have some free reign with materials in designing plants and animals.

Overview

Students will discover what an Estuary is and become familiar with some of the plants and animals that inhabit an Estuary. They will also begin to develop an understanding of the necessary roles Estuaries play in our world.

Procedure

Determine the size and location of your mural. Replicate the 4 wetland ecosystems using the colored butcher paper. Use estuary illustrations and pictures as your guide. Utilizing the cooperative groups, have the students make models and illustrations of the plants and animals found in their ecosystem. Encourage students to collect things from home to help with the construction. As they make their plants and animals, have them place them in the correct habitat.



4. Estuary Model

**Time: several 45 min.
sessions**

Objective

Students will...

1. Gather and record new information,
4. work both individually and in small groups,
5. learn to structure their creativity

Materials

Modeling clay

Florist foam (wet)

Roasting pans

Sponges (for use in marsh areas)

Pieces of carpet (for use in marsh areas)

Aluminum foil

Rubber Hose (3 equal pieces to be used to connect habitats so water is able to move from one to the next).

Duct tape (use for attaching hose to roasting pans).

Pineneedles, twigs, grass, weeds, soil, rocks, shells

Branches from a small leaf bush and evergreens to represent trees

Other natural materials

Tooth picks

Cotton balls

Feathers

Assorted fabrics for animal fur

Glue, scissors, paper, pencils, crayons, markers, paint

Q-Tips (foxtails)

Water

Encourage the students to use their imaginations in building their models.

Have them bring materials from home that would help them in re-creating their habitat.

*Utilize waterproof materials as much as possible to allow a simulation using water.

Overview

Students will discover what an estuary is and some of the plants and animals that live there. They will begin to develop an understanding of the role an estuary plays in our world and describe some of its functions.

Procedure

Utilizing the cooperative groups, have the students create models of the land, plants, and animals in their ecosystem. Encourage students to collect things from home to help with the construction. Use estuary illustrations and pictures for guides.

This model can be designed to hold water that can move from one ecosystem to the next.

* Resource: Ranger Rick's Nature Scope, Wading into Wetlands. National Wildlife Federation. 1989. McGraw Hill.

5. Wetlands vs. Development

Time: 2 – 45 min. sessions

Objective

Students will...

1. Utilize information they are familiar with,
2. Work in small groups,
3. Interpret, explain, and hypothesize information

Materials

Estuary Mural or Estuary Models

Pictures of house, marinas, or any other development that could occur on a wetland

*(for use on Estuary Mural).

Small boxes, small wooden blocks, or clay to be used to construct development on or near a wetland.

*(for use on Estuary Model)

Crayons, glue, scissors, and assorted classroom art supplies

Overview

Students will discover what happens to a wetland when it is developed and why restoration is important.

Procedure

Using either the Estuary mural or the Estuary model, have the students simulate what happens to their part of the Estuary as a result of human activity or by mother nature. Have them set up different scenarios such as logging, filling in wetlands for building homes, shopping centers, and marinas. Have them discuss what would happen in times of heavy rains or floods.

Estuary Live Presentation

6. Estuary Live Scavenger Hunt

Time: 1 hour

Objective

- To work both individually and in small groups
- To interpret, explain, and hypothesize
- To classify and order information

Materials

Predetermined list based on themes. (Attached)

Procedure

Prior to Estuary Live 2003 go over the four themes with the students. Explain to the kids that they will be looking for the items on the list during the presentation of Estuary Live. Go over the Scavenger Hunt list with students and check for understanding.

On the day of Estuary Live, hand out a copy of the Scavenger Hunt list and have students check off items as they see them. Students can do this on their own or break into their 4 habitat groups where each group may check off items as they are presented during the Estuary Live presentation.

At the end of the presentation have the students tie the information to their habitat.

Update Brainstorm Charts.

Scavenger Hunt List

Evidence of a "Nursery"

Eggs

Larva

Nests

Historic Evidence

Pilings

Levies

Apple Orchard

Photographs

Salt marsh and tidal channel habitat

Eel grass beds

Isopod

Arthropods

Barnacles

Oysters

Muscles

Clams

Polychaete worms

Cray fish

Shore crab

Dungeness crabs

Staghorn sculpin

Perch

Smelt

Ghost shrimp

Garter snake

Rough skinned newts

Pickleweed

Salt grass

Seaside Arrow Grass

7. Interact with Estuary Live

Time: 1 hour

Objective

- To reinforce known information
- To facilitate student thinking
- To help generate questions

Materials

- Student Journals or paper for writing and drawing
- Pencils, colored pencils or crayons

Overview

Students will become engaged with the presentation and gain a better understanding of an Estuary.

Procedure

Have the students break into their habitat groups. Tell them to imagine they are at the estuary. Have them use their journals to draw pictures and record information of things that interest them or are new to them. As questions arise, record them on the “What we want to find out” chart. Refer questions to the Estuary Live presentation.

Post Activities

8. Wetland Quilt

Objective

Students will...

1. Utilize information they have learned
2. Communicate information through art
3. To work individually to create a group project

Materials

Construction paper cut into 12 x 12 squares
Crayons, colored pencils, colored chalk, paint
Construction paper (assorted colors), scissors, glue
A large piece of butcher paper (to accommodate quilt squares)

Overview

The students will share what they have learned about Estuaries by creating a quilt of the different Estuary habitats.

Procedure

Give each student a paper square. Have them create an estuary scene based on the habitat they have been studying.

When the pictures are completed, mount them on a large piece of butcher paper.

After the quilt is complete, break students into habitat groups and have them present their work and what they have learned to their classmates and/or other classes.

9. Estuary Probe

Time: Several 45-min. sessions

Objective

Students will...

1. Classify and order information
2. Communicate information
3. Will use creativity in a structured format

Materials

Construction paper (11x14)
Magazines, Internet access
Drawing materials
Glue
Scissors

Overview

Students will design a probe to be used to report “what they know” and “what they have learned” about Estuaries.

Procedure

A probe is a report, which has the following characteristics:

- *A border around the outside edge that represents the topic.
- *Both student illustrations and pictures cut from magazines or found on the Internet.
- *Written Facts on the topic (5 – 10).
- *Title

1. Students choose a topic from their habitat (plant, animal).
2. Students research topic and draw from what they know.
3. Students collect information, charts, pictures, and illustrations on their topic.
4. Student’s layout information in a creative design mixing information and illustrations.
5. Have students share their probe with their classmates.

