

STUDENT NOTEBOOK

Inside the Outdoors
at
UPPER NEWPORT
BAY

NAME: _____

SCHOOL: _____

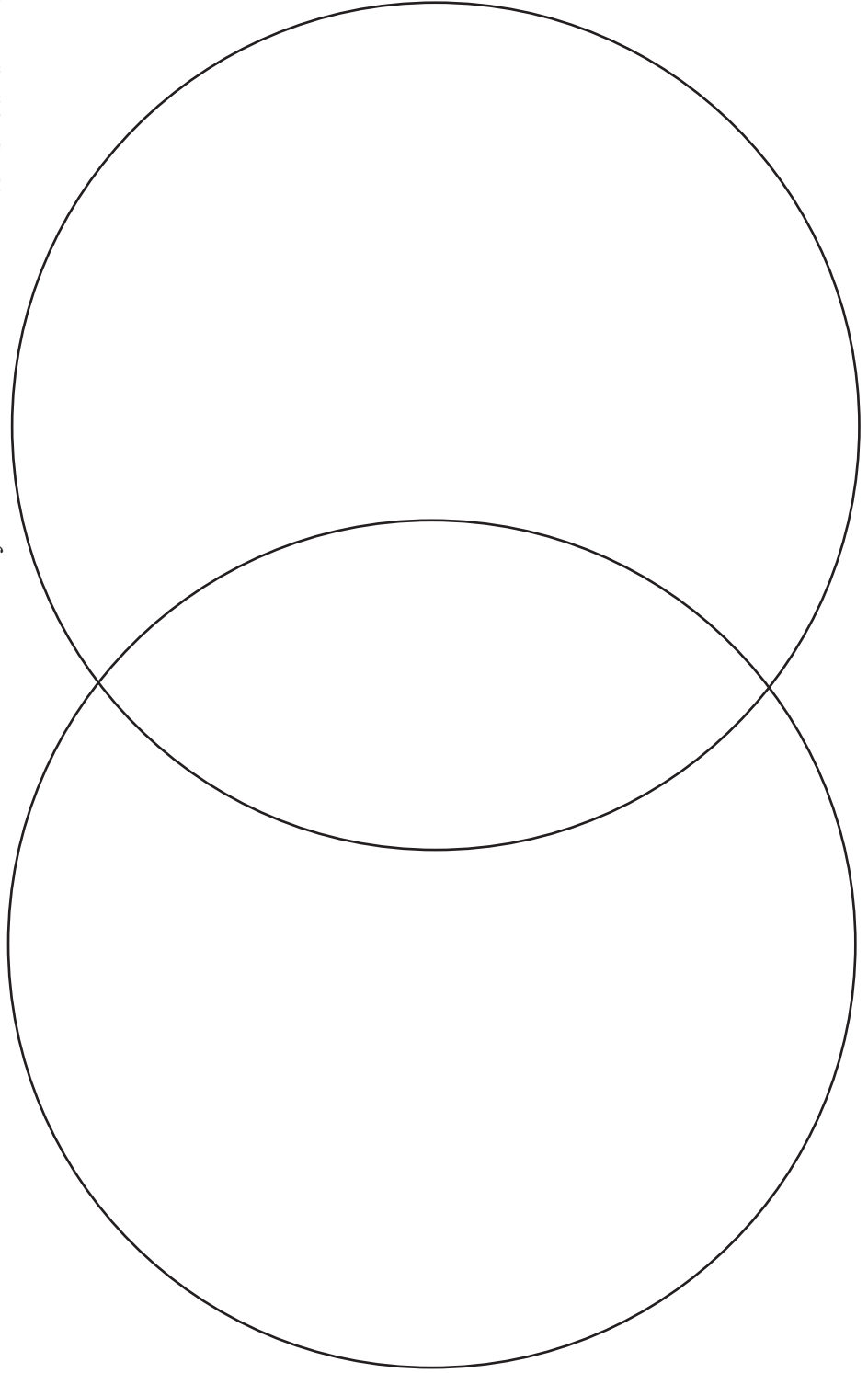
TEACHER: _____

What's in an Estuary?

SALTWATER
items found in an ocean

ESTUARY
items found in an estuary

FRESHWATER
items found in freshwater



STUDENT ACTIVITY #1

The Missing Piece

Ecology of Upper Newport Bay

Ecosystems are found everywhere in nature. An ecosystem is a place where living things, such as plants and animals, and nonliving things, such as the sun and water, interact. Ecosystems can be any size. Upper Newport Bay is an estuary, an ecosystem where freshwater and saltwater meet and mix together.

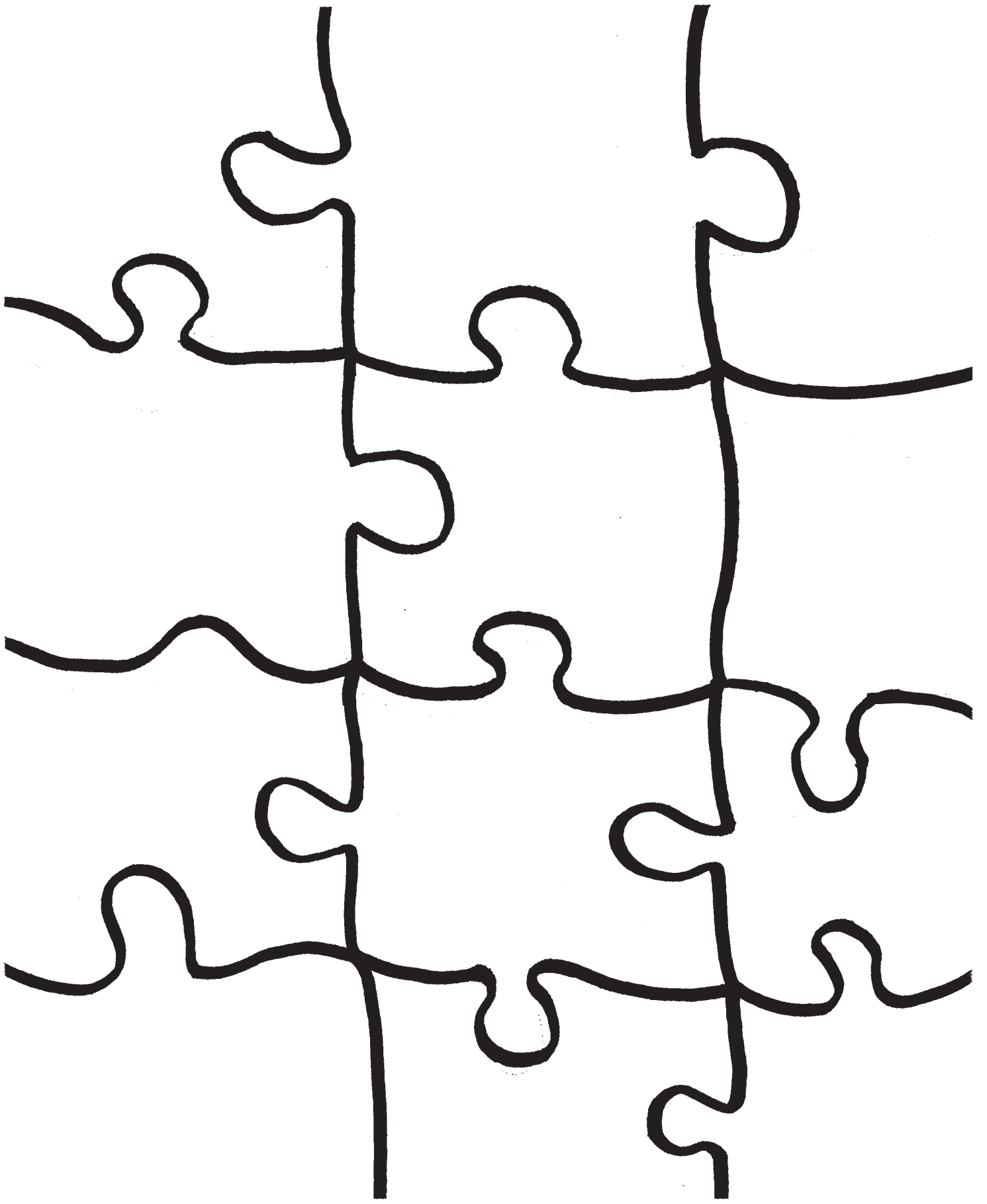
On the next page you will find a picture of an estuary ecosystem.

1. Look at the picture of the estuary ecosystem. What living and nonliving things do you find in this ecosystem?
2. Glue the picture onto the back of the puzzle page. You should see a puzzle outline on one side and a picture on the other side.
3. Cut along the dark lines of the puzzle pieces.
4. Remove one puzzle piece and set it aside.
5. Mix up the remaining puzzle pieces.
6. Put the puzzle back together. What piece is missing from the picture? Write your answer below.

7. What would happen to the estuary if this item were to disappear forever? Write your answer below.



W.SCHWARZ96



STUDENT ACTIVITY #2

Estuary Crossword Puzzle

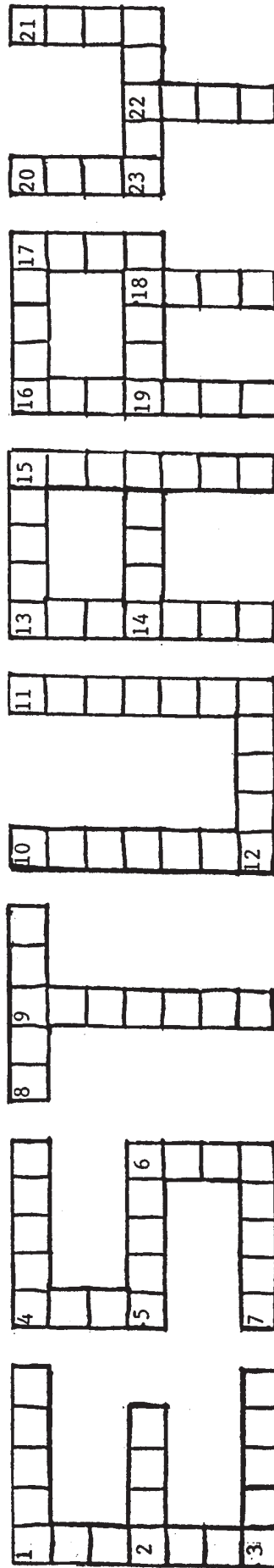
You can find some of the words listed below in the crossword puzzle clues on this page. Cross the words out as you find them and use the clues to complete the puzzle on the next page!

Back Bay	Indians	Fresh	Rail(Clapper)	Shark	Survive
Bloom	Into	Fossils	Root	Shell	Terns
Coot	Kites	Habitat	Sails	Shore	Tides
Egret	Marshes	Hawk	Salt	Soil	Zone
Estuary	Ocean	Heron			

ACROSS

DOWN

- | | |
|--|---|
| <p>1. A Great blue <u>h</u> _ _ _ _ is tall.</p> <p>2. A pelican dives <u>i</u> _ _ _ the water.</p> <p>3. Small birds that look like gulls are called <u>t</u> _ _ _ _.</p> <p>4. Some boats are powered by <u>s</u> _ _ _ _.</p> <p>5. Changing ocean water levels are called. <u>t</u> _ _ _ _.</p> <p>7. A snail live in its <u>s</u> _ _ _ _.</p> <p>8. We live by the Pacific <u>O</u> _ _ _ _.</p> <p>12. “She sells sea shells by the sea <u>s</u> _ _ _ _.”</p> <p>13. In the spring, what do flowers do? <u>b</u> _ _ _ _.</p> <p>14. Birds whose name is the same as a toy that you fly are <u>K</u> _ _ _ _.</p> <p>16. We drink <u>f</u> _ _ _ _, not salt, water.</p> <p>19. A <u>s</u> _ _ _ _ is a big fish which hunts.</p> <p>23. An <u>e</u> _ _ _ _ is a large white bird that fishes.</p> | <p>1. A <u>h</u> _ _ _ _ _ is a place where a plant or animal lives.</p> <p>4. The ocean is made up of <u>s</u> _ _ _ water.</p> <p>6. <u>S</u> _ _ _ is another word for dirt.</p> <p>9. An ecosystem where fresh water meets salt water is an <u>e</u> _ _ _ _ _.</p> <p>10. Gabrielino <u>I</u> _ _ _ _ _ lived in California before the Spanish came.</p> <p>11. Food, water, and space are needed for plants and animals to <u>s</u> _ _ _ _ _.</p> <p>13. We will visit the Newport <u>B</u> _ _ _ <u>B</u> _ _ _.</p> <p>15. Swamp-like areas are also called <u>m</u> _ _ _ _ _.</p> <p>16. Animals trapped under mud may turn into <u>f</u> _ _ _ _ _.</p> <p>17. A <u>h</u> _ _ _ is a large bird that hunts.</p> <p>18. The underground part of a plant is called the <u>r</u> _ _ _.</p> <p>20. A transition <u>z</u> _ _ _ _.</p> <p>21. A black bird that swims, known as a mud hen, is called a <u>c</u> _ _ _ _.</p> <p>22. The Light-footed clapper <u>r</u> _ _ _ _ is an endangered species.</p> |
|--|---|



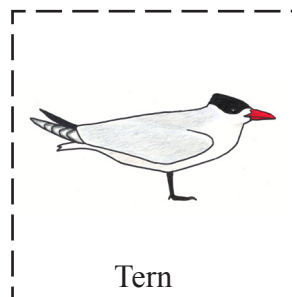
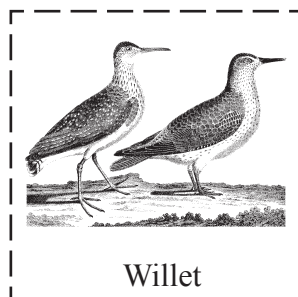
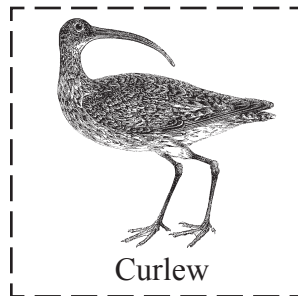
STUDENT ACTIVITY #3

Migration Aggravation

1. Have each player select a bird game piece.
2. As a group, choose the order in which to move the game pieces (clockwise or counter clockwise).
3. The first player places his or her game piece on the box marked “start.”
4. The first player tosses a coin. If the coin lands on “heads,” the player moves the game piece forward one space. If the coin lands on “tails,” the player moves the game piece forward two spaces. After the first player moves, the second player takes a turn. Continue playing.
5. As players move their game pieces from space to space, they must read the contents of the boxes out loud.
6. The first person to land on the box marked “finish” wins the game.

cut here

GAME PIECES



Start

Nesting habitat area suffers from drought... remain on this space until your next turn.

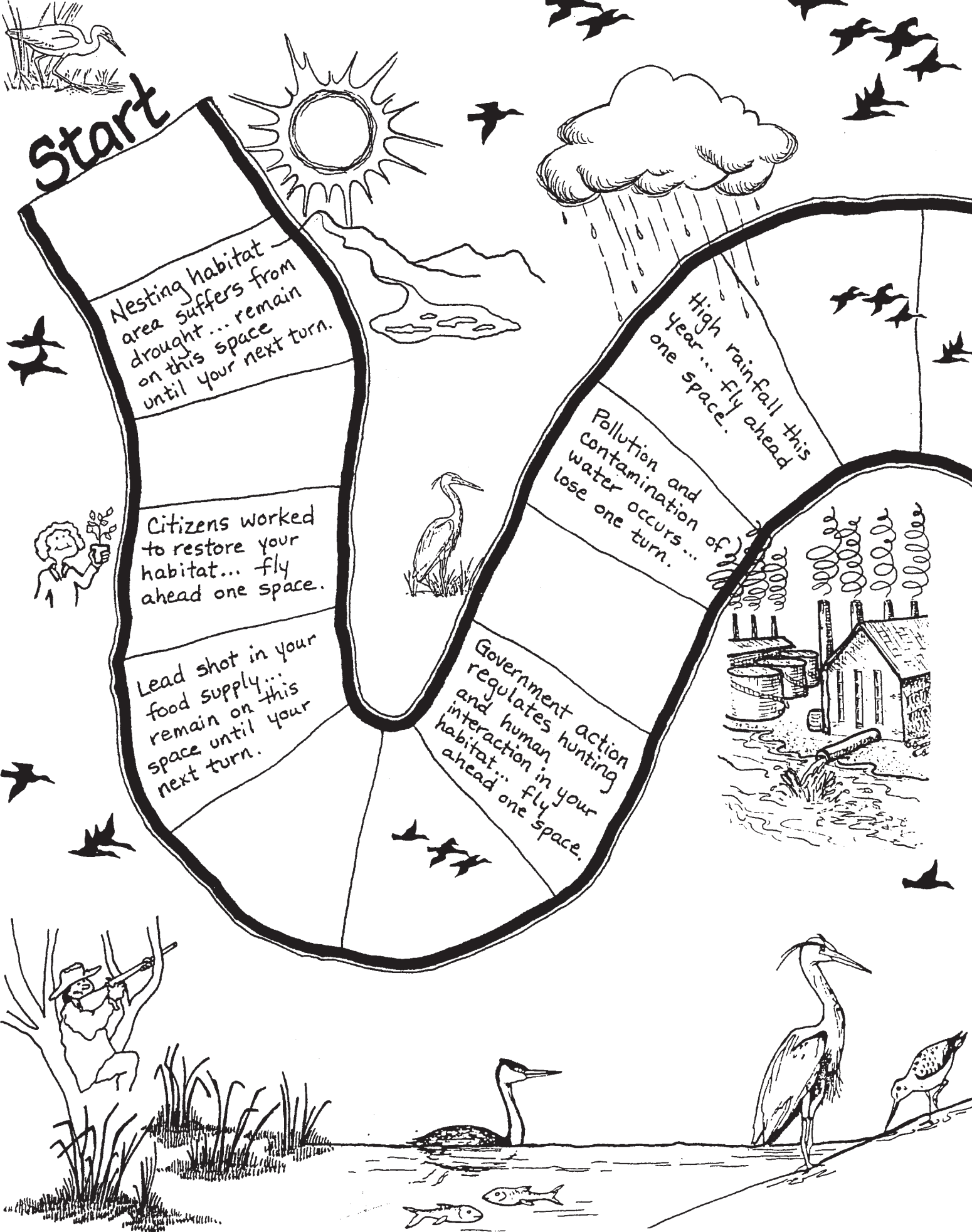
Citizens worked to restore your habitat... fly ahead one space.

Lead shot in your food supply... remain on this space until your next turn.

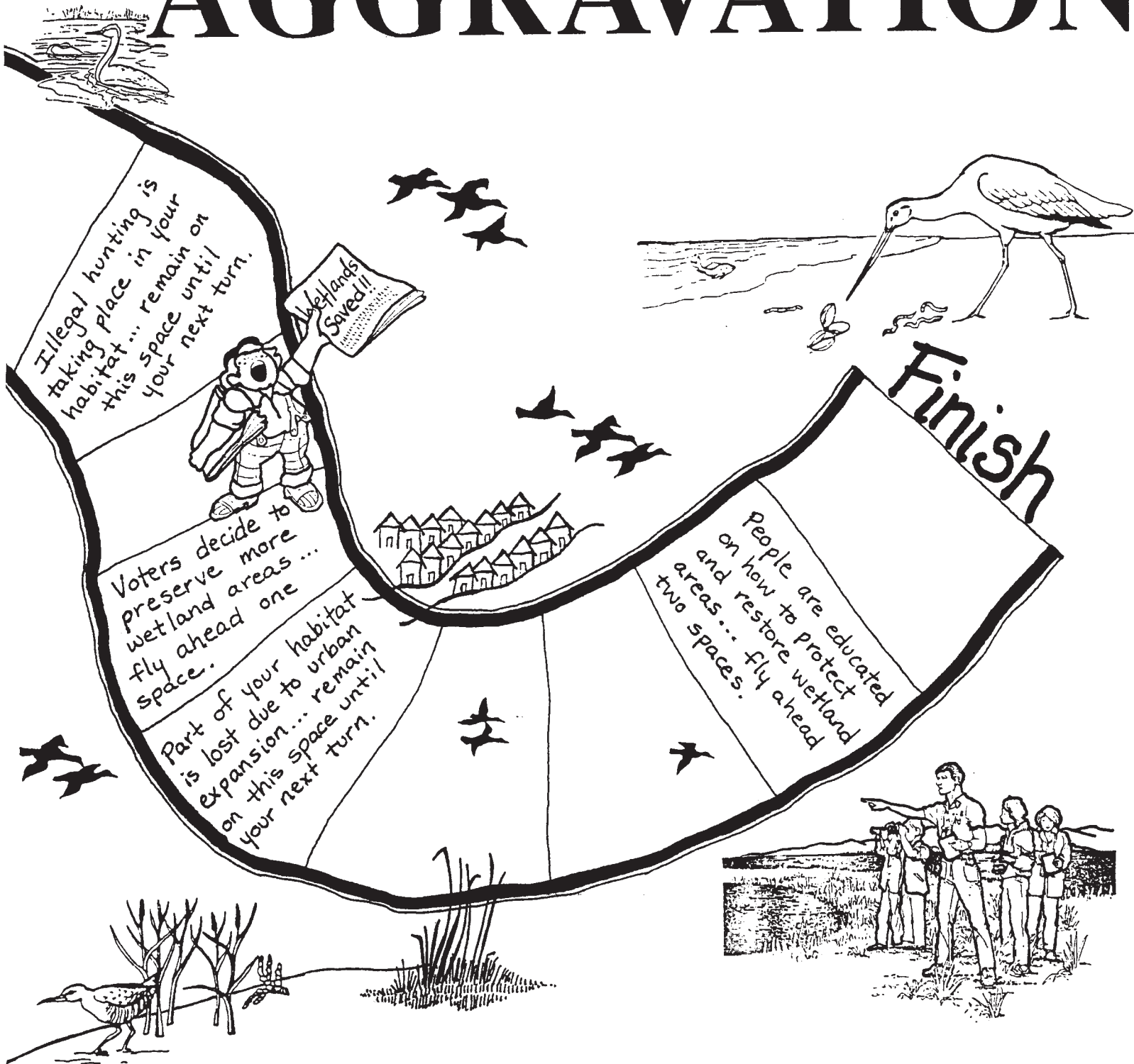
Government action regulates hunting and human interaction in your habitat... fly ahead one space.

Pollution and contamination of water occurs... lose one turn.

High rainfall this year... fly ahead one space.



MIGRATION AGGRAVATION

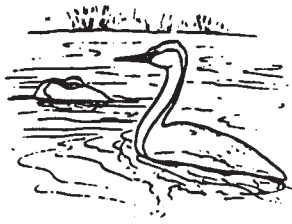


STUDENT NOTEBOOK PAGE

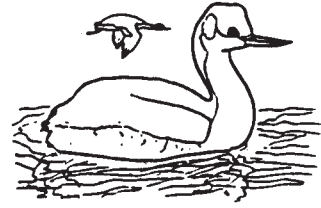
Bird Beak Data Sheet

Food Items	Spoonbill Bird	Clothespin Bird	Chopstick Bird	Tweezer Bird
Toothpick Worms				
Marble Snails				
Paperclip Beetles				
Food Items "Feeding Frenzy" Distributed Simultaneously	Spoonbill Bird	Clothespin Bird	Chopstick Bird	Tweezer Bird
Toothpick Worms				
Marble Snails				
Paperclip Beetles				
TOTAL				

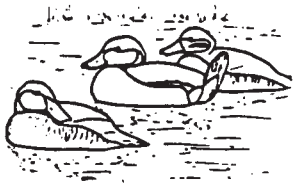
Birds of the Open Water



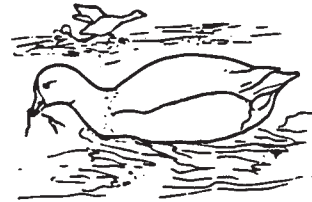
Western grebe



Eared grebe

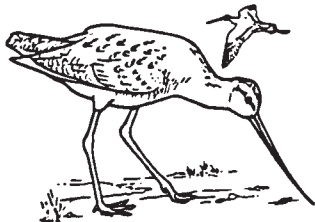


Ruddy duck

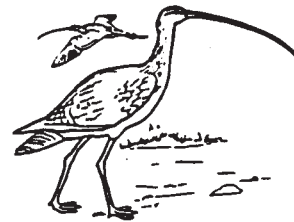


American coot

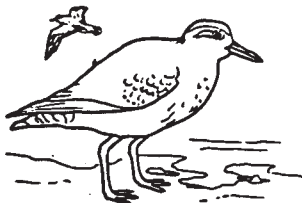
Birds of the Mudflats



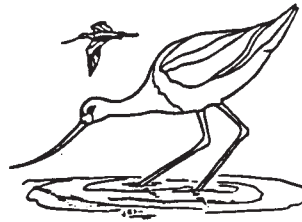
Marbled godwit



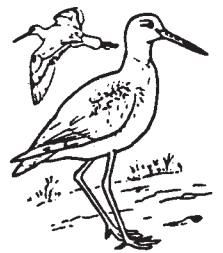
Long-billed curlew



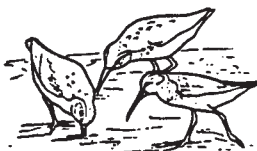
Black-bellied plover



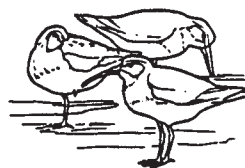
American avocet



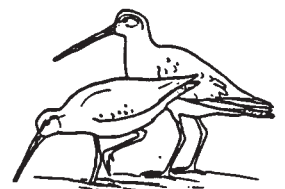
Willet



Least sandpiper

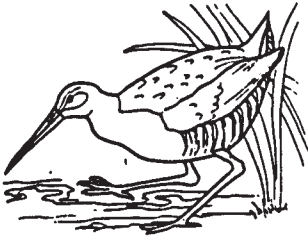


Dunlin

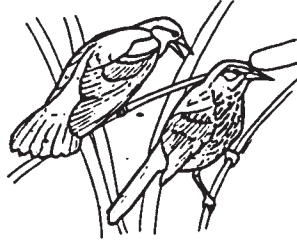


Dowitcher

Birds of the Marshes



Light-footed clapper rail



Red-winged blackbird



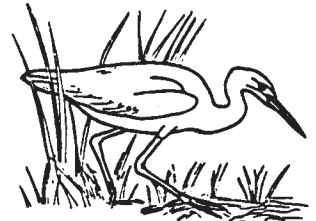
Savannah sparrow



Great blue heron

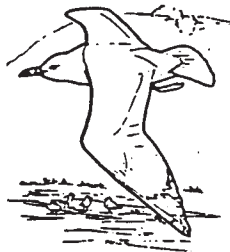


Common egret

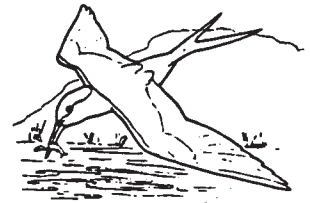


Snowy egret

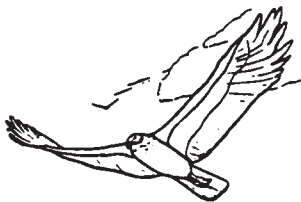
Birds of the Air



Ring-billed gull



Forster's tern



Turkey vulture



Red-tailed hawk

STUDENT ACTIVITY #4

Build a Bird Feeder

Bird feeders are easy and fun to build. They attract many interesting birds!

You can build your own or wild birdseed bird feeder following the directions below. You may ask a parent or teacher to help you.

FEEDER

What you will need:

- pine cone (or empty toilet tissue roll)
- heavy piece of string
- suet or lard
- birdseed or cornmeal

Take a pine cone (any size or shape) or empty toilet tissue roll and tie the string around the top (the excess string length will be used to hang the feeder.) With a butter knife, cover the pine cone or roll with lard. Then, roll the coated feeder in birdseed or corn meal. Hang the feeder outside.

WILD BIRD SEED FEEDER

What you will need:

- empty plastic milk jug
- thin stick (for perch)—about 12” long
- heavy string
- wild birdseed

Cut two 3” square windows out of the bottom third of the milk jug on opposite sides of the jug. Punch a hole (large enough for the stick) just below each window. Push the stick through to make two perches on either side of the jug. Pour wild birdseed in the bottom of the jug. Tie the string around the mouth of the jug and hang the feeder outside.



STUDENT ACTIVITY #5

Become a Backyard Birder

You can watch for birds right from your home or classroom! Here are a few helpful tips to help you recognize the various species of birds you will encounter.

OBSERVING BIRDS

- Ears** – Look carefully for birds any time you are outside or looking through a window.
- Equipment** – Binoculars are not necessary, but they are helpful to see birds that are far away. If you don't have a pair, try making them! Tape two empty toilet paper rolls together lengthwise (you may also use a paper towel roll or plastic wrap roll cut in half). Looking through the rolls will help you to focus on a particular area. Attach string to your new "binoculars" so that you can wear them around your neck when they are not in use.
- Ears** – You can usually hear a bird before you see it. Be sure to be quiet and listen carefully.
- Guide** – A bird field guide is very useful. The local library probably has several field guides to help you identify the birds you see.
- Feeder** – You can build your own feeder using the instructions mentioned earlier in this notebook. A feeder will attract birds so you can observe them in your own area.
- Patience** – A good "birder" is careful, quiet, and willing to wait!

WHAT DO I DO NOW?

Write your observations in a journal or notebook. You may also use this notebook to record any interesting observations about nature. Begin to keep a checklist of birds you have spotted. The Audubon Society can provide a checklist of local birds. Become a "bird brain" by reading more about birds. Use the public library to look for bird field guides, videos, and other information about birds to increase your knowledge.



STUDENT NOTEBOOK PAGE

Plant Journal

List the steps you followed in setting up the plant experiment: _____

What do you think is going to happen to each group of plants? When you make a prediction about what may happen in a scientific experiment, you are forming a **hypothesis**. Write your hypothesis below:

After you have completed the experiment, compare the results to the hypothesis you wrote at the start of the experiment. In the space below, write a conclusion about this experiment. Use the observations you made during the experiment to support your conclusion. (Use the back side of the page, if necessary.)

STUDENT NOTEBOOK PAGE

Plant Observations

	Plant A	Plant B	Plant C
Date _____			
Date _____			
Date _____			
Date _____			

STUDENT ACTIVITY #6

Plankton, Plankton Everywhere

Plankton are tiny organisms that live in the water. Many animals eat plankton so they are a very important part of the food chain!

Plankton are so small that a special instrument is needed to see them. To discover the instrument needed, fill in the blanks below with words that match the definitions provided. Then, turn to the next page and color in the shapes which contain the words you found.

Example: A plant that has adapted to salt water is called pickleweed.

1. A behavior or characteristic that helps a plant or animal survive in the environment.

2. All the living and nonliving things that interact in a particular area.

3. A series of events in which one organism eats another.

4. A tool or other object used by ancient people.

5. A group of plants or animals whose survival is in danger; only a small number of them remain.

6. The study of people from ancient civilizations.

7. An ecosystem where freshwater and saltwater mix.

Plankton, Plankton Everywhere

Soil	Habitat	Pickleweed	Conservation	
Fossil	Zone	Ecosystem		Gabrieleno
	Migration	Artifact		Archaeology
Saline	Midden	Food Chain		
Mud Flat				
Natural Resources			Estuary	Ocean
Photosynthesis	Endangered Species			Adaptation

STUDENT NOTEBOOK PAGE

How to Recycle

HOW TO RECYCLE GLASS

As much as possible, buy returnable or reusable bottles. To prepare glass for recycling, do the following:

- Rinse the glass. You do not need to remove the labels.
- Check with the recycling center to see if you need to remove all metal caps and rings.
- Check with the recycling center to see if you need to separate glass containers by color.

HOW TO RECYCLE PAPER

Newsprint:

- Stack newspaper in a fire-safe area.
- Check with the recycling center to see if newspapers should be tied in stacks, or placed in paper bags.

Other papers:

- Corrugated cardboard – Flatten for easy storage and transportation. Store in a fire-safe area.
- High Grades – (computer paper, tab cards, and ledger paper). Check to see what types of paper the recycling center accepts.

HOW TO RECYCLE ALUMINUM

- Check to make certain the cans are all aluminum.
- Rinse the cans. (You may wish to flatten to save storage and transportation space.)
- Separate aluminum cans from other aluminum products (i.e., TV dinner trays and foil).

HOW TO RECYCLE TIN CANS (These are typical food cans: 1% tin, 99% steel)

- Rinse and remove labels.
- Remove both ends and flatten.

HOW TO RECYCLE PLASTIC

- Check for the recyclable plastic identification code on bottom of container.
- Check for recyclable lids and caps.
- Rinse out containers.
- Take off labels.

HOW TO RECYCLE OTHER MATERIALS

Call your State Waste Management Board or Department of Public Works for information on how to recycle oil, styrofoam, batteries, tires, paint, antifreeze, appliances, or other materials.

Visit <http://www.ciwmb.ca.gov/Recycle/> to locate the recycling centers nearest to you.

STUDENT ACTIVITY #7

Vocabulary Define and Draw

Write the definition of each word on the lines provided in the boxes below. Draw a picture that shows an example of each vocabulary word.

natural resource

migration

food chain

estuary

conservation

STUDENT ACTIVITY #8

Vocabulary Word Match

Match the words with their definitions. Place the letter of the definition to the left of the word with which you match it.

- | | |
|---------------------------------|--|
| _____ Adaptation | A. A living thing that gets energy by eating other living things |
| _____ Archaeologist | B. A guess based on what you know about why something is happening |
| _____ Artifact | C. A tool or object used by ancient people |
| _____ Classification | D. A material found in nature that is useful or necessary for living things |
| _____ Coastal sage scrub | E. An ecosystem where fresh water and salt water mix |
| _____ Conservation | F. The study of ecosystems |
| _____ Consumer | G. A living thing that makes its own food |
| _____ Decomposer | H. An animal's journey to another region due to a change in the season |
| _____ Ecology | I. A behavior or characteristic that helps a plant or animal survive in the environment |
| _____ Ecosystem | J. The grouping of things based on certain characteristics |
| _____ Endangered species | K. A person who studies ancient peoples and civilizations |
| _____ Estuary | L. A pile of trash |
| _____ Food chain | M. A group of plants or animals whose survival is in danger because the population size is small |
| _____ Inference | N. A series of events in which one organism eats another |
| _____ Midden | O. The protections and wise use of natural resources |
| _____ Migration | P. All the living and nonliving things that interact in a particular area |
| _____ Natural resource | Q. Use the senses to learn about objects and events |
| _____ Observe | R. An ecosystem of short, drought adapted soft leafed shrubs, in which California sagebrush is the most common species |
| _____ Producer | S. A living thing that breaks down wastes and dead organisms |

STUDENT ACTIVITY #9

Vocabulary Word Descriptions

Write phrases that describe the words listed below.

Example: nutrients – the chemical building blocks of living things.

Adaptation _____

Archaeologist _____

Artifact _____

Classification _____

Coastal sage scrub _____

Conservation _____

Consumer _____

Decomposer _____

Ecology _____

Ecosystem _____

Endangered species _____

Estuary _____

Food chain _____

Inference _____

Midden _____

Migration _____

Natural resource _____

Observe _____

Producer _____

VOCABULARY

Adaptation	A behavior or characteristic that helps a plant or animal survive in the environment
Archaeologist	A person who studies ancient peoples and civilizations
Artifact	A tool or object used by ancient people
Classification	The grouping of things based on certain characteristics
Coastal sage scrub	An ecosystem of short, drought adapted soft leafed shrubs, in which California sagebrush is the most common species
Conservation	The protection and wise use of natural resources
Consumer	A living thing that gets energy by eating other living things
Decomposer	A living thing that breaks down wastes and dead organisms
Ecology	The study of ecosystems
Ecosystem	All the living and nonliving things that interact in a particular area
Endangered species	A group of plants or animals whose survival is in danger because the population size is small
Estuary	An ecosystem where fresh water and salt water mix
Food chain	A series of events in which one organism eats another
Inference	A guess based on what you know about why something is happening
Midden	A pile of trash
Migration	An animal's journey to another region due to a change in the season
Natural resource	A material found in nature that is useful or necessary for living things
Observe	Use the senses to learn about objects and events
Producer	A living thing that makes its own food