

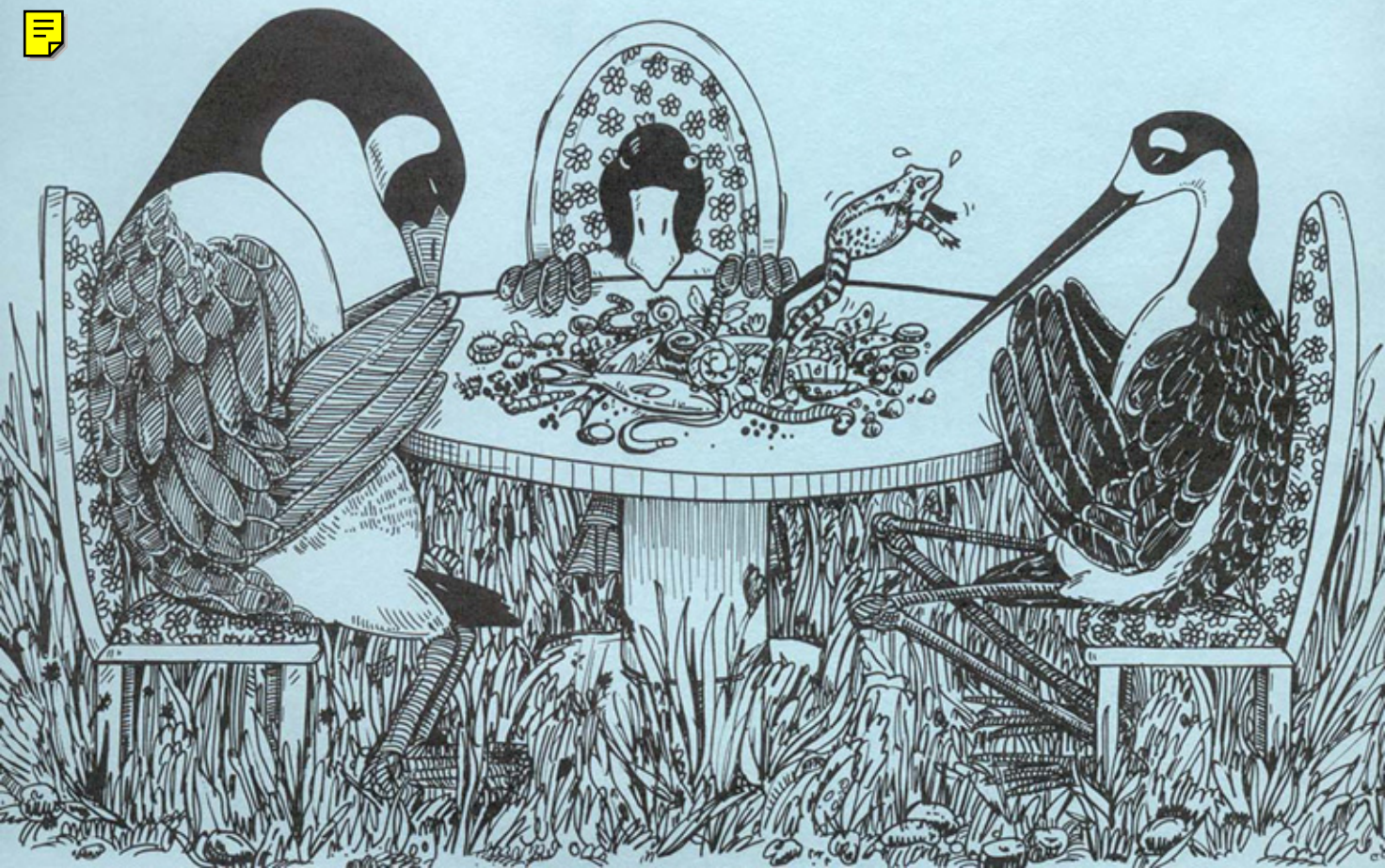
California  
Central Valley Habitat  
Joint Venture

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# Habitat Fun Pack

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Grades 4-6





## Grades 4 - 6

### In This Packet:

#### LANGUAGE ARTS

Habitat Rap Board Game - Rhyming with Raps  
Word Find  
Water Usage - Collage, Family Discussion  
Town Meeting - Oral Presentations  
Fill the Bucket - Brainstorming  
Wetlands Bingo - Spelling, Speaking, Listening  
Vocabulary List  
Word Builder  
Crossword Puzzle  
Word Find - Local Birds  
Break a Leg! - Hidden Words  
Current Book Selections

#### MATH

Where Did It All Go? - Percentage  
The Probability of Pintails

#### ART

Duck Stamp Designing  
Flight - Chalk Art  
Flock of Snow Geese - Mobile  
Following Directions - Origami Bird

#### SCIENCE

Flashcards  
Migration Identification  
Habitat Mobile - 4 Habitat Needs  
Freshwater Marsh Food Web Puzzle  
Put Me in My Place - Habitat Match

#### BACKGROUND INFORMATION

Articles - "Migratory Birds", "Freshwater Marsh",  
"Wetlands"

- ★ *Do you need a warm-up activity this morning?*
- ★ *Is PE over, but it's not quite time for recess?*

As part of the Central Valley focus of the North American Waterfowl Management Plan, these games and activities will supplement your environmental education program, while providing "sponge activities" for those short sections of time that occur during the teaching day.

It is hoped that these materials will create an awareness of waterfowl as a disappearing resource, and a sense of value for the birds and their habitat that remains.







**In the Spring You Better Do  
A Quick About Face  
For Breedin' and Nestin'  
The North's the Main Place!**

Drought  
Back 2

Take the Rap!

Exhaustion  
Back 1

Your babies are  
hatched and now  
they're ready to fly  
south.  
Forward 1

Feed in a farm field  
Get more energy  
Forward 3

The air is getting  
cold. Time to go  
south!

Take the Rap!

Passing the  
Canadian border  
Forward 3

Storm hits  
Lose a turn

Take the Rap!

Dangerous route -  
stormy ahead  
Back 1

Washington

Safe resting spot

Take the Rap! can







are Alberta,  
nada  
ward 2

Disease hits flock  
Back 1

Disease controlled  
by biologists  
Forward 2

Take the Rap!

Habitat is destroyed  
Back 1

Habitat found  
suitable for feeding  
Forward 2

Food is scarce  
Back 1

Good weather  
Forward 1

Banding of birds  
Forward 2

Safe resting spot

Contaminated water  
Back 1

Washington

Take the Rap!

Habitat lost  
Back 5





Good weather  
Forward 1

Oregon

Habitat is lost  
Back 4

Safe resting spot

Leaving California  
Forward 2

Collision with  
powerline  
Back 3

Take the Rap!

Safe resting spot

Wildlife refuge -  
take a break

Go around storm -  
delay  
Back 1

Take the Rap!

Safe resting spot

Take the Rap!

Mother Nature calls  
Time to fly north!  
Forward 1



When Res  
Is All You  
The South  
Better Ge

Sta



Take the Rap!

Blown off course  
Lose 2 turns

Oregon

Storm hits!  
Lose a turn

Poachers!  
Back 3

Take the Rap!

Wildlife refuge  
provides food and  
cover  
Forward 2

Food is scarce  
Back 2

Storm ends  
Forward 1

You made it  
back to  
California!

stin' and Feedin'  
Wanna Do,  
h's Where It's at Man,  
et a Clue!



# HABITAT RAP

## OBJECTIVES:

Students will become acquainted with the concepts of migration, flyway, habitat, and causes of decrease in waterfowl and shorebird populations.

## MATERIALS:

Game Board, Spinner Card, Markers, Instruction and Rap Sheets

## TIME:

About 20 to 45 minutes

## TO PLAY:

Cut rap sheets into cards and place face down on game board. Players start their bird markers in the south and move according to the spinner. The spaces on the board called "Take the Rap" require the oral reading of a Rap Card and movement as indicated on the card. The first player to "migrate" back to California wins.

<p>I fish all day n' sleep all night But somethin' here's a-causin' me a fright. I see more houses n' roads n' malls, Are they gonna leave me any space at all?</p> <p>-2</p>	<p>Great egret is my name snaggin' fish is my game I love them wetlands, yes I do they're good for me and good for you.</p> <p>+2</p>
<p>Did you ever ponder about the times down yonder? And if there's a solution to all of this pollution?</p> <p>-2</p>	<p>I'm Stanley Wigeon and I ain't no pigeon cuz when things get harsh I just head for the marsh.</p> <p>+1</p>
<p>We're at the refuge where the marshes are huge. We're happy ol' Pintails cuz we're dabblin' for snails.</p> <p>+1</p>	<p>Grain in your cereal bowl grain in my tummy I love that grain the farmers grow cuz it's so yummy.</p> <p>+1</p>



<p>I'm a rappin' Mallard Duck but I'm runnin' outta luck. I can't be rappin' like I oughta when they take away the watta'.</p> <p>-4</p>	<p>I'll be home for Christmas if there's a wetland left; if it keeps disappearin' I'll really be bereft.</p> <p>-4</p>	<p>Habitat is where it's at, I gotta find food so I can get fat.</p> <p>+1</p>
<p>The refuge ain't no place to play, the biologists gotta work all day: plantin' food for us birds to get, puttin' in the water so we don't fret.</p> <p>+3</p>	<p>I'm a Northern Shoveler and I think that I'd prefer a nice ol' marshy place without the toxic waste.</p> <p>-3</p>	<p>I'm gettin' kinda sleepy the problem's gettin' huge. The only place that I can rest is on a refuuuuuge.</p> <p>-2</p>
<p>When I wing it to Alaska what I see is shoppin' malls. It don't do me any good to go inside them halls.</p> <p>-2</p>	<p>I'm a Northern Harrier I'm a hawk-like bird. The marsh is where I cruise to lose the hunger blues.</p> <p>+1</p>	<p>Oh, the anticipation of the fall migration. It's a great sensation to fly over the nation.</p> <p>+3</p>
<p>They like to call me Grant I am such a handsome Brant. I fly along the coast cuz the habitat's the most.</p> <p>+3</p>	<p>Sometimes birds can get real sick, a botulism bug can kill us mighty quick. The refuge folks, they study night n' day, they wanna beat the bug... they gotta find a way.</p> <p>-3</p>	<p>New Hampshire and New York ain't really my home, the Pacific flyway is where I like to roam. I rest in the south and breed in the north, when Mama Nature calls, I just gotta go forth.</p> <p>+1</p>



<p>I crave the sanctuaries where I can eat the berries I'll be happy and fat and that's where it's at.</p> <p>+2</p>	<p>I'm a Mallard mama I need some nesting cover to raise my babies I'm a wetland lover.</p> <p>+3</p>	<p>Lots of wetlands have been lost to parking lots and car exhaust. It's just an uptight situation that calls for good ol' conservation.</p> <p>-1</p>
<p>I'm a heron called Great Blue and I'm a-wadin' in the slough tryin' there to sneak some fish into my beak.</p> <p>+2</p>	<p>Don't give me no back-talk jive I need a bunch of stuff just to keep me alive: water and shelter and space and food, I gotta have it all, man, for me and my brood.</p> <p>+3</p>	<p>I'm a shy little Sora I dig thick vegetation If I see you, man, I'm gone with no hesitation.</p> <p>-1</p>
<p>Bugs 'n stuff are my kind of food My name describes my call I'm a neat sort a' dude This Killdeer's on the ball!</p> <p>+1</p>	<p>Pardon my caboose I'm a White-fronted Goose I'm a-comin' here today down the Pacific flyway.</p> <p>+2</p>	<p>When you smell a slough you might think P-U! It ain't a pretty place but it's my very own space.</p> <p>-1</p>
<p>My honking voice is the coolest thing I'm a Canada Goose, and I'm on the wing I graze in the grass, and I swim the lake I'm a big, cool bird, and I ain't no fake.</p> <p>+5</p>	<p>An American Wigeon...I'm a knock-out bird You might think my call is a bit absurd I'm pretty fancy, but my wife is not Our friends all flock together, we like 'em a lot.</p> <p>+3</p>	<p>A wildlife refuge is a heck of a show But too much stompin' through the place makes the birds get up and go. It's hard to figure out what really is the best: let the people see the birds or let the birds take a rest.</p> <p>+1</p>

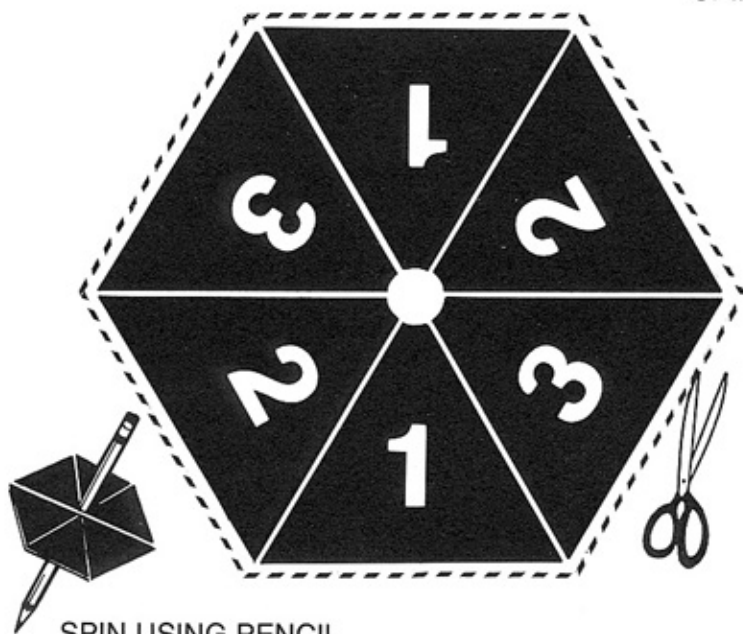


## HABITAT RAP SPINNER

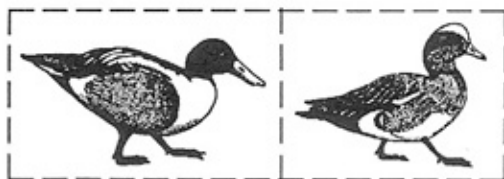
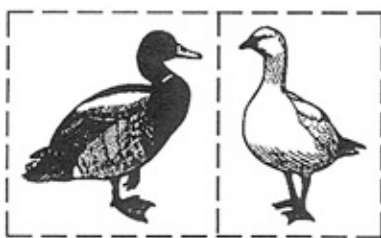
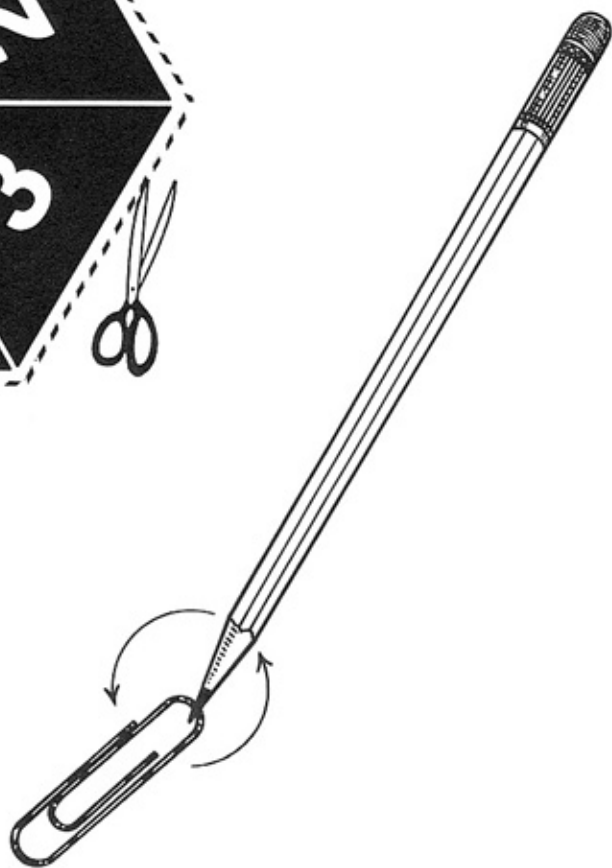
### TO USE:

Put a pencil point through the end loop of a paper clip. Hold pencil firmly in the center of the spinner, and flick the paper clip to make it spin.

SPINNER



SPIN USING PENCIL

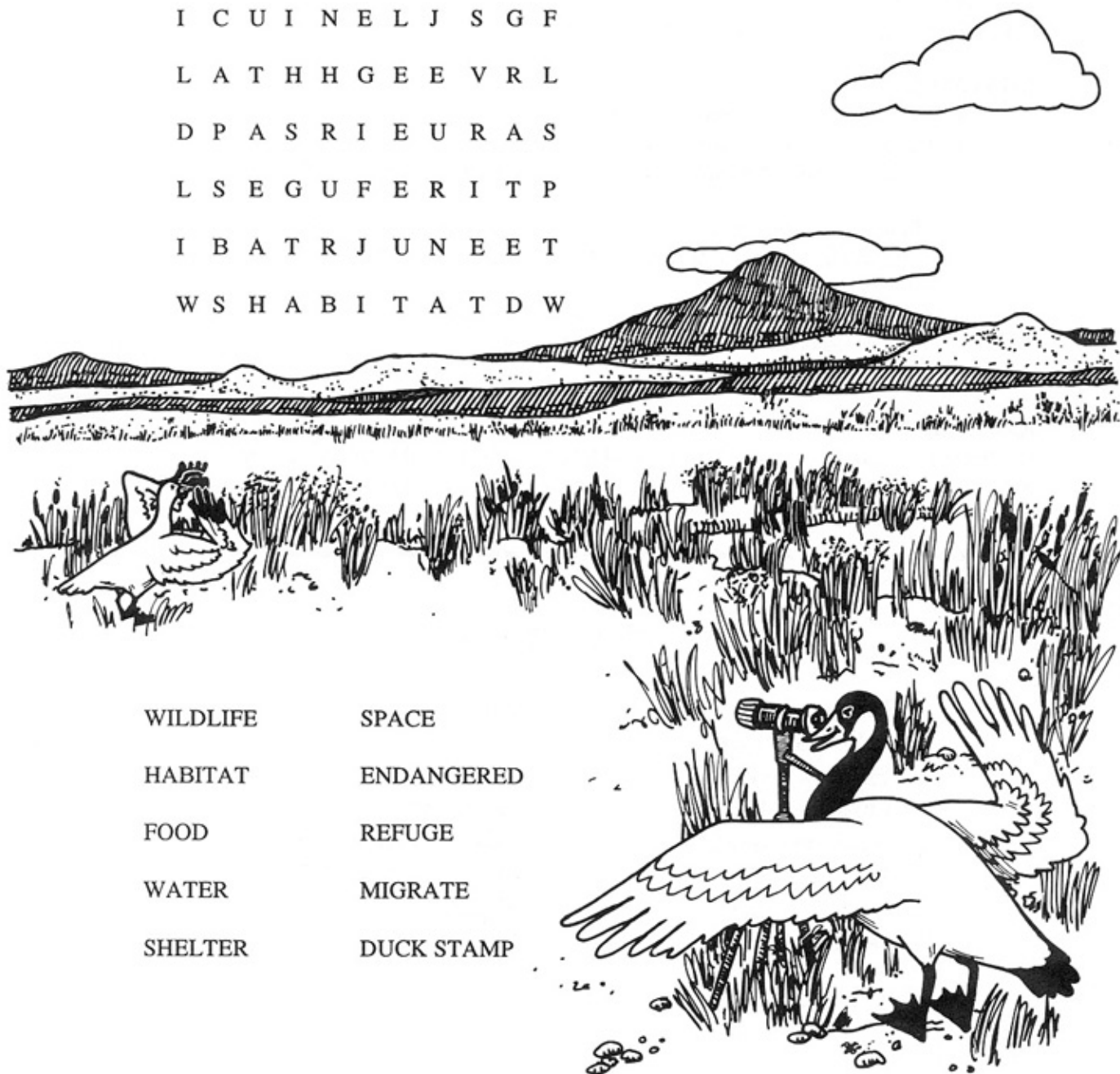




Name \_\_\_\_\_

## FIND THE WORDS

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



WILDLIFE

HABITAT

FOOD

WATER

SHELTER

SPACE

ENDANGERED

REFUGE

MIGRATE

DUCK STAMP



## WATER USAGE

### WATER WORDS

#### OBJECTIVE:

Students will be able to describe a variety of ways and reasons why water is important to people and wildlife.

#### HOW TO GET THERE:

Students brainstorm, make collages, and carry out family discussions on water usage and conservation.

#### MATERIALS:

Large pieces of paper, magazines, scissors, and glue

#### GO FOR IT!

1. Students discuss all purposes for water.
2. Working in teams, students cut out magazine pictures of water, looking especially for pictures that show how all living things need water.
3. Still in teams, students construct a large collage of overlapping water pictures on one large piece of paper. Display on bulletin board.
4. Final Discussion: Challenge students to think of all the ways they have used water during the day. Stress the importance of water.

#### ASSIGNMENT:

Duplicate the chart below on tagboard. Send it home to be posted for a few days and discussed by the family. Have students bring back a *list* from home of the ways they could conserve water if there was a shortage.

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### CAN YOU BELIEVE IT?

Taking a bath	30 gallons
Taking a shower	25-30 gallons
Filling a sink	1-2 gallons
Flushing a toilet	4-6 gallons
Washing clothes	30-50 gallons per load
Washing dishes	6 gallons per load
Washing a car	60 gallons
Watering a lawn	100-200 gallons per hour

## WHAT WILL HAPPEN TONIGHT? - A Town Meeting

### OBJECTIVES:

Students will gain knowledge of conflicting interests when public policy is being formed. This will be done as the students participate in a public process to decide how land is to be used.

### MATERIALS:

Identification cards for each presenter, and a permit for the City Council to hold

### TIME:

About 20 to 40 minutes for the presentation

### READ TO YOUR CLASS:

Mom and Dad are worried. Whenever there is a town meeting, it causes such a fuss that no one gets anything done for at least three days before and after it happens.

The last open area near the town might be sold - the old marsh. Fifteen acres of it would be sold to Dan the Developer for a shopping center, like the one on the other side of town. It will have department stores.

Everyone around \_\_\_\_\_ (your town) remembers growing up with the marsh nearby. It was always good for a great adventure or two, even if Mom didn't appreciate the bugs and frogs you brought home in a jar. You were even successful in raising the tadpole eggs to frogs if you remembered to replace the pond water often enough. You fed the ducks that gathered there in the winter months. Even though you fed them slowly, the seed seemed to disappear long before you were ready to go home. The marsh was a great place.

It sure will be hard to see the old marsh go, but Dad said it would be good for business to have some new stores. Plus, you wouldn't have to ride your bike all the way into town. It would be a lot easier.

I wonder what will happen at the town meeting tonight? People want to know if Dan will get a permit to use the land the way he wants to. This might be the last year for tadpoles.



**THE PLAYERS:**

*Barbara the Biologist* - from the Department of Fish and Wildlife

*Dan the Developer* - missed his flight and is late to the meeting

*Mr. Bird* - represents the Bird Watchers' Society

*Mr. History* - from the Historical Society

*Pam the Planner* - from the town planning office

*Ms. Politician* - running for mayor

*Sam the Sportsman* - represents those who hunt and fish in the marsh

*Brenda the Businesswoman* - represents the local business community

*City Council* - will decide the best use for the land, and give the permit to Dan if the members (3) agree with the plan

*Citizens* - both happy and upset; all are interested and full of questions

*Timekeeper* - to keep everyone short-winded - 2 minutes each for the presenters

**PRESENTATION:**

Each presenter will have 2 minutes to deliver a short speech. Emphasis is on the power of a few well-delivered sentences.

**QUESTIONS FROM THE AUDIENCE:**

As long as order prevails

**DECISION TIME !**

After the presentations and any comments from the audience, the City Council adjourns to take a short break and make its decision. The decision is announced.

**DE-BRIEFING:**

"Now we have to step back from our role-playing. We are the \_\_\_\_\_ class from \_\_\_\_\_ (school). I want you to think about certain things:

1. What additional information would have helped you plan your speech?
2. Where would you go to get this information?
3. Who were the leaders during the City Council Meeting?
4. Were you assigned to speak for a group you don't agree with?  
(Point out that other people have different needs and ideas, and this might be a way to identify them.)

Simulation games like this one do three things:

1. Clearly explain a problem - The problem we discussed was \_\_\_\_\_.
2. Show us that things can influence a decision. What things?
3. Show us that there are people interested in the decision. Groups interested in our decision would be: \_\_\_\_\_."

## Barbara the Biologist

Remember Barbara, you stand for the fish and wildlife of the area.  
You represent the creatures who cannot speak for themselves.

Could the marsh area be left alone as habitat for the birds?

The ducks use the marsh ponds in the winter and spring when it is  
too cold to stay up north in Alaska, Canada, Washington and Oregon.  
Curlews, killdeer, stilts and avocets love to hunt for food in the mud,  
and the geese love the grassy areas.

Remind people that the marsh is home for many other kinds of fish  
and wildlife too.

Long live the wildlife!



## Dan the Developer

Remember Dan, you stand for all the investors from San Francisco.

They will put a lot of money into this project. They expect you to convince the people of the town, especially the City Council, that the shopping center will bring jobs for the town and better and easier shopping for the people.

The town has really grown. It needs a shopping center on the north side of the town.

You and your investors will all make a good profit if the shopping center is built.

Go for it!

## Mr. Bird

Remember Mr. Bird, your wonderful birds are in danger. As this year's president of the Bird Watchers' Society, it is up to you to save them!

If Dan the Developer puts in that shopping center, not one bird will return to the area. All that habitat will be lost forever.

Not only are there very few areas left for the birds, there are very few places left for people to watch birds and enjoy nature and the outdoors.

Hang in there for your birdwatcher friends and your feathered friends!



## Mr. History

Remember Mr. History, that you stand for all the old places that are left in this town, and, there aren't many left.

The first family to settle in the area built their barn on the edge of that marsh, and it is still standing today.

That barn is over 100 years old and should be preserved in some way, not torn down.

And of all the bad luck, it is on the piece of land that may be sold to Dan the Developer. There is no way he is going to let the barn stand. You've got to convince the City Council members to grant the permit ONLY if the barn can be saved.

Mr. History, fight for the past!

## Pam the Planner

Remember Pam, you are to look at all of the town's needs, because your job is to help find the best solution for all of the town's citizens.

The town really needs the new jobs the shopping center will bring.

However, you also have to think about all of the new roads a shopping center will require. How will the town pay for them?

The town needs to clean up the river which flows by the marsh and on into town. The marsh could be a natural water filter to remove silt and absorb pollutants. Does the marsh provide other benefits people are forgetting?

Is there a way to build the shopping center so that all of the marsh won't be lost?

Pam, the City Council members want to know what you think, so think hard.



## Ms. Politician

Remember Ms. Politician, that you want to represent the town as mayor next year, so you had better start lining up the votes now!

How can you stand for both the shopping center, which will put more people to work, and the people like Mr. Bird, who has all of his bird-watcher friends ready to vote for your opponent.

So, just think of a plan that will make Dan and the nature lovers happy.

Now is the time to show this town what a leader you can be!

## Sam the Sportsman

Remember Sam, you represent all of the people of the town who like to fish and hunt in the marsh.

Men and women interested in outdoor sports such as hunting and fishing want to protect natural areas where fish and wildlife live.

There are fewer and fewer places to go and enjoy these activities with your children or friends.

You want to save those places that are left.

You represent local businessmen and women and you want the town to grow and prosper.  
The shopping center would bring jobs and money into the town, and you think that would be good for everyone.  
You support Dan the Developer and want the shopping center built.

Brenda the Businesswoman



## City Council Member

Remember City Council member, that you were elected by the people of the town to represent them - all of them.

You must listen carefully to all the speakers and people from the audience before you decide whether to grant the permit to Dan.

You might grant the permit only if some changes are made in the plans. What would those changes be? If you give him the permit so the sale can go through, you had better be ready with good reasons why.

The town is waiting for your answer.

## Timekeeper

Remember Timekeeper, the folks at the town meeting are going to be excited.

It is your job to see that each of the eight speakers does not go over the time limit of *2 minutes* each.

Questions from the audience should be short - about 20 seconds each.

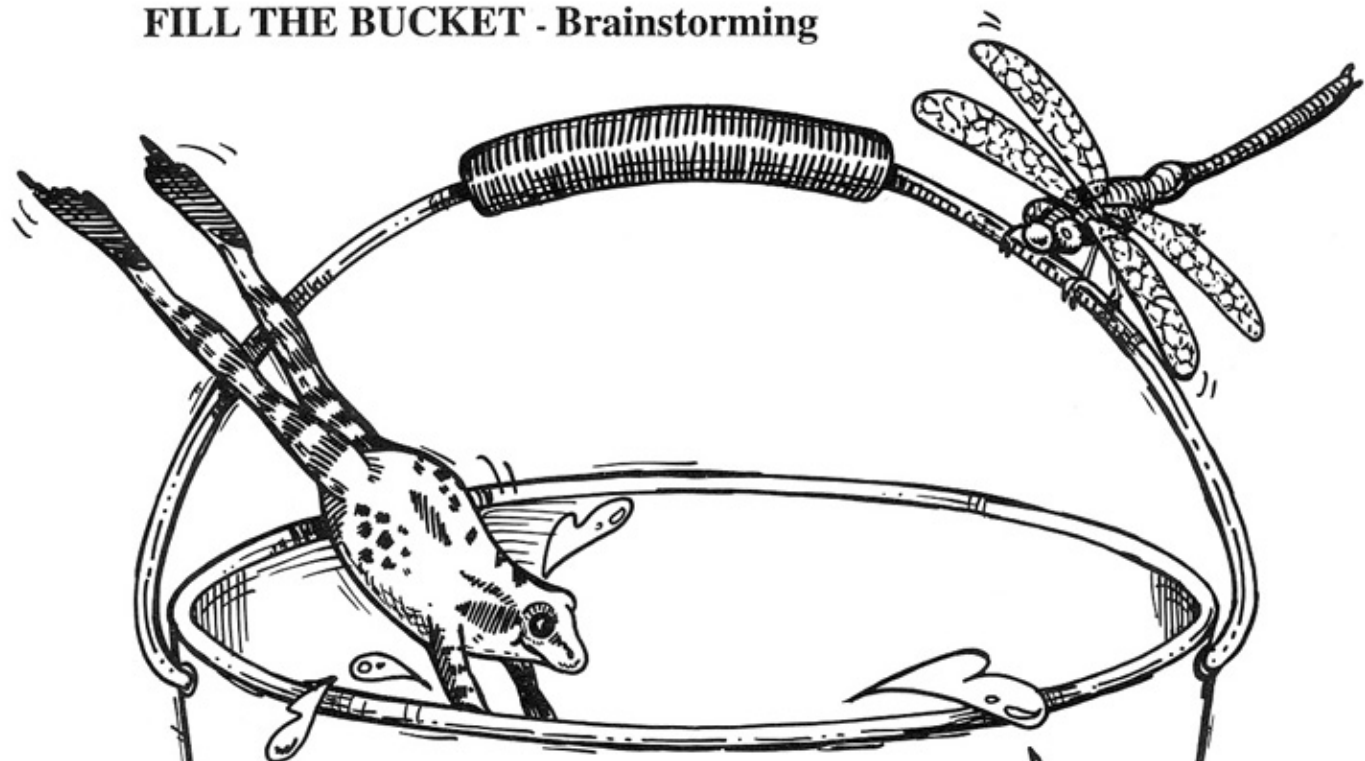
The City Council members are counting on you to help keep order tonight.

Good luck!!

Permit



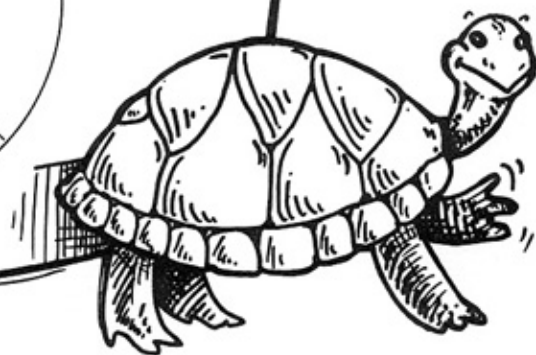
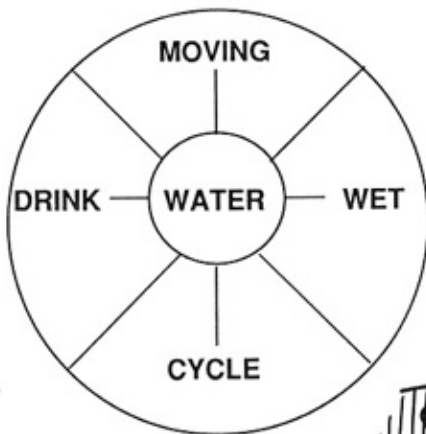
## FILL THE BUCKET - Brainstorming



Draw a huge bucket on the board. Challenge the class to fill the bucket with words that have something to do with water, including its importance to people and wildlife.

As you go, keep students stretching into new areas by suggesting examples and categories of ideas if they get bogged down.

Using the list of words, ask the students to create water wheels. Begin with a simple water wheel like this:



# WETLANDS BINGO

You start it - the class continues

## OBJECTIVE:

Students will see, hear, write, say, and spell wetlands vocabulary.

## MATERIALS:

Pencils and paper

## GO FOR IT!

1. Put these wetlands words on the board or the overhead projector:

marsh	wildlife	habitat	food
water	shelter	space	soil
fish	swim	dive	fly

Also use the words from the VOCABULARY LIST on page two of this activity, and add other words as the class thinks of more.

2. Students write any five words on their papers. Give about two minutes for quiet study.
3. Slowly, call out the words (but not in order), and mark them off as you go. When a word on a student's paper is called, the student marks off the word.
4. After a student has marked off all five words, he/she jumps up and shouts "BINGO!" The words on the paper must be checked and spelled correctly out loud. Then the student is up and the game begins again.

As the teacher, you are the first one up. Then sit back and relax!

## **VOCABULARY LIST**

**4-6**

**HABITAT** - A balance of food, water, cover, and space which satisfies animals' needs for life

**WETLAND** - A place where the soil is always moist or covered with water

**MARSH** - A type of wetland where water lilies and cattails grow

**ESTUARY** - A place where fresh water and salt water come together

**UPLANDS** - Slightly elevated dry lands

**WILDLIFE** - Large or small animals that are not domesticated

**WILDLIFE REFUGE** - An area set aside by the government to be managed on behalf of the wildlife living there. Management includes planning, repairing, and improving the animal habitats, and teaching people about wildlife.

**MIGRATION** - Movement of birds between their breeding and wintering grounds

**FLYWAY** - A path birds travel when migrating between their breeding and wintering grounds

**ORGANISM** - A living creature

**SPECIES** - A group of animals that are mostly alike and can produce offspring

**ENDANGERED** - A certain species in danger of disappearing from the earth

**DEVELOPMENT** - Land that has been changed by man through farming, dredging, or the construction of roads and buildings. Land that is being used in a new way

**RESOURCE** - Part of our natural surroundings that we value and use

**CONSERVATION** - A careful protection of our natural resources so that they can be available in the future

**POLLUTION** - Occurs when people put unhealthy materials into the environment

**ECOLOGY** - The study of how organisms live and act in their environment



## WORD BUILDER

Name \_\_\_\_\_

How many words can you make from.....

### HABITAT IS FOR THE BIRDS!

1.

6.

2.

7.

3.

8.

4.

9.

5.

10.

Think of more!

11.

16.

12.

17.

13.

18.

14.

19.

15.

20.



## CROSSWORD PUZZLE

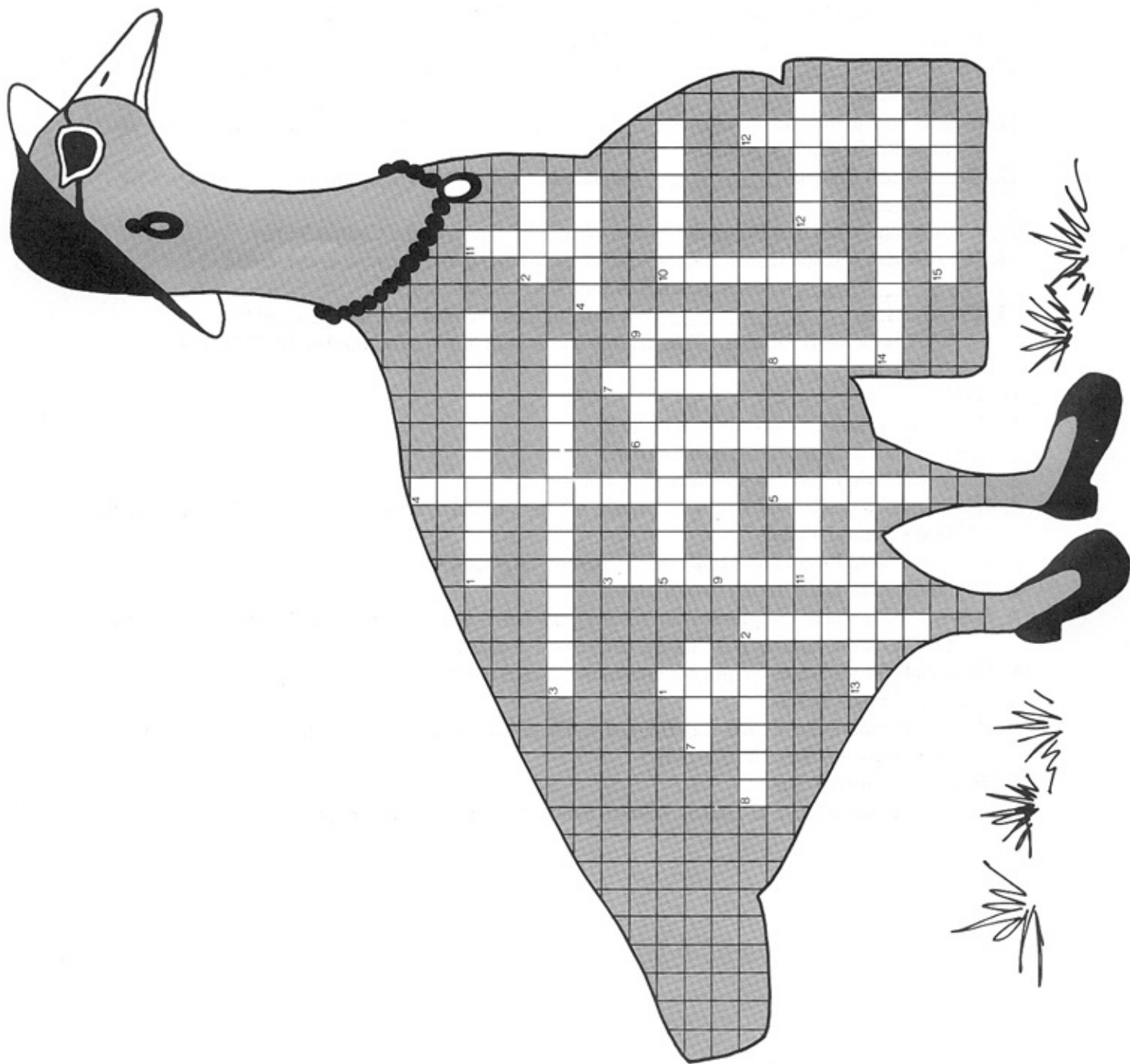
...See clues \*\*

### ACROSS

1. This state provides one of the great wintering areas for birds along the Pacific Flyway.
2. To give assistance
3. This area has suffered a 95% loss of wetlands over the last 100 years. This is more than any other major ecological unit has lost in the entire North American continent.
4. The object of our efforts
5. An area set aside for the preservation of wildlife and its habitat
6. A wetland that is dominated by \*\*shrubs or trees-(Head for the dictionary. This is tough.)
7. \_\_\_\_\_, water, cover, and space are needed for waterfowl habitat.
8. Waterfowl need food, water, \_\_\_\_\_, and space for their habitat.
9. We have to \_\_\_\_\_ about our wildlife resources.
10. The American \_\_\_\_\_ is seen in great numbers as it winters all through California.
11. Restrictions on hunters are only one \_\_\_\_\_ that is used in the efforts to preserve and increase the duck population.
12. The Aleutian Canada \_\_\_\_\_ migrated eastward 1,000 miles before setting course for California.
13. A compound word describing the swans, geese, and ducks of the Central Valley
14. The Aleutian Canada Goose and the tule white-fronted goose are now considered to be \_\_\_\_\_ species because of their decrease in numbers.
15. The American \_\_\_\_\_ is a loud, aggressive bird with an upcurved bill.  
(\*\*Check the flashcards. Then double check your answer for number 10 ACROSS.)

### DOWN

1. What action can you perform with water?
2. The place where a species is usually found
3. Many wetlands are lost to this kind of development.
4. Government agencies working with private groups and citizens to save the remaining bird habitat in the Central Valley
5. A route from California to Alaska that is used by migrating birds
6. Migration takes place during two of these.
7. Soft-stemmed plants and grasses and rushes grow here - also cattails, water lilies, and duckweed.  
(\*\*Check out number 6 ACROSS before you decide.)
8. Birds that like the water but are not considered "waterfowl" live on the \_\_\_\_\_.
9. An animal taken as food
10. An area that periodically has waterlogged solids or is covered with a shallow layer of water.  
(\*\*Look at number 10 ACROSS.)
11. Possessive form of "they".
12. The right to use a piece of land as wildlife habitat without owning the land



# WORD BANK

POUR  
 WATERFOWL  
 JOINT VENTURE  
 BIRDS  
 MARSH  
 REFUGE  
 CENTRAL VALLEY  
 THEIR  
 CARE  
 SHORE  
 WIGEON  
 EASEMENT  
 AVOCET  
 FOOD  
 AGRICULTURE  
 HELP  
 TOOL  
 WETLAND  
 ENDANGERED  
 COVER  
 CALIFORNIA  
 FLYWAY  
 SWAMP  
 PREY  
 GOOSE  
 HABITAT  
 SEASONS



NAME \_\_\_\_\_

WOOD DUCK  
STILT  
SNOW GOOSE  
COMMON FLICKER  
SANDHILL CRANE  
WARBLER  
NORTHERN PINTAIL  
GREAT BLUE HERON  
HARRIER HAWK  
KINGFISHER  
AMERICAN BITTERN  
AMERICAN WIGEON  
WESTERN MEADOWLARK

CURLEW  
MALLARD  
AVOCET  
GREAT EGRET  
RING-NECKED PHEASANT  
PIED-BILLED GREBE  
KILLDEER  
CANADA GOOSE  
WHITE-FRONTED GOOSE  
CALIFORNIA QUAIL  
RUDDY DUCK  
RED-WINGED BLACKBIRD  
NORTHERN SHOVELER

# CENTRAL VALLEY BIRDS

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

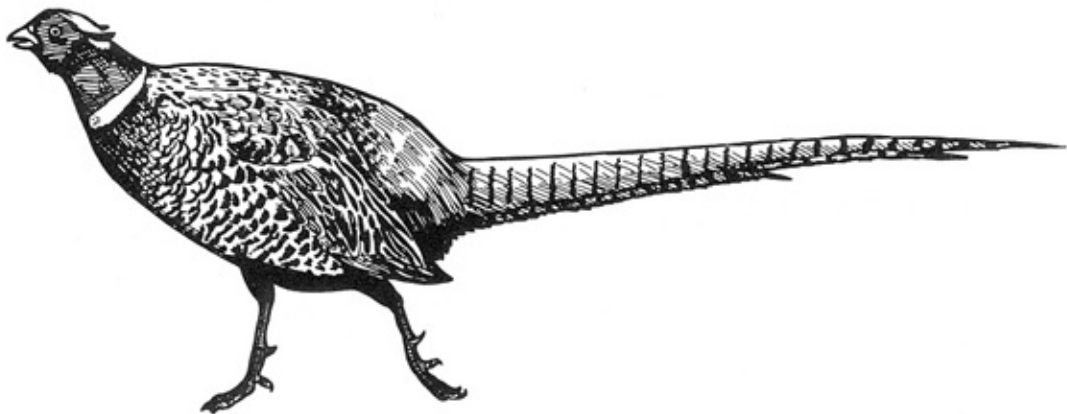
NAME

## BREAK A LEG!

Can you find the hidden Central Valley birds? Good Luck!\*

\*GEESE is hidden in #1

1. GEE, SEAN, YOU'RE JUST NOT RIGHT FOR THE ROLE.
2. NOW, DON'T GIVE ME ANY LIP. HE, AS ANTELOPE AL, WILL BE PERFECT FOR THE PART.
3. AH, AWKWARD LINES ARE HARD TO MEMORIZE.
4. ACCORDING TO THE SCRIPT, THE CROWD, IN PANIC, RAN EVERYWHERE.
5. THE SPOTLIGHT PICKED UP THE INJURED FATHER ON THE STAIRS.
6. "OGRE, BEGONE!" THE ACTRESS CRIED OUT.
7. DON'T START THE FINAL REHEARSALS 'TIL THE DIRECTOR GETS HERE.
8. THE STAR SENT REGRETS THAT HE COULDN'T ATTEND THE OPENING.
9. THE LIGHTS FLICKERED, THE CROWD BECAME QUIET, AND THE PLAY BEGAN.
10. NOW, THE PLAYERS WANT A BIG PARTY TO CELEBRATE THE GREAT REVIEWS!



(Cut this part off if you want to give them a real challenge.)

### WORD BANK:

CROW  
HAWK  
GREBE  
FLICKER

GEESE  
CRANE  
STILT  
SWAN

PHEASANT  
HERON  
EGRET

## CURRENT BOOK SELECTIONS

4-6

### ***FOR INFORMATION:***

Birds of Prey, Nature Watch Series, 1988  
Bird's Nest, Barrie Watts, 1987  
Swans, Jack D. Scott, 1987  
The Call of The Trumpeter Swan, Jay Featherly, 1986  
Adaptable Birds, John Andrews, 1985  
Birds, David Cook, 1985

### ***FOR FUN:***

Simon the Swan, Cicely M. Berker, 1989  
Sea Swan, Kathryn Lasky, 1988  
Oliver and the Lucky Duck, Page McBrier, 1986  
The Pheasant, Kimio Endo, 1986

### ***Also see older books:***

Commander the Gander, David McKelvey, 1984  
The House of Wings, Betsy C. Byars, 1982  
Compass Merit Badge Book, Boy Scouts of America, 1981  
A Field Guide to the Birds, Roger Tory Peterson, 1980  
Birds and How They Function, Phillip S. Callahan, 1979  
Habitat Guide to Birding, Thomas P. McElroy, 1974  
The California Wildlife, Vinson Brown & George Lawrence, 1965

## WHERE DID IT ALL GO? ... A Chalk Talk

California's Central Valley once had four million acres of wetlands. This area has declined drastically. In the past 100 years 95% of California's Central Valley wetlands have been lost. The main cause of the decline has been the change from wetlands to agriculture. There are 100,000 acres of state and federal refuges and wildlife management areas and about 180,000 acres of private lands left in remaining wetlands.

One Mile = 5,280 feet

One Square Mile = (     ?     )     27,878,400 ft.

One Acre = 43,560 square feet

There are 640 acres in one square mile     (27,878,400 / 43,560)

QUESTION: How many acres are left in the Central Valley?  
280,000 - See above

How many square miles of wetlands are left?  
About 438 square miles - 280,000 / 640

This figure represents the 5% that is left.

QUESTION: How many acres were there 100 years ago?

$$5\% = 280,000$$

$$280,000 / .05 = 5,600,000 \text{ acres}$$

QUESTION: How many square miles of wetlands were there 100 years ago?

$$5,600,000 / 640 = 8,750 \text{ square miles.}$$

QUESTION: What state is close to that size?  
(Head for the encyclopedias or an atlas.)



## The PROBABILITY of Pintails

Many things are possible, but the chances of some things happening are even better than that. They are **probable**. We learn about **probability** in math, and it is shown as a fraction.

2 blue marbles  
1 white marble

When you reach in the marble bag  
the probability of getting a blue  
marble is  $\frac{2}{3}$ . A white marble?

When we look at percentage (comparing by the 100, or **per** 100), we can also see probability. Look at the different kinds of ducks seen on one wildlife refuge:

Pintails	36%
American Wigeon	20%
Green-winged Teal	16%
Mallard	11%
Northern Shoveler	10%
Unidentified	7%

The probability of a duck at this refuge being a pintail is 36 out of 100, or  $P = \frac{36}{100}$ .

## DUCK SPOTTINGS

Now, use a calculator to look for ducks.

If there were 12,000,000 duck spottings (sightings), how many of them would be:

Pintails?	$\frac{36}{100} \times 12,000,000 = \underline{4,320,000}$
American Wigeon?	2,400,000
Green-winged Teal?	1,920,000
Mallard?	1,320,000
Northern Shoveler?	1,200,000

Name \_\_\_\_\_

## DUCK STAMP DESIGNING

Hunters buy a ticket to hunt. Other people who are also interested in birds buy it too. The ticket is called a Duck Stamp, and the money from selling the stamp buys land for the birds. Draw your own Duck Stamp here:

