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Sandy Hook Discovery Progra...

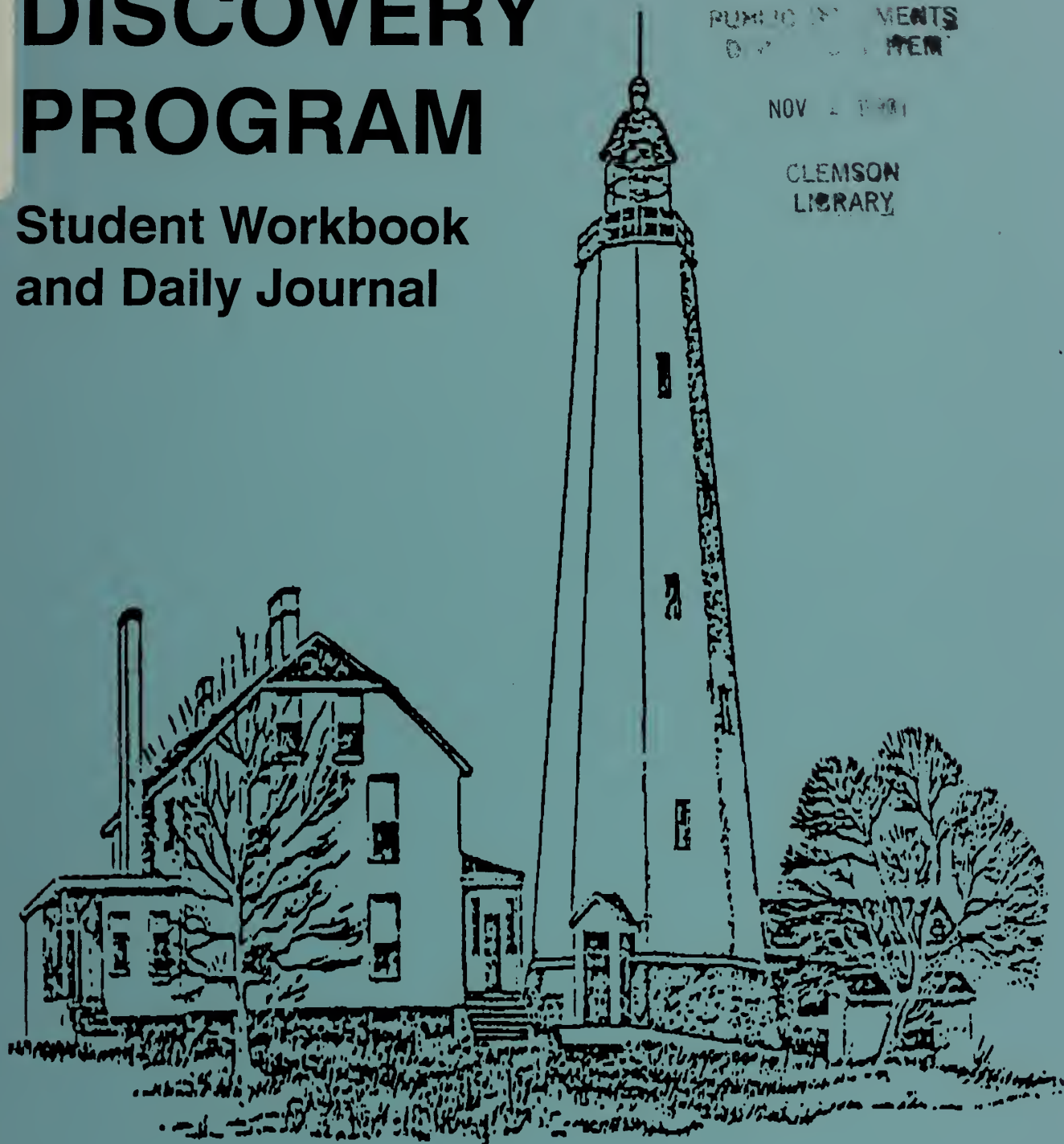
SANDY HOOK DISCOVERY PROGRAM

Student Workbook
and Daily Journal

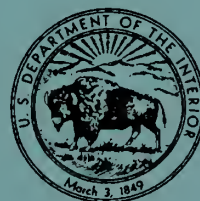
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GATEWAY NATIONAL RECREATION AREA



Dear Student:

Welcome to the Sandy Hook Unit of Gateway National Recreation Area. Your trip to Sandy Hook will be a special experience. During your two-and-half day stay you will explore the shore and upland areas and learn about the different animals and plants by participating in activities with your classmates and your teacher.

What is Gateway? Gateway is one of 337 parks across the country administered by the National Park Service. The 26,000 acres which make up Gateway were set aside by Congress in 1972 to provide recreational opportunities for urban dwellers and to protect natural habitat for wildlife. The National Park Service has the job of preserving and protecting areas like Gateway for present and future generations. You too can help! We all must share this important responsibility of protecting our land. Please leave all living things in the park and be careful not to disturb the area during your visit.

The pages in this booklet contain many different activities for you to do during your visit and when you return to your classroom. The rangers look forward to meeting you and your teacher. Have a safe trip!

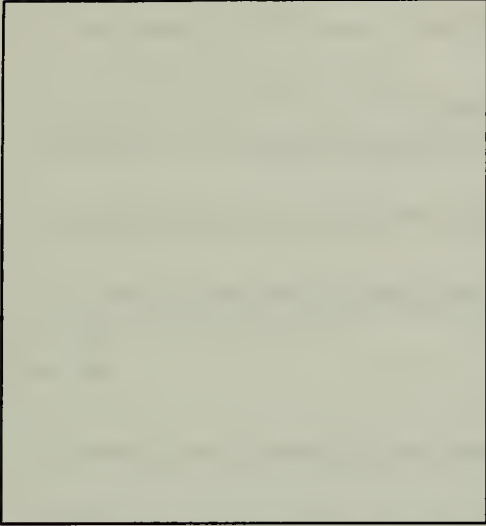
DAY 1 JOURNAL ENTRY

Write down your thoughts and feelings about your first day at Sandy Hook. Think about what you saw, did, and learned. What were some of your daytime and nighttime observations?

DAY 2 ACTIVITIES

OCEAN AND BEACH WALK

1. What is the shape of Sandy Hook?



How does it affect:

a. boats _____

b. birds _____

c. New York Harbor _____

d. fishing _____

e. swimming _____

f. Highlands _____

2. Examine some grains of sand using a hand-lens and a magnet.

a. How did the grains of sand form?

b. Look at the sand grains and describe the following:

1. shape

3. color

2. size

4. magnetism

yes no

c. What are some of the uses of sand?

d. What effect do wind and storms have on sand?

3. Waves and Currents:

a. How do waves hit the beach?

b. What causes this?

c. Is there a pattern to the waves? (large vs small)

d. Is there evidence that the water is wearing away the beaches? Why and how?

e. How does the moon affect the tides?

f. How do the tides affect:

- | | |
|--------------|------------|
| 1. boats | 4. fishing |
| 2. swimmers | 5. sand |
| 3. buildings | |

4. Life on the beach:

- Is there a difference in the life forms between the high tide and low tide zones?
- Look at the chart on the next page and list all the different forms of life you see on the beach. Include plants and animal life.
- Name their food sources. What are some of the predators?
- How do people use the beaches? How should they use the beaches?

5. Dune Life:

- How does the salt spray affect plants?
- Does vegetation help or hinder the dunes? How?
- Name some plants and animals found on the dunes.
- Why are dunes important?
- How do people affect dunes and is it good or bad?

OCEAN BEACH - HUMAN IMPACT

People change the beach in many ways. Some of these ways are good. Others are harmful. People can affect the beach without being there. Look around you. What are the waves carrying onto the shore? Use your binoculars to look at the sky. Can you see any pollution in the atmosphere?

- List all the traces of people that you can find in the water, near the shoreline, and on the beach.
- Which of these things do you think harm the beach environment?
- Which things protect the beach?
- Which things keep the sand in place?

OCEAN BEACH - SOLID WASTE SCAVENGER HUNT

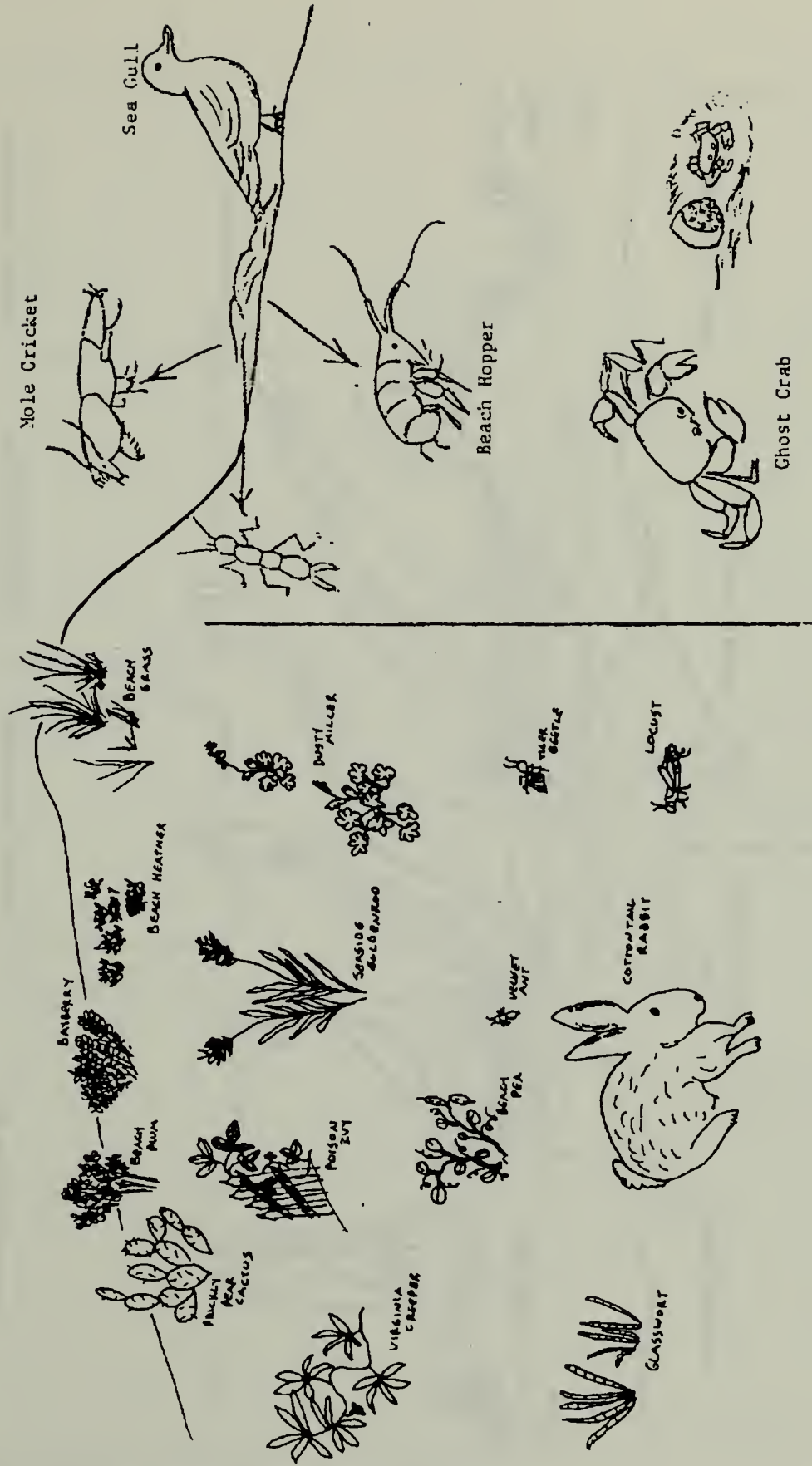
1. Walk up and down the beach. Name and describe ten examples of solid waste.
2. Which of the items you listed are non-natural?
3. Which are natural objects?
4. How many natural objects?
5. How many non-natural objects?
6. Look at each object and see if you can figure out how it got on the beach.
7. Look at your list of objects. What do you think will happen if the objects are left for a long time on the beach?

DUNE/UPLAND WALK

1. List three green plants and their location.
2. Take a handful of soil. Is it:
a. sandy b. clay c. loam (circle one)
3. Write the names of all the animals you see.
4. Name three producers you observe.
5. Name two carnivores (meat eaters).
6. Name two herbivores (plant eaters).
7. Name two omnivores (plant and meat eaters).
8. Make a food chain. Remember every food chain begins with producers (green plants).

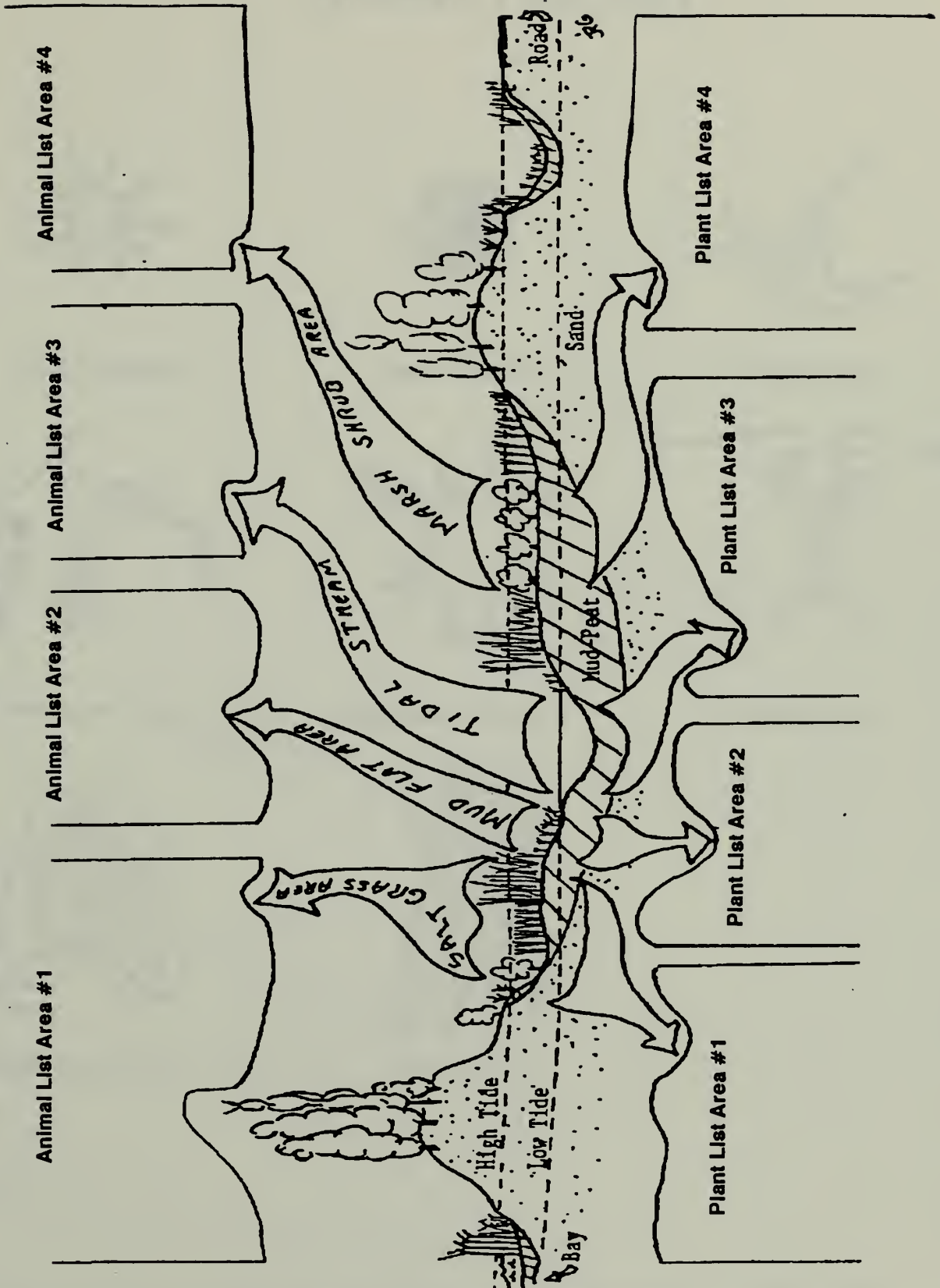
UPPER BEACH

DUNE AREA

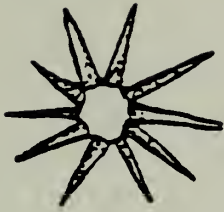


A SALT MARSH

Consult the key and complete during the seining activity.



KEY OF COMMON PLANKTON



STAR DIATOM (P)



DISC DIATOM (P)



CERATIUM (P)



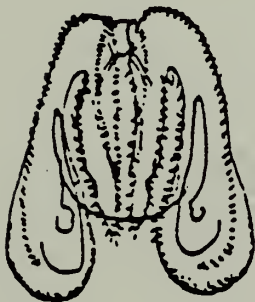
CRAB LARVA (O)



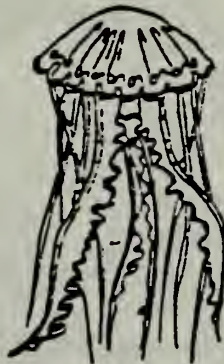
BARNACLE LARVA (O)



COPEPOD (HC)



COMBJELLY (CC)







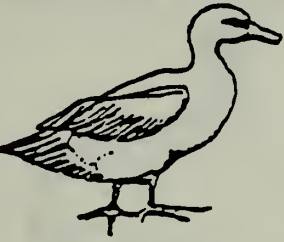
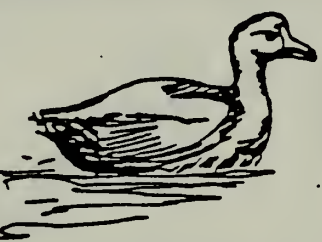










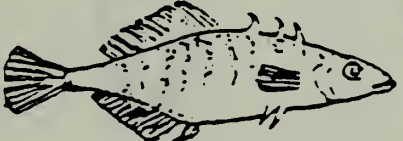





JELLYFISH (CC)

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PLANTS IN A SALT MARSH



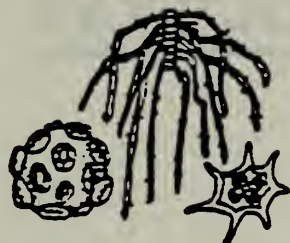
KEY VERTEBRATE MARSH ANIMALS

			
RACCOON (O)	MUSKRAT (HC)	GREAT BLUE HERON (CC)	OSPREY (CC)
			
DUCK (HC)	COOT (HC)	BELTED KINGFISHER (CC)	CLAPPER RAIL (CC)
			
YELLOW LEGS (CC)	SNOWY EGRET (CC)	NIGHT HERON (CC)	GREEN HERON (CC)
			
REDWING BLACKBIRD (HC)	DIAMOND BACK TERRAPIN (HC)		
			
MUMMICHOG (O)		BROOK STICKLEBACK (O)	
			
THREE SPINED STICKLEBACK (O)	TIDEWATER SILVERSIDE (O)	SHEEPSHEAD MINNOW (O)	
			
BANDED-KILLIFISH (O)	SNAPPER BLUEFISH (CC)	EEL (O)	

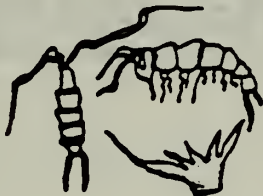
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The pictures below and on the next page can be duplicated and used for class murals or individual projects.

KEY INVERTEBRATES OF THE SALT MARSH



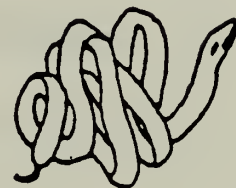
MICROSCOPIC ALGAE (P)



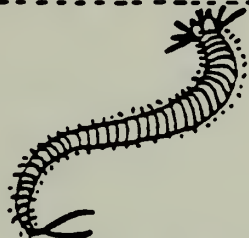
ZOOPLANKTON (HC, CC)



JELLYFISH (CC)



RIBBON WORM (CC)



SANDWORM (CC)



BLOODWORM (CC)



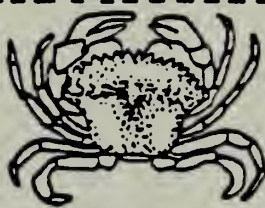
HORSESHOE CRAB (O)



SHRIMP (O)



MUD CRAB (O)



GREEN CRAB (O)



FIDDLER CRAB (O)



CALICO CRAB (O)



BLUECRAB (CC)



BARNACLE (O)



SLIPPER SHELL (O)



PERIWINKLE (HC)



MARSH SNAIL (O)



MUD SNAIL (O)



OYSTER DRILL SNAIL (CC)



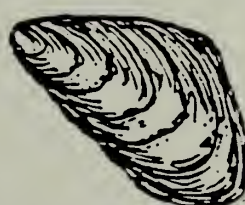
HARD-SHELL CLAM (O)



SOFT SHELL CLAM (O)



RIBBED MUSSEL (O)



EDIBLE MUSSEL (O)



STARFISH (P)

DAY 2 JOURNAL ENTRY

DAY 3 ACTIVITIES

Create-A-Park

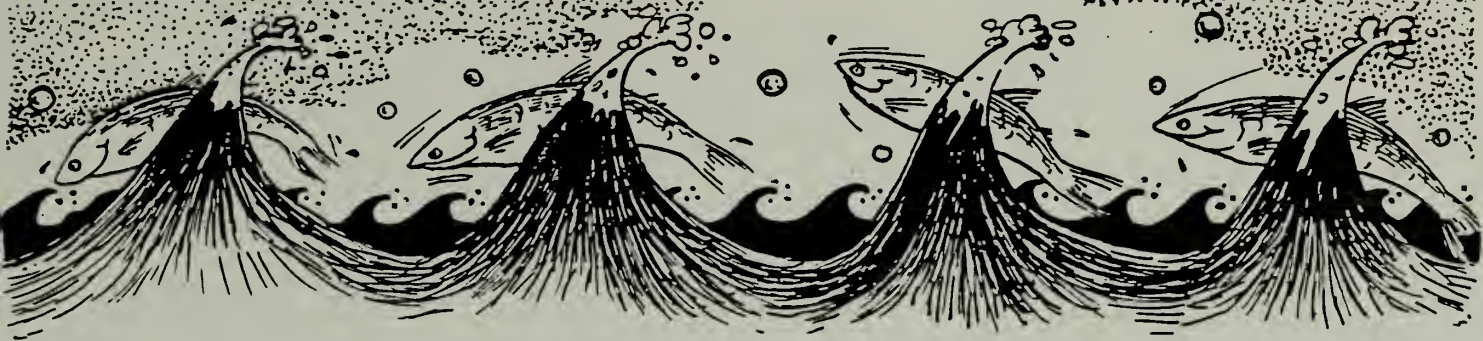
Name

Description

Beachcraft

Description

DAY 3 JOURNAL ENTRY



Dear Ranger _____,



Using the words below, send a message to the ranger(s) describing your trip to Sandy Hook. Add a few pictures if you like!

BEACH	SAND	RANGER	NATIONAL PARKS
GATEWAY	HABITAT	ANIMALS	PLANTS

