

The Gulf of Mexico A Special Place

Creative Learning Activities
for the Classroom

Written by
Linda Maraniss

Illustrated by
Jill Perry Townsend



Center for Marine Conservation

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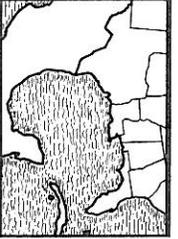
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**COLLECTION OF
SELECTED ACTIVITIES**

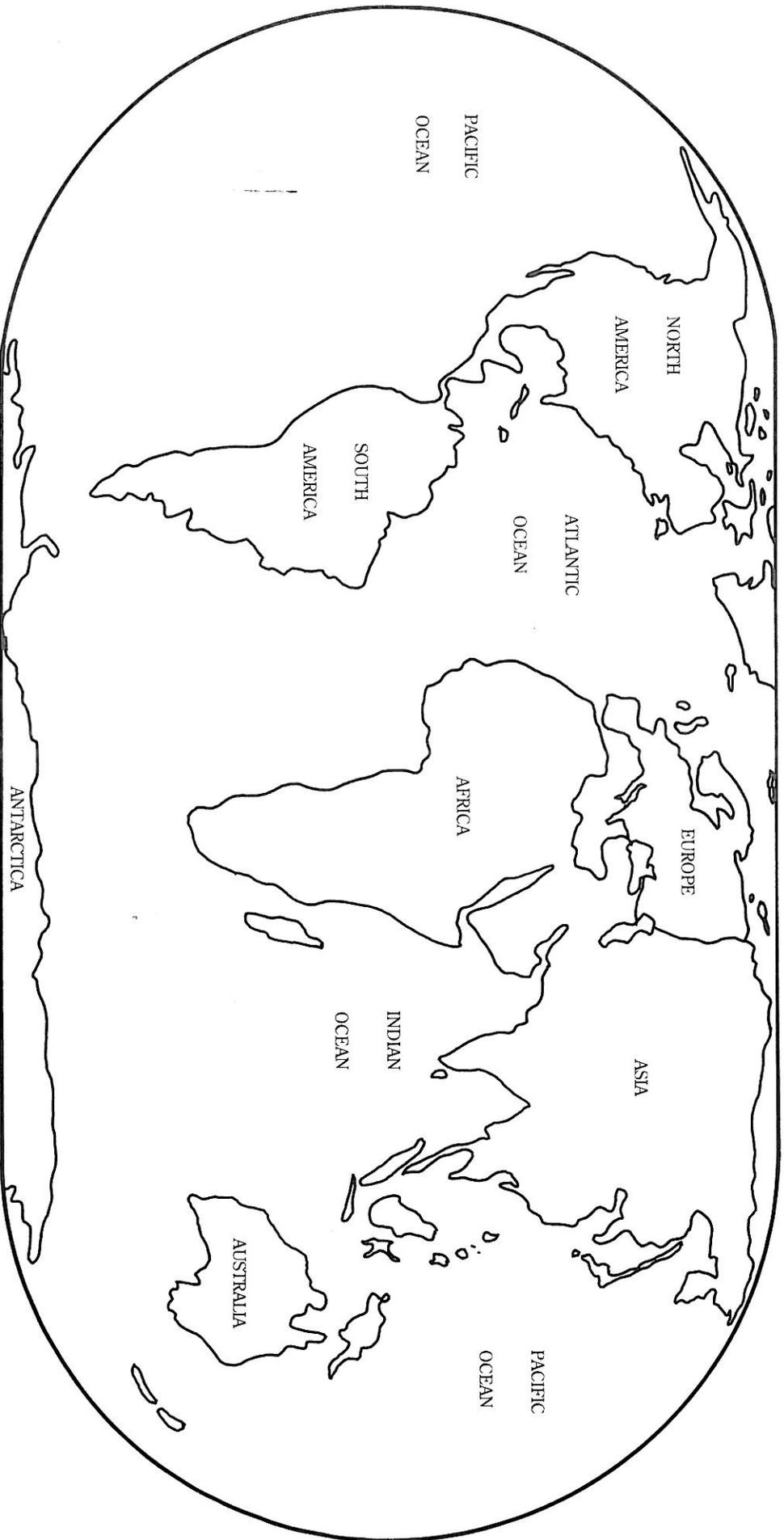


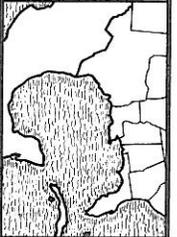
Did you know? Earth is the water planet. Nearly three fourths of our planet is covered with water. Water allows the planet to support life, from tiny plants to giant whales. Even people must have clean water to live.

Where is the Gulf of Mexico?

Directions: Get ready to start your geography adventure. You will need an atlas, globe, or a world map. Use colored pencils or crayons to color the continents and islands green. Color the oceans blue. Locate the Gulf of Mexico with a red X.

- As you look at this map, why does the Pacific Ocean appear in TWO places?
- The United States is located on which continent?
- What oceans border the United States?
- The Pacific Ocean is what direction from the Gulf of Mexico?





The Gulf of

Mexico Region:

A Closer Look

Did you know? Let's take a look at the United States and the Gulf of Mexico. Five states border the Gulf of Mexico as well as several countries.

Directions: You will need an atlas or map for reference. Use colored pencils or crayons.

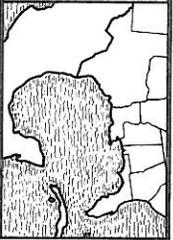
1. Label the state of Texas and color it yellow.
2. Label the state of Louisiana and color it green.
3. Label the state of Mississippi and color it red.
4. Label the state of Alabama and color it purple.
5. Label the state of Florida and color it orange.
6. Label the country of Mexico and color it pink.
7. Label the country of Cuba and color it brown.
8. Label the Gulf of Mexico and color it blue.
9. Label the Atlantic Ocean.
10. Label the Pacific Ocean.



Questions:

- A. Which Gulf state is the largest?
- B. Which Gulf state is bordered by both the Gulf of Mexico and the Atlantic Ocean?
- C. Which Gulf state is bordered by Louisiana to the west and Alabama to the east?
- D. Which state has the smallest amount of land or coastline along the Gulf of Mexico?
- E. Which Gulf state has the largest amount of coastline along the Gulf of Mexico?
- F. Where do you live? Draw a little house where you live.
- G. List the countries that border the Gulf of Mexico.
- H. What is the capital city of Mexico?
- I. What is the capital city of Cuba?
- J. What language do the people living in Mexico and Cuba speak?





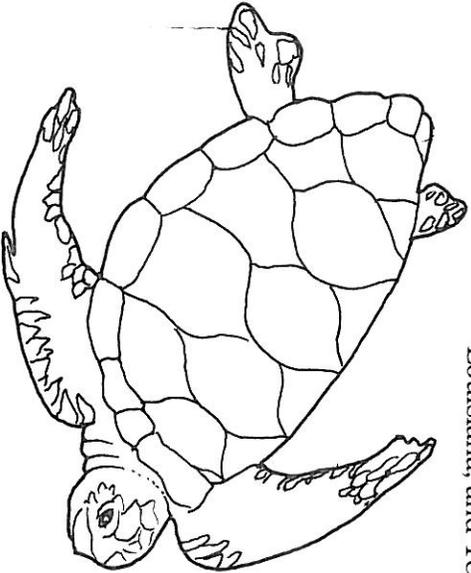
Gulf of Mexico

Crossword Puzzle

Did you know? The Gulf of Mexico is an important place for birds, fish, whales, and sea turtles. People also love the Gulf of Mexico. They go there to fish, to study birds, and to enjoy a vacation at the beach.

Directions: Read the story below. Some of the words found in the story will help you to complete the crossword puzzle.

Many people like to visit the Gulf of Mexico because of the wonderful sunshine and the sparkling waves. Some kids like to play in the sand and make sand castles. Some folks enjoy walking along the beach looking for colorful shells. Other people come to the beach to watch the shore birds. The Gulf of Mexico is a special place for many animals such as sea gulls and endangered sea turtles. The Gulf of Mexico is also the watery home for fish and whales! The whale's flukes and flippers splash in the waters of the Gulf. The waves splash on the coastlines of five states that border the Gulf of Mexico, including Florida, Mississippi, Alabama, Louisiana, and Texas. See you at the beach!

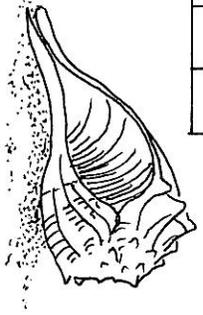
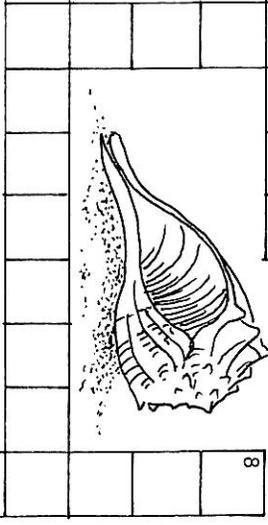
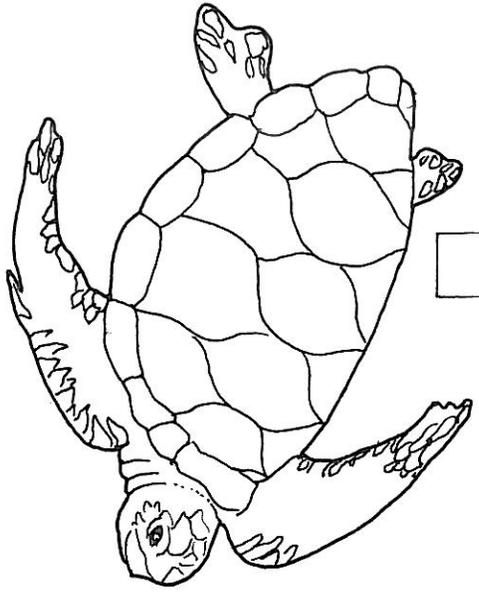
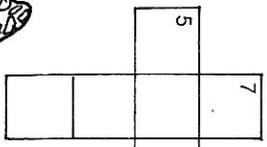
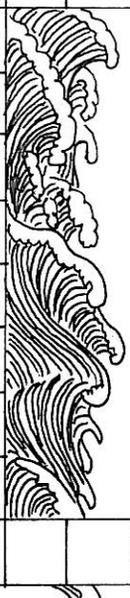
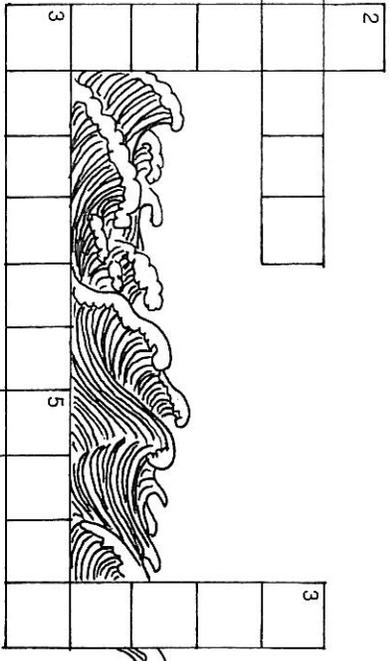
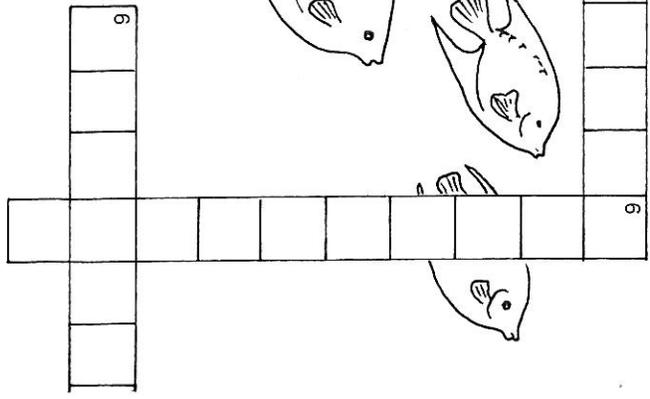
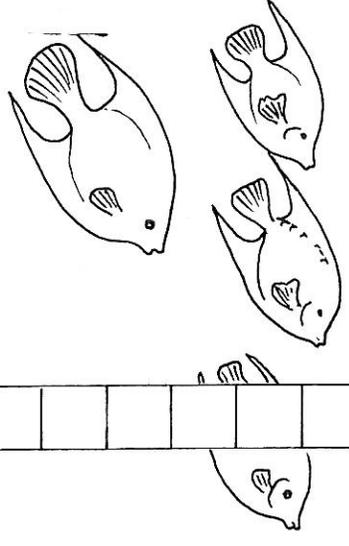
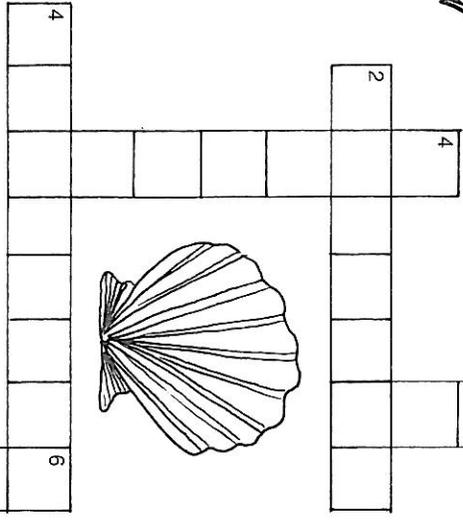
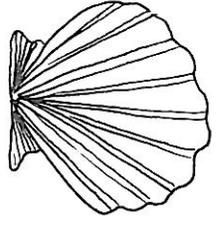
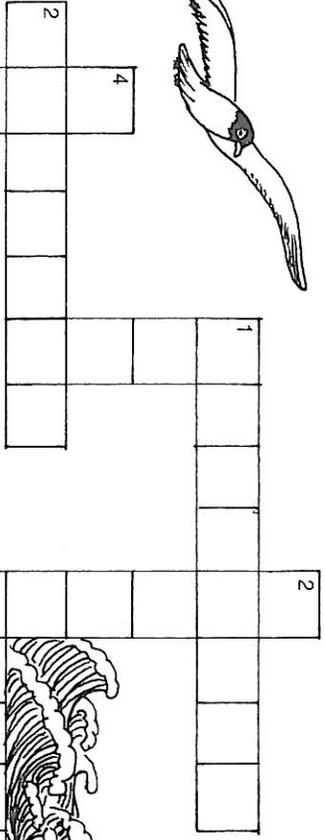
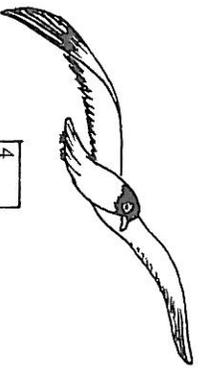


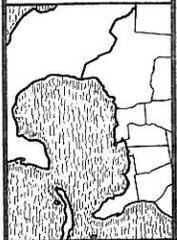
ACROSS

1. The sand is warmed by _____.
2. This state's capital is Tallahassee. _____.
3. These reptiles are endangered and swim in the Gulf of Mexico. They have beautiful shells and flippers. _____.
4. You can hear these birds as they fly overhead. _____.
5. This state's capital is Jackson. _____.
6. If you are lucky you will find colorful _____ along the beach.

DOWN:

1. Kids make castles out of this. _____.
2. These mammals with flippers and flukes swim in the Gulf of Mexico. _____.
3. All day and night these things crash along the shore. _____.
4. This state's capital is Montgomery. _____.
5. This state's capital is Austin. _____.
6. If you build this too close to the waves, it will wash away. _____.
7. These animals with gills need the Gulf of Mexico for their home. The big ones eat the little ones! _____.
8. This state's capital is Baton Rouge. _____.





Wetland Word

Search

Did you know? Coastal wetlands include areas like salt marshes, mangrove swamps, deltas, and lagoons. Wetlands serve as a home to tiny animals that need a safe place to grow up. Wetlands provide grasses and tiny insects for other animals to eat. Wetlands in Texas, Louisiana, Mississippi, Alabama, and Florida are important and special places for young fishes, sea turtles, snakes, birds, crabs, shrimp, and oysters.

Directions: Complete the word search below to find eight animals that need wetlands to survive. Find five words that explain why our wetlands are in trouble.

For a bonus activity, choose three animals to study. After you complete your research, draw a poster about one wetland creature you want to protect. Share your poster with your class.

P L E E T B U I L D I N G A L L
 B U O Y S T E R S O O T S P
 L F E E R O H N W F E E B S D O
 U R P N A L O O W E H T E L L
 E E E V S S H R I M P A P L
 C D O L M T A M E S R G D U
 R N P A O W R S E B O S O T
 A F E L O U N D E R S I R K I
 B C E F I L L I N G J R E O
 S T L D R E D G I N G V D N
 G T N I A T I T A C L A M S

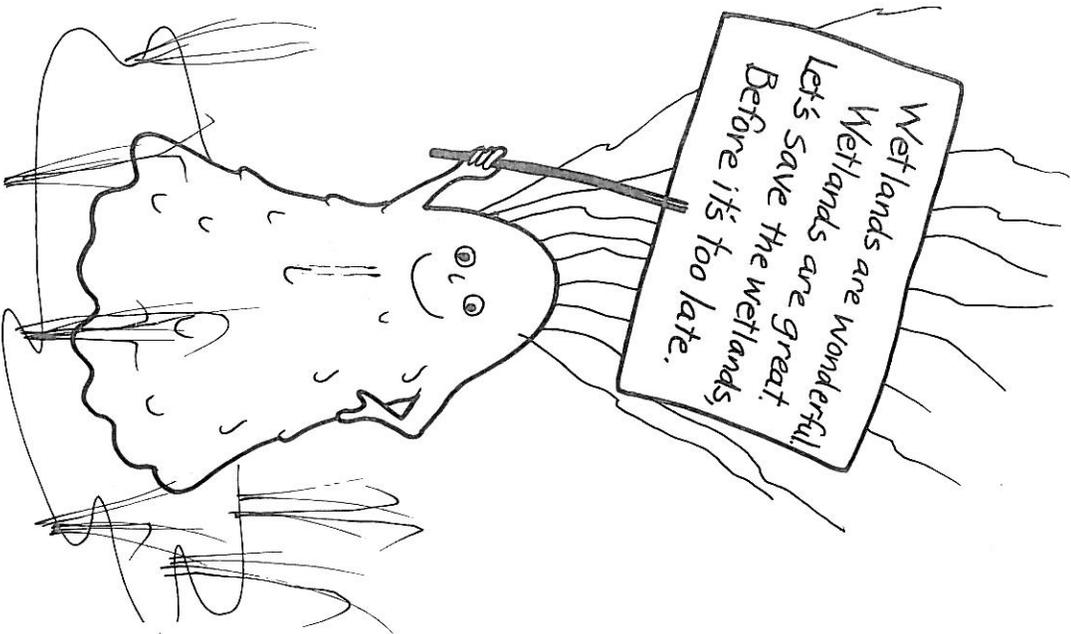
Animals

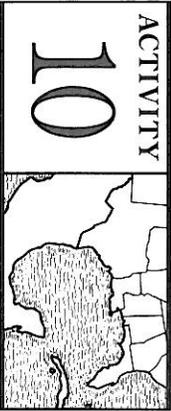
1. worms
2. oysters
3. clams
4. shrimp
5. blue crabs

6. flounders
7. shorebirds
8. people

What hurts wetlands?

1. pollution
2. erosion
3. dredging
4. building
5. filling





Marvelous Mandy Mangrove!

Did you know? Mangroves are trees that live in warm climates and in wet, salty environments. Some mangrove trees can be found along the coasts of Florida, Texas, and Mexico. They are special from top to bottom! The leafy branches provide a home for pelican nests. The roots provide shelter for fish, crabs, and worms. Even the decaying leaves create a rich "soup" for marine animals. Mangrove trees also protect land from storms and waves. Simply Marvelous!

Directions: Mandy, a red mangrove, wants you to know where she lives. Answer each question below. The letters found in the bubbles will spell out the answer. Make a class mural to show life at a mangrove community. Include the red mangroves' "prop roots", worms, oysters, barnacles, shrimp, snapper, baby brown pelicans, adult brown pelicans, nurse shark, and a stingray.



1. Brown pelicans nest in mangrove trees and dive into the water to eat .

2. These very large mammals that swim in the Gulf, like the blue, or the sperm, or the minke, are called .

3. Mangrove trees provide shelter for some animals in their tangled .

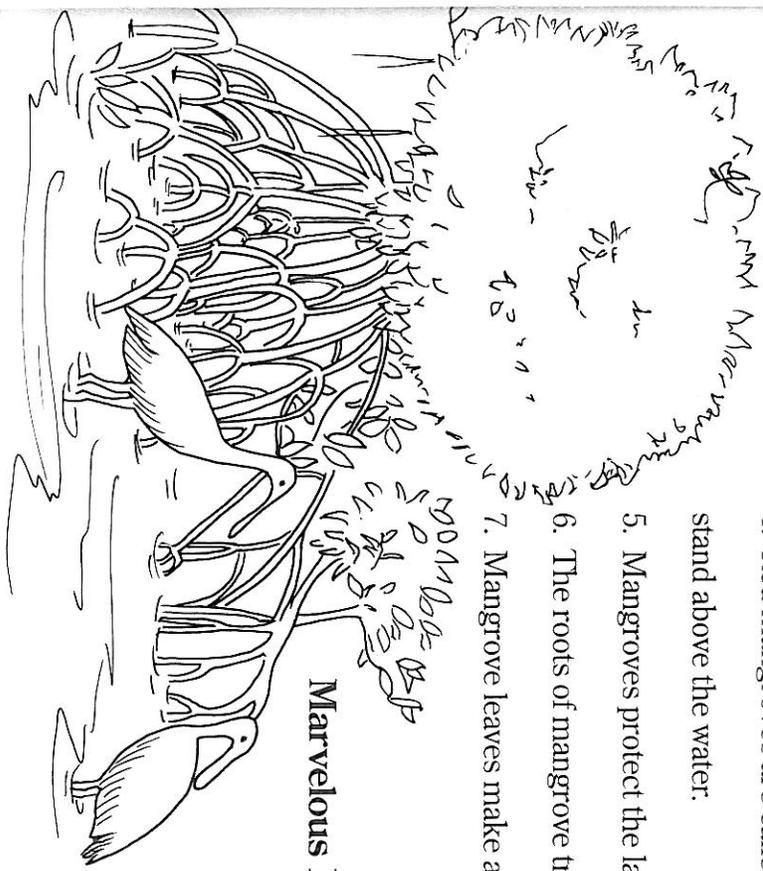
4. Red mangroves are called "walking " because of their high prop roots that stand above the water.

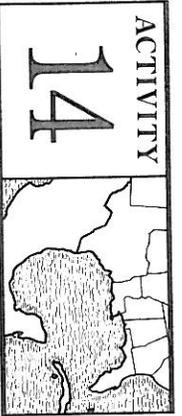
5. Mangroves protect the land from strong waves and blowing .

6. The roots of mangrove trees provide a good place for tiny fish.

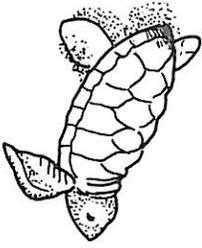
7. Mangrove leaves make a rich "soup" when they fall into the and decay.

Marvelous Mandy Mangrove lives in

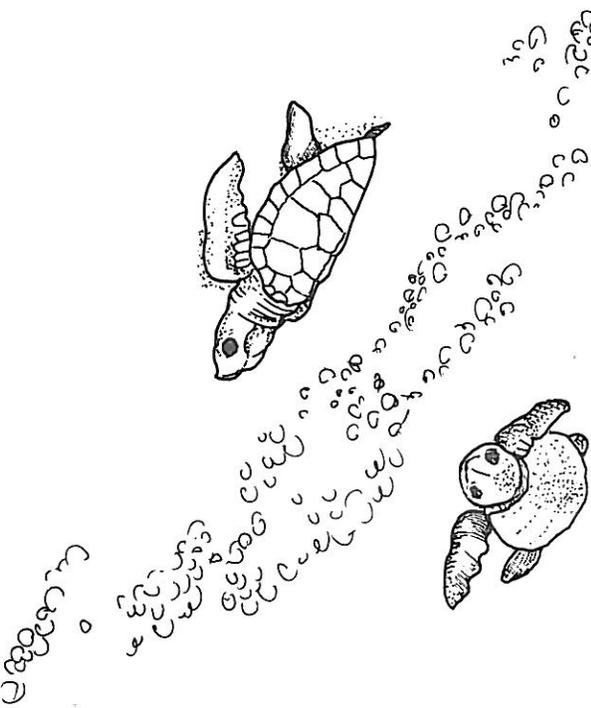




The Life Cycle of a Sea Turtle

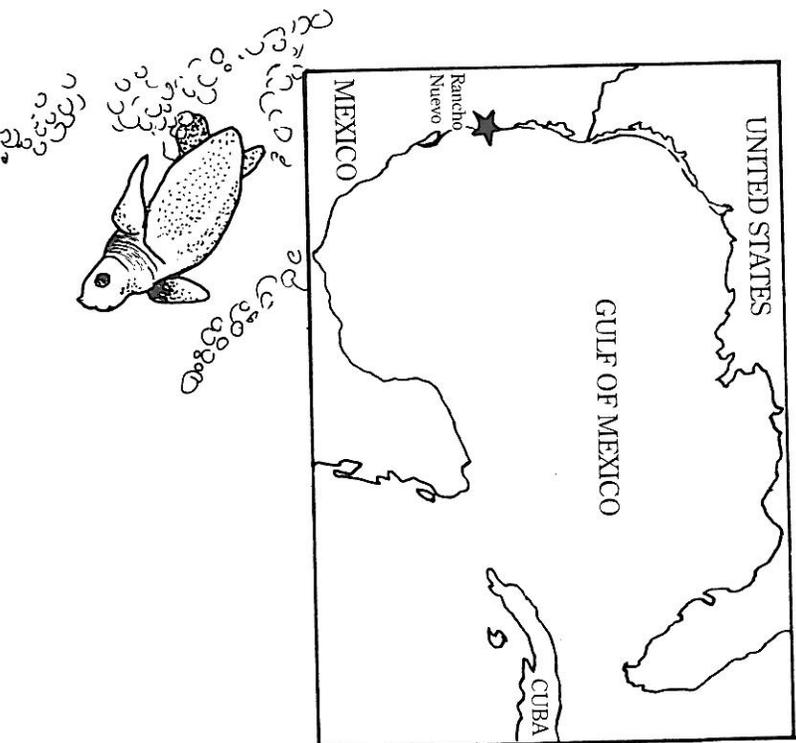


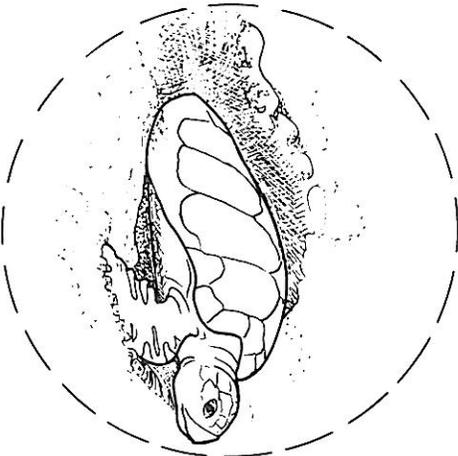
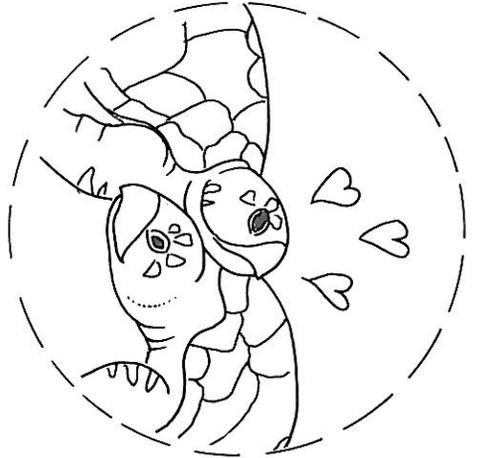
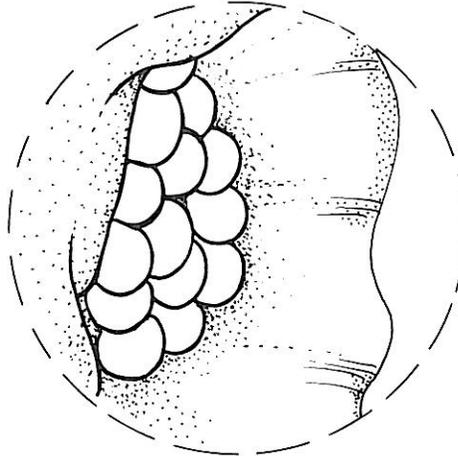
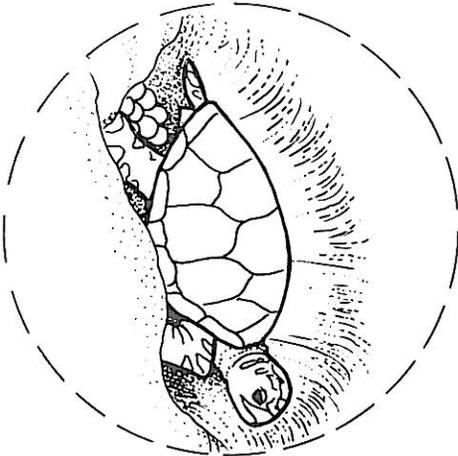
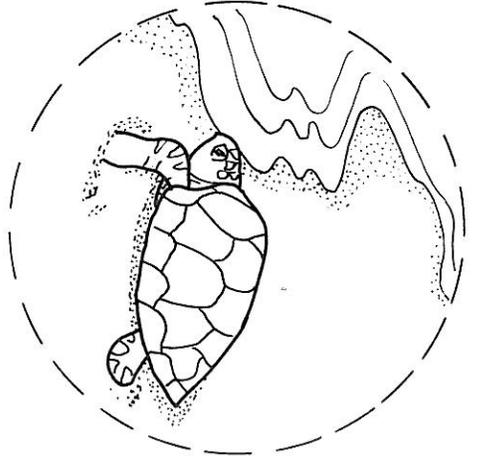
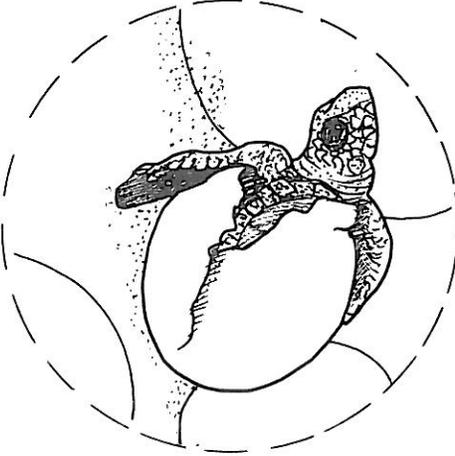
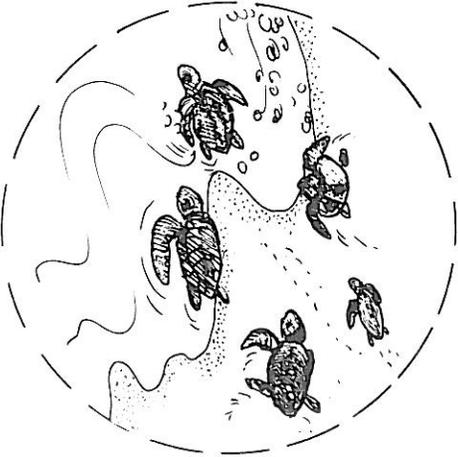
Did you know? Sea turtles live in the Gulf of Mexico. The Gulf of Mexico is their habitat, or home. Sea turtles are air-breathing reptiles that are listed as endangered species because their populations are so low. After mating with a male sea turtle, the female sea turtle leaves the water and crawls up the sandy beach to lay her eggs. The endangered Kemp's ridley sea turtle nests at one main beach. The beach is called Rancho Nuevo, located in Mexico. It is marked with a star on the map below. Tiny baby sea turtles hatch after about 60 days. They work together to dig up and out of the sandy nest. The baby sea turtles, called hatchlings, then scurry to the Gulf of Mexico. Once in the Gulf, they find food in floating sargassum weed. Later they swim in bay areas and eat crabs. When female hatchlings become adults, they will mate with male sea turtles. Later the female sea turtle will crawl out of the water and onto the beach to lay eggs. The cycle of life begins again.



Directions: Cut around the dotted lines of the pictures of the sea turtles found on the cut page. On a large piece of paper glue the pictures in order to show the life cycle of the sea turtle. Begin with the picture of the mother sea turtle crawling up the beach looking for a clean beach to lay her eggs. Label each picture with help from the 10 phrases below.

1. mother sea turtle crawling up the beach
 2. mother digging nest in the sand
 3. mother laying eggs
 4. mother going back to water
 5. eggs in nest
 6. one or two hatchlings coming out of eggs
 7. entire group of turtles heading to water
- HAPPY BIRTHDAY HATCHLINGS!**
8. hatchlings in sargassum weed looking for food
 9. juvenile turtles in bay areas eating crabs
 10. male and female sea turtles mating

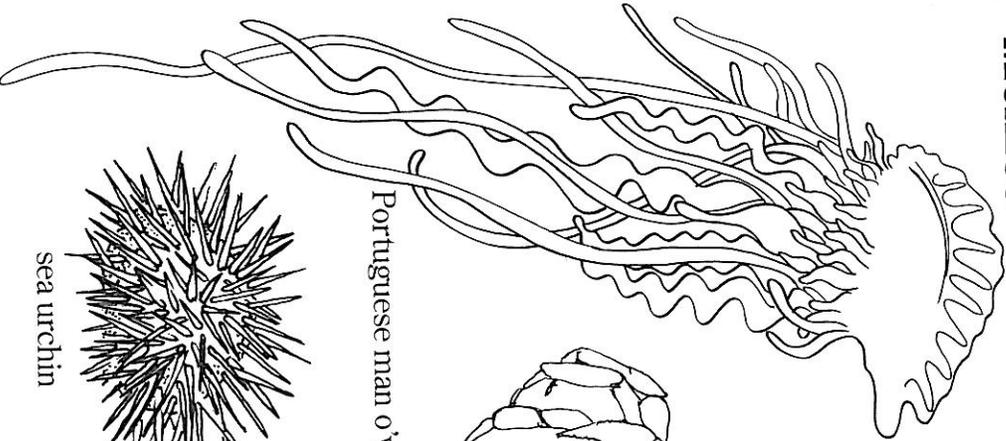




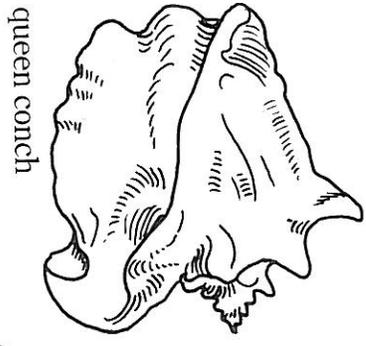
No Backbone! Invertebrates in the Gulf of Mexico

Did you know? An animal without a backbone is called an invertebrate. An animal with a backbone is called a vertebrate. You are a vertebrate because you do have a backbone. Whales, birds, and fish also have backbones. Some invertebrates like crabs, clams, and oysters have a hard skeleton outside. Some invertebrates like jellyfish do not have a hard "suit of armor" for protection. Many interesting invertebrates live in the Gulf of Mexico.

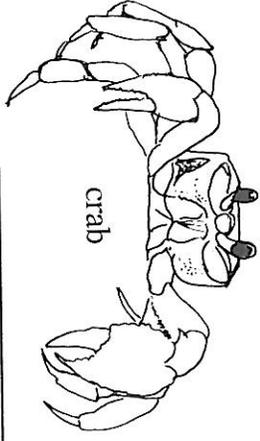
Directions: List the invertebrates in alphabetical order in the space below. Write a one-page report on your favorite invertebrate. Share your report with your class.



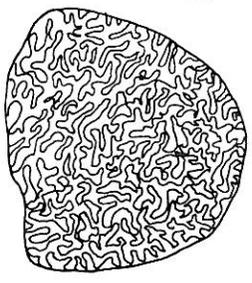
Portuguese man o' war



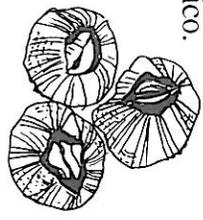
queen conch



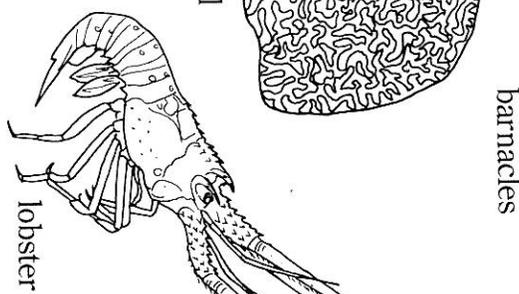
crab



brain coral



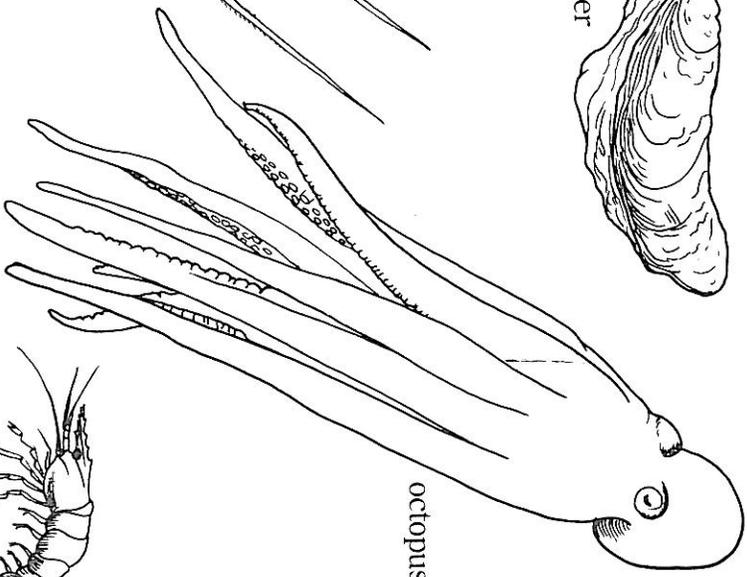
barnacles



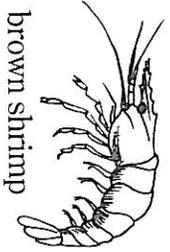
lobster



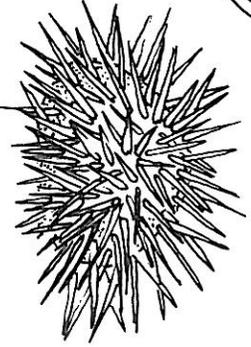
oyster



octopus



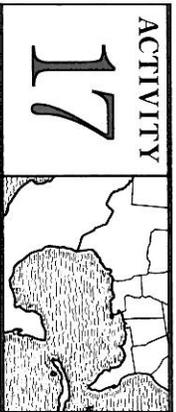
brown shrimp



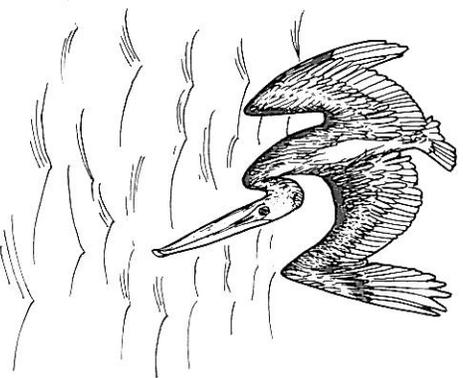
sea urchin

List invertebrates in alphabetical order:

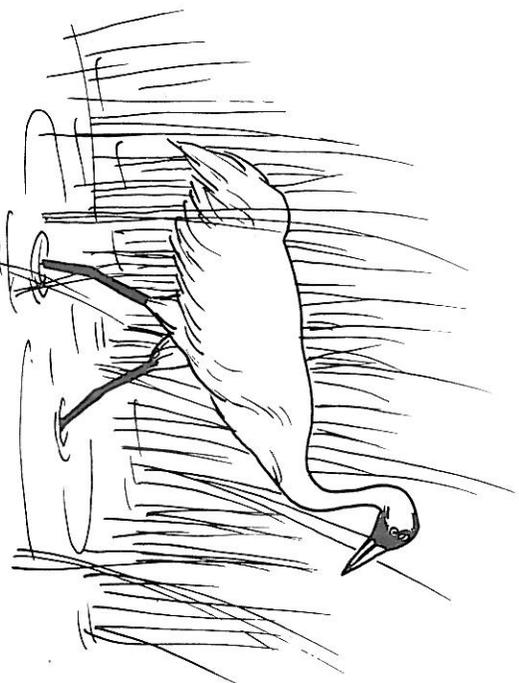
- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.



Endangered Species: Whooping Cranes and Pelicans

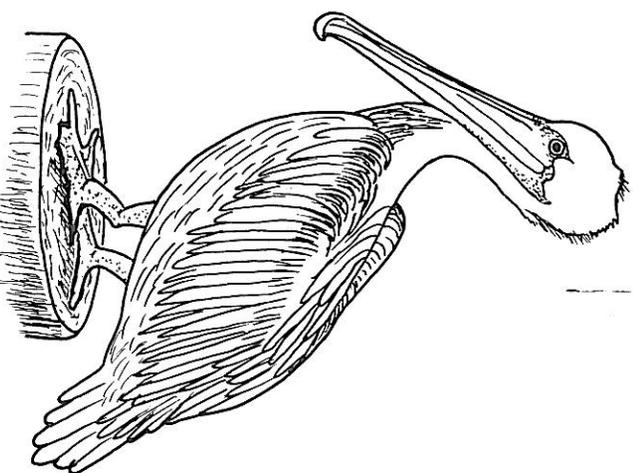


Did you know? Whooping cranes and brown pelicans are two special birds that live in the Gulf of Mexico. These birds look very different but they do have some things in common. Because their populations are low these two birds are called **endangered species**.

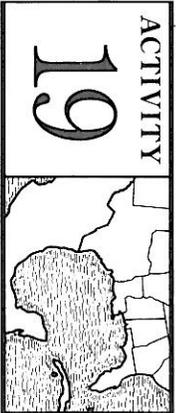


Whooping Cranes: For the past 50 years the United States and Canada have been working together to save whooping cranes. These birds are about five feet tall. They do a beautiful courtship dance to find a mate. They mate for life. In 1941, only 16 of these birds were alive. Today about 146 of these birds migrate 2,500 miles between Canada and Texas. Whooping cranes depend on wetlands for food and a place to build their nests. When farmland and cities are created, whooping cranes lose important habitat areas. They have a harder time finding safe places to live. The loss of wetlands, the growth of coastal cities, and predators like coyotes and raccoons hurt whooping crane populations.

Directions: Read the information below about whooping cranes and pelicans. On a separate sheet of paper, list why both birds are considered endangered. Select one of these birds to research at the library. When you have completed your research, design a brochure that will help other people learn more about your special bird. Include interesting facts, a map to show where the bird lives, and other informative drawings.



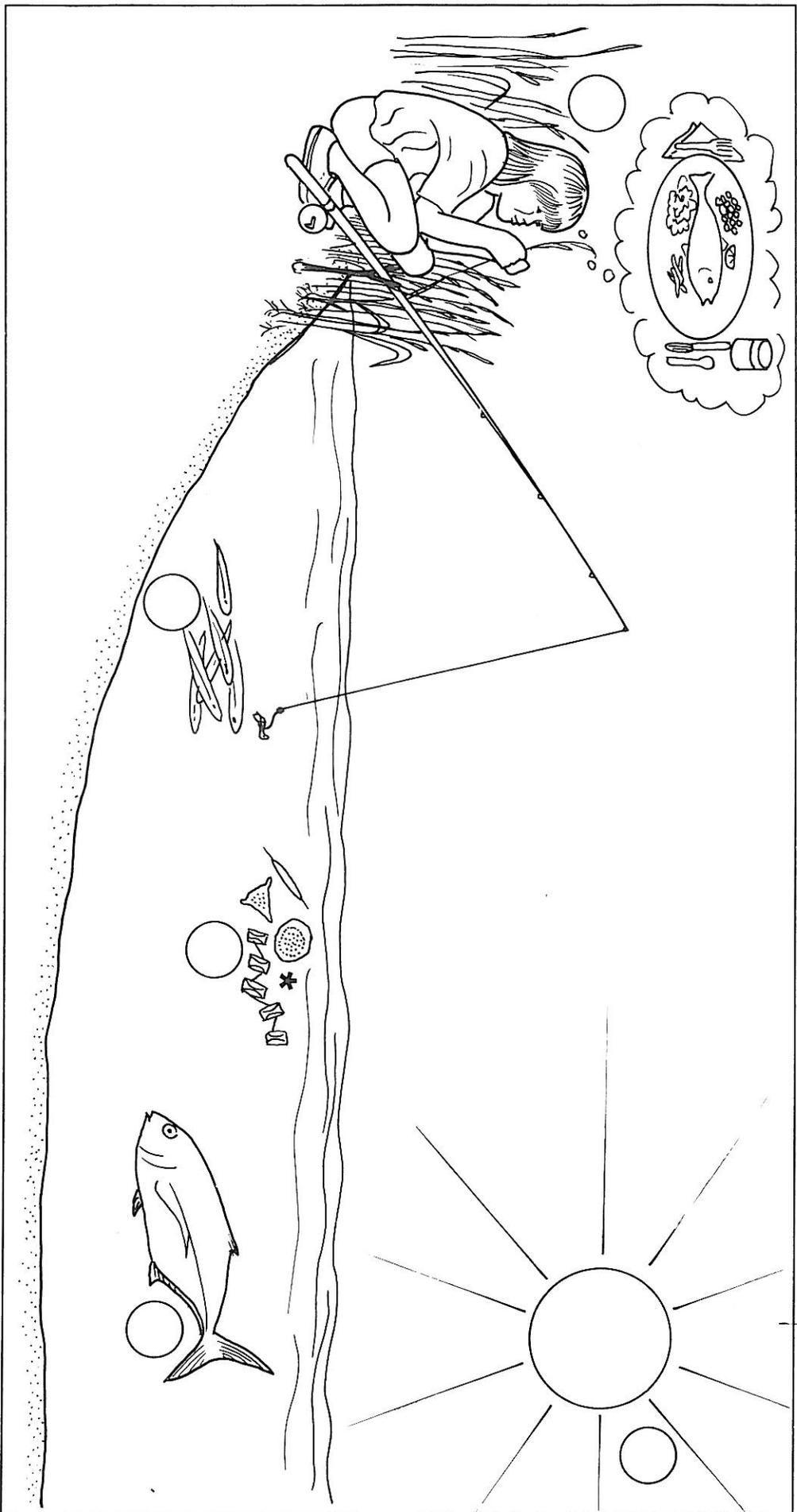
Brown Pelicans: These birds are well known because of their fleshy throat pouch and their powerful "head-first" dives into the water to catch fish. Brown pelicans have a wingspan of about six feet. Pelicans lay their eggs in nests in trees or on the ground on islands. They don't like to be disturbed. Once there were 85,000 pelicans living in Louisiana. In the early 1960s the birds disappeared. Scientists believe a pesticide in the fish they ate harmed the birds. Now about 1,600 nesting pairs live in Louisiana.



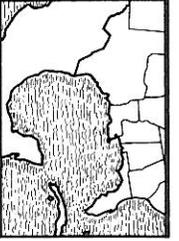
Food Chains... Let's Eat!

Did you know? Plants growing in the Gulf of Mexico and in coastal areas provide important food for marine animals. Animals need sunshine, plants, and water to live. The sun helps the plants grow. Plants are the beginning of the food chain. They are called producers. Animals that eat the plants are called consumers. Big animals eat little animals.

Directions: Look at the drawing below. Number each circle next to the picture to show the food chain growing. Start with the sun. Mark the circle next to the sun number 1. Mark the circle next to the tiny plants number 2 and so on. Next, draw arrows to connect the circles to form a food chain.



*These plants are actually very, very tiny. They are called **diatoms**.



Wetlands are Filters: Water Cleaners for Cleaner Water!

Did you know? Wetland plants and animals serve as filters for natural and man-made water pollution. The roots and leaves of grasses and tiny organisms in the mud help to clean dirty water. Even shrimp and crabs remove some pollution. Wetlands help to remove chemicals and other kinds of pollution out of the water BEFORE it flows into the Gulf of Mexico. You can understand the importance of wetlands as filters by doing this experiment.

Materials you will need:

1. a gallon jug of clean water
2. a large tub to catch water as it is poured
3. a small shoebox full of lumpy dirt and sand
4. a measuring cup
5. one or two paper coffee filters
6. a large mesh strainer
7. a large spoon
8. old newspapers to cover lab tables or desk tops
9. four glass jars or drinking glasses
10. masking tape and marker

Directions:

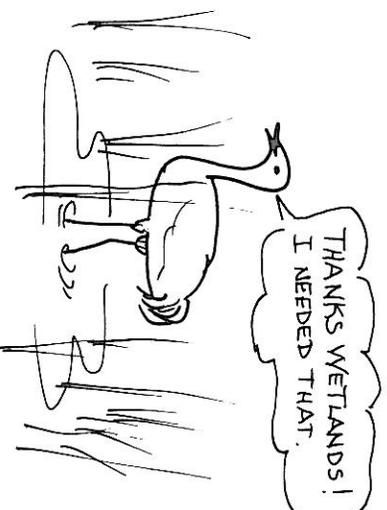
1. Label jars: JAR A, JAR B, JAR C and JAR D
2. Pour one cup of clean water into glass jars A, B, and C.
3. Spoon some dirt and sand into Jar B and Jar C and stir.
4. Line the strainer with a coffee filter.
5. Pour the water from Jar C into strainer and collect the water into glass Jar D.
6. Compare the condition of water in Jar A, Jar B, and Jar D.

Jar A represents a clean Gulf of Mexico. Jar B represents polluted water that has not been filtered. Jar C is for mixing and pouring. Jar D represents water that has been filtered to illustrate the helpful cleaning effects of wetlands.

If you would like to, repeat this experiment comparing other kinds of filters such as straw, cotton, rocks, or cloth.

Discussion Questions:

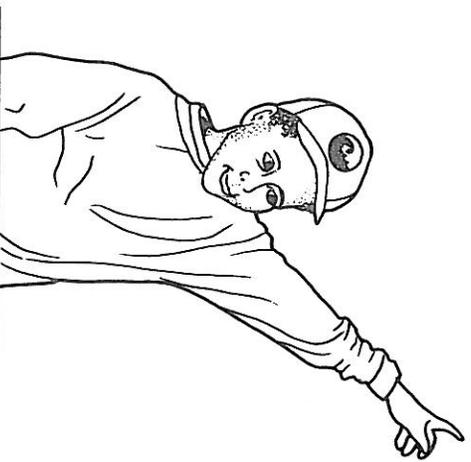
- A. Did the filter help to remove some of the dirt and sand from the water?
- B. Why do birds and other animals need wetlands?
- C. What would happen to plants and animals living in the Gulf of Mexico if dirty, muddy water was not filtered in wetland areas before it reached the Gulf of Mexico?
- D. What will happen to the quality of the water in the Gulf of Mexico if wetlands continue to be destroyed?



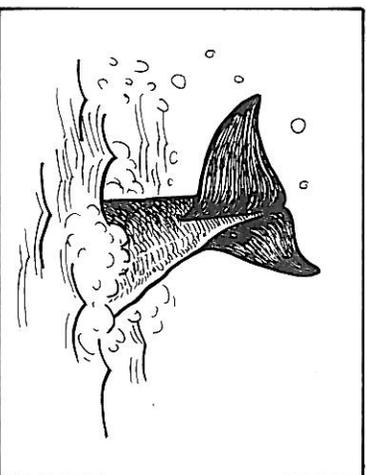
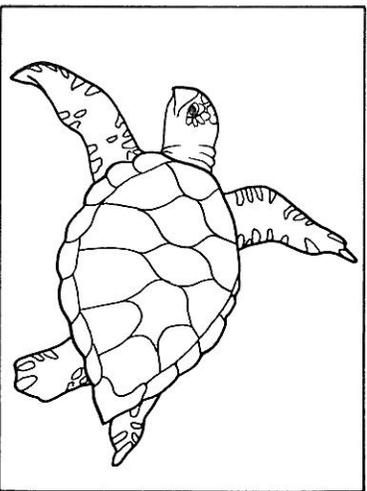
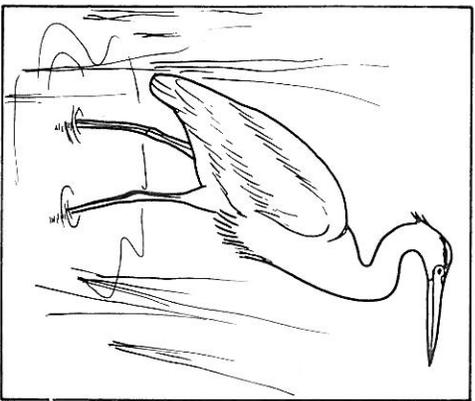
Adaptation: Reporting the News

Did you know? Animals have, over millions of years, adapted to their environment. Adaptation means that an animal's body, diet, coloration, even the design of its feet help it to survive in its environment.

Directions: First, complete the matching activity below. Next, go to the library to research information about one animal that lives in or near the Gulf of Mexico and how it has adapted to its environment. Write a news report with your information. Plan a class environmental news program on adaptation. Have one student be the interviewer with two guests to present the adaptation news.



CLASSROOM
NEWS



Draw a line to match the name of the animals below to the adaptation description.

Sperm Whale

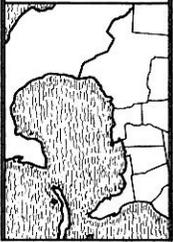
- smooth shell designed for water travel
- strong flippers for swimming
- flippers are paddle-like to easily pull water

Loggerhead Sea Turtle

- slender bill to find food in shallow water
- wide spread toes to walk in muddy areas
- long legs to wade in the water
- long neck to stick out and spear and catch food, such as fishes, worms, and mice

Great Blue Heron

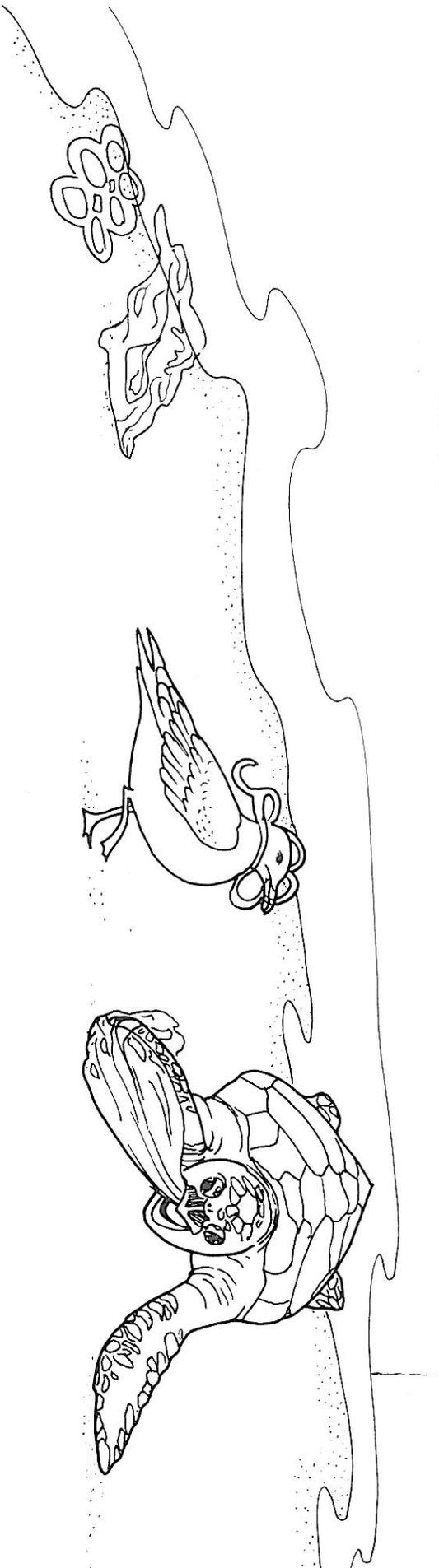
- streamlined body for easy swimming
- horizontal fluke (tail) for diving and coming to the surface quickly
- lungs designed for deep diving
- insulated blubber for buoyancy and warmth
- babies born well-developed, ready to swim



Marine Debris Can Kill Wildlife

Did you know? Animals living in the Gulf of Mexico need a clean home. Marine debris can harm seabirds, whales, sea turtles, and fishes. Marine debris can kill animals when they eat it. This is called **ingestion**. Marine debris kills animals when it wraps around their necks, flippers, legs, or wings. This is called **entanglement**. Scientists called marine biologists are concerned about trash thrown into the Gulf of Mexico and how it can harm or kill animals.

Directions: Read the sentences below. Pretend that you are a marine biologist. Circle the word ingestion or entanglement to best describe how marine trash could harm the animals.



1. You see a potato chip bag blowing down the beach and into the water. You know that many whales are swimming in the Gulf of Mexico looking for food. A whale eats the potato chip bag.

Is this an example of **entanglement** or **ingestion**?

2. You see a woman on a boat throwing an ice bag into the Gulf of Mexico. A sea turtle comes swimming by looking for a jellyfish and eats the ice bag by mistake.

Is this an example of **entanglement** or **ingestion**?

3. You see a six-pack ring blow off the dock and into the water. A bird gets its head trapped in the six-pack ring.

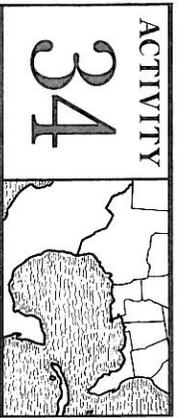
Is this an example of **entanglement** or **ingestion**?

4. A fisherman throws old rope into the water. A dolphin gets its flukes and flippers trapped in the rope.

Is this an example of **entanglement** or **ingestion**?

The Center for Marine Conservation reported that Beach Buddies in 35 states recorded the following trash totals from one three-hour beach cleanup: 8,140 salt bags, 6,513 egg cartons, 31,816 balloons, 9,406 tires, 94,035 bottle caps, 9,717 diapers, 7,417 light bulbs!

Can these debris items harm people and animals?



Where does

Marine Debris

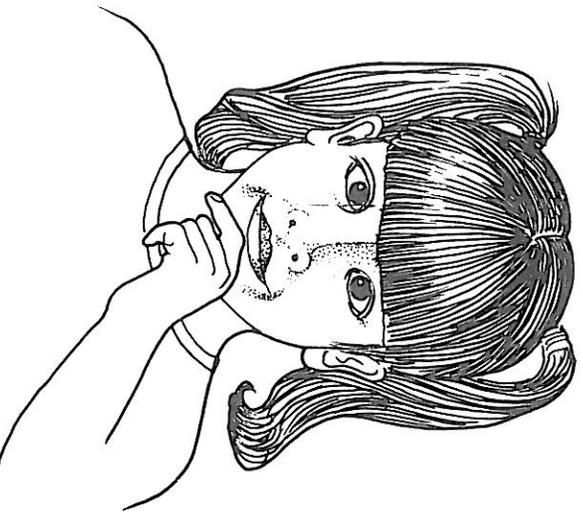
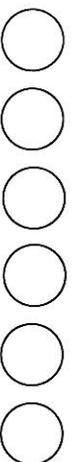
Come From?

Did you know? During beach cleanups held in Texas, Louisiana, Mississippi, Alabama, and Florida volunteers removed tons of trash in just three hours. Why do we find egg cartons and salt bags on our beaches? Why do we find rope and buckets? Where does all this marine debris come from?

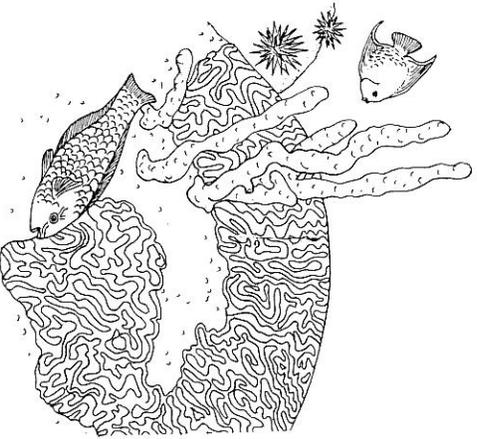
Directions: Complete the word puzzle below. Use the letters in each bubble to solve the riddle. Where does marine debris come from? Make a list of three things you can do to keep the Gulf of Mexico clean.

1. Some people at sea dump trash over the side of a huge _____.
2. Large tires and old refrigerators are not easy to move off the beach because they are _____.
3. One volunteer found a hundred _____ bill during a cleanup in Texas.
4. Seeing a clean beach can make you feel _____.
5. Thin, strong fishing line can twist around the feet and _____ of shore birds.
6. Marine debris can harm sea creatures if they _____ it.

Where does marine debris come from?



Vocabulary



adaptation: the process by which a plant or animal becomes better able to survive in an environment. A characteristic that was inherited and cannot be changed.

algae: single-celled or many-celled plants that live in the water.

aquatic animal: an animal that lives in the water.

baleen: brush-like material that grows down from the upper jaw of large plankton-feeding whales which serves as a strainer or filter for trapping plankton. Baleen is made of the same tough material that forms fingernails.

barrier island: a long, narrow island parallel to and not far from the coast.

bony fish: fish with a skeleton made of bone as opposed to sharks and rays whose skeletons are made of cartilage.

carnivore: an animal that feeds on other animals.

community: a group of organisms living in an area.

consumer: an organism that feeds on other organisms.

coral: an invertebrate that lives singly or in colonies. This animal is surrounded by a calcium or protein skeleton. Each polyp of the colony resembles a small sea anemone. The skeletons of some species form coral reefs over time.

coral reef: a deposit of dead coral skeletons and living corals which sit on the sea floor or in shallow waters.

countershading: a common coloration for aquatic animals in which the top side of the animal is dark and the underside is light to help with camouflage.

crustacean: an animal with a hard, crusty exoskeleton such as a shrimp, a crab, or a barnacle.

diatom: tiny one-celled algae that come in many shapes. Diatoms are the most abundant kinds of phytoplankton in the ocean.

dolphin: a small marine mammal in the cetacean family.

ecology: the study of relationships between living things and their environment.

ecosystem: a place in nature with all of its living and non-living parts. The earth is one ecosystem, others include a forest, an ocean, a pond, a log.

environment: the surroundings of an organism.

erosion: a gradual wearing away, as when water causes the coastline to wear away or erode.

estuary: a body of water that mixes fresh water from rivers and salt water from the ocean.

fauna: the animal life occurring in an area.

filter feeder: an animal that filters its food from water as the water flows through the animal.

Organic matter is extracted from the water with specialized mouth parts for straining and used for food. Some whales and oysters are filter feeders.

flora: the plant life occurring in an area.

food chain: the passage of energy from the sun to producers and consumers as organisms feed on one another.

food web: many food chains inter-related within an environment. The sequence of organisms which produce food and consume it.

fresh water: water with a salinity of less than .5 parts per thousand, no taste of salt.

gills: the breathing organs of fish which are modified to absorb dissolved oxygen from water.

gulf: a large body of water that is partly enclosed by land.

habitat: a place where an animal or plant normally lives.

herbivores: animals that feed on plants.

invertebrates: animals without a backbone, including sponges and jellyfishes, or animals with a hard skeleton outside the body, such as corals, crabs, clams, or oysters.

mammal: an animal that is warm-blooded, breathes air, and gives birth to live young.

manatees: large, grayish or brownish, aquatic mammals living in rivers and nearshore salt water. Manatees feed on submerged vegetation.

Sometimes called a "sea cow," a thousand-pound manatee can eat from 100 to 150 pounds of plants per day.

mangrove: a general term applied to several species of tropical and sub-tropical salt tolerant trees found in some coastal areas.

marine mammals: mammals that live in the ocean, such as whales and dolphins.

mollusk: an animal with no backbone and a soft body which is usually surrounded by a hard shell. Clams, snails, oysters, mussels, squids, and octopuses are mollusks.

pesticide: a chemical used to kill insects.

phytoplankton: tiny plants that live only in water where enough light penetrates for them to carry out the process of photosynthesis.

plankton: small plants (phytoplankton) and animals (zooplankton) that live in the upper layers of the water column, either drifting or weakly swimming.

pollution: the introduction of elements, compounds, or any other matter into places which results in living organisms being harmed.

salinity: the amount of saltiness in water.

salt marsh: a wetlands area, usually flat land, that is subject to overflow by salt water. The vegetation may consist of sea grasses or even shrubs.

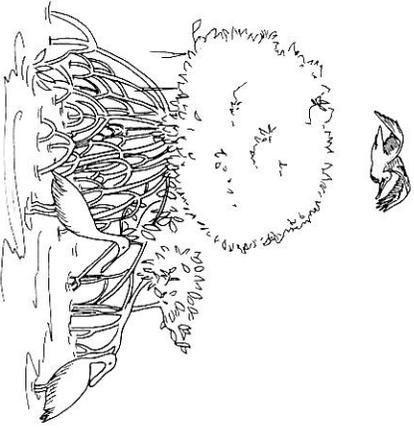
salt water: ocean or sea water containing dissolved salts. Has salinity of about 35 parts per thousand.

sea turtles: air-breathing reptiles that have an external covering of scales or horny plates. They breathe with lungs, and their strong flippers serve as swimming paddles. Females leave the water to lay eggs on the beach. Sea turtles have existed for more than 175 million years.

wetland: low land area influenced by water. Lands that are transitional between terrestrial and aquatic ecosystems. Marshes, swamps, and bogs are types of wetlands.

whale: a large marine mammal in the cetacean family.

zooplankton: aquatic animals that drift with the currents. Zooplankton range in size from tiny, single-celled animals to larger creatures such as jellyfish.



ANSWER KEY (CON'T)

ACTIVITY 23

- A. Yes.
- B. Wetlands provide food, shelter, and nesting areas for animals.
- C. Plants and animals need clean water and oxygen to remain healthy. Plants need to receive the sun's light to grow. Dirty, muddy water could reduce the amount of sunlight reaching plants, and this could harm marine plants and animals.
- D. The quality of the water in the Gulf of Mexico will become poor if wetlands are lost. Pollution can empty directly into Gulf waters without the filter system of coastal wetlands.

ACTIVITY 26

- 1. loggerhead sea turtle
- 2. great blue heron
- 3. sperm whale

ACTIVITY 33

- 1. ingestion
- 2. ingestion
- 3. entanglement
- 4. entanglement

ACTIVITY 34

- 1. ship
- 2. heavy
- 3. dollar
- 4. happy
- 5. legs
- 6. eat