

Life Along the Santa Cruz River

A 1st-3rd Grade Teacher's Guide

P.A.R.K.S.

Parks as Resources for Knowledge in Science

The Santa Cruz River, Its People and Environment

A 1st-3rd Grade Teacher's Guide

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Friends of the Santa
Cruz River



U.S. Fish and Wildlife Service

Acknowledgments

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To our sponsors, the Exxon Corporation and the National Park Foundation for providing the funds to make this worthwhile idea a reality, and for providing the funds to carry it out; the Tumacácori Mission Land Development Ltd. for allowing us access to and use of the river; the Kazaam Nature Store in Patagonia for their aid in purchasing quality binoculars; the U.S. Fish and Wildlife Service who provided funds through a Partners in Wildlife grant to fence and develop a ten-acre study site.

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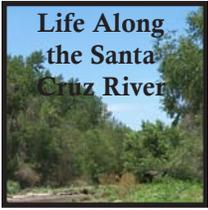
To Santa Cruz Valley unified School District No. 35 for its support, encouragement and permission to work with local schools.

And to the many others who provided valuable support and assistance in the preparation of this Guide, thank you.

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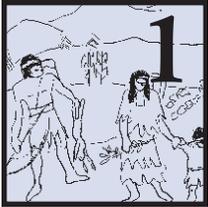
**Whereas all activities may be photocopied for educational purposes,
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UNIT 1: THE O'ODHAM



Introducing the O'odham

Students will learn about the O'odham culture through listening to a traditional story, participating in a simple O'odham language lesson and creating a craft "weaving" activity.

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Life in an O'odham Village

Students will learn about traditional O'odham village activities through a cut and paste project. They will discuss different ways the O'odham used their resources and then create sentences describing the different resource-related activities portrayed.

Page 1.11

UNIT 2: THE APACHE



The Story of the Apache People

Students will learn about the Apache People and their culture through listening to and reading an essay. They will summarize their reading by drawing a picture, then compose and answer questions regarding the assigned reading.

Page 2.3



The Apache Way

Through participation in one or more activities, students will experience their local environment first-hand while learning about how the historical Apache people related to nature.

Page 2.7

UNIT 3: THE MEXICAN-AMERICANS



Fiesta

Through the creation of a traditional fiesta, students will gain understanding of the Mexican-American people and culture. Activities include celebration, history, writing, music and food.

Page 3.5



A Gift From Father Kino

Through listening to a story and by doing a matching activity, students will classify food items, compare and contrast "introduced" versus "native" goods and discuss how these goods both helped and hurt the Indians and the environment.

Page 3.11

UNIT 4: TREE OF LIFE



Dress a Tree

Students will participate in an art activity in which they will learn about different parts of a mesquite tree, their functions and uses.

Page 4.5



Mesquite House

Students will learn about the inhabitants of, and their relationship to, a mesquite tree while participating in a cut-and-paste art activity.

Page 4.9

UNIT 5: RIVER CRITTERS



Santa Cruz River Cards

Students will learn to identify and/or review the general characteristics of various mammals, birds, insects, arachnids, reptiles, and amphibians found along the Santa Cruz River.

Page 5.3



Santa Cruz River Bingo

Through playing bingo, students will learn to recognize and identify various mammals, birds, insects, arachnids, reptiles, and amphibians found along the Santa Cruz River based on their general characteristics.

Page 5.17

UNIT 6: "BASURA," ALIAS TRASH



Trash: Can We Live With It?

Students will participate in a simulation game that demonstrates the effect trash has on people and the environment.

Page 6.3



How Long Does Litter Last?

Students will be made aware of different types of pollution and the problems caused by litter and how to correctly dispose of it.

Page 6.5

CLASSROOM SLIDE SHOW PRESENTATION



The Santa Cruz River and Its People

Students will participate in an interactive ranger-led slide show. The presentation will take place in school classrooms and will emphasize natural history, cultures and how each influenced and affected one-another.

Page 7.1

Foreword

For many years, the Friends of the Santa Cruz River organization has been involved in environmental education efforts and has sponsored many events such as river day camps, tours, school presentations and clean up days. With further involvement and support from the staff at Tumacácori National Historical Park, more effort has been given to providing education regarding the river, resulting in on-going school programs. This partnership led to a generous grant from the Exxon-Mobil Corporation and the National Park Foundation, essentially forming a “marriage” between the park with its cultural resources, the Friends of the Santa Cruz River organization, and the river.

The grant is funding the creation of a curriculum under the program known as P.A.R.K.S. (Parks as Resources for Knowledge in Science) and is geared to local K-12 schools. The program is designed to teach students about the river’s ecosystem, the local historical cultures and their reliance on the river, and how they affected the environment. It is also designed to encourage respect and stewardship for the river and its resources. The full curriculum consists of activities for four grade levels: a second grade teachers’ guide and classroom slide presentation; a fourth-grade teachers’ guide, slide show and field-trip; a seventh-grade unit using birds as a theme to explore the area’s cultural and natural history; and a high school monitoring program studying the condition of and impacts upon the river.

The P.A.R.K.S. teachers' guide offers activities specifically focused on the Santa Cruz River and its local cultures. It has information, resources and activities that will inform and allow teachers to focus on the local environment and historically related cultures, and will enhance the study of science and history. Because it is locally based, it introduces students to the beautiful environs in our own back yard, and will be able to instill pride and appreciation for the place we call our home. The ultimate goal of the curriculum is to create informed future citizens that love and care for the place in which they live, for generations to come.

The Lessons in this guide cover aspects of the river and culture appropriate to second-grade level. The thematic skills included are: social studies, environmental science, multicultural education, art, and critical thinking. The teachers’ guide is grouped into six units, each with two lessons. Although each lesson can stand alone, they can also be used as introductory and follow-up activities. Consider using the first lesson in each unit to introduce themes and concepts and the second as a reinforcement or evaluation activity.

Note about this Guide

This teachers' guide is available free to schools, and for extended loan to all teachers in the following districts and schools: Santa Cruz Valley Unified School District No. 35 and Nogales Unified School District, and Continental, Little Red, Patagonia, Sahuarita, Sonoita, and Sopori elementary schools. Educators outside of this area may borrow the book at any time and photocopy any part of it. Copies are available at Tumacácori National Historical Park for the cost of copying.

For more information contact:

Tumacácori National Historical Park

P.O. Box 67, Tumacácori, AZ 85640

(520) 398-2341, extension 0

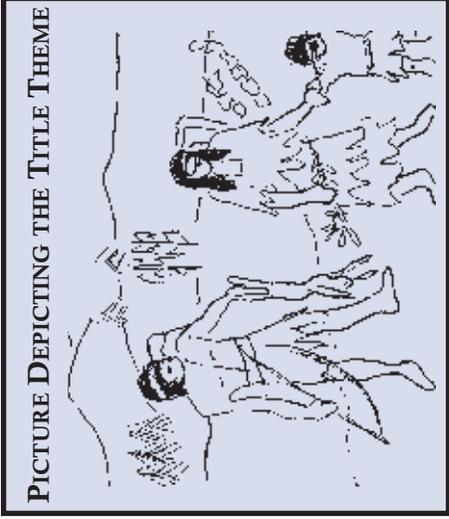
tuma_interpretation@nps.gov

or

www.nps.gov/tuma

HOW TO USE THIS GUIDE

Units are Formatted as Follows:

UNIT NUMBER	
UNIT TITLE	
	
PICTURE DEPICTING THE LESSON	LESSON TITLE The first lessons of each unit will introduce students to the general theme and concepts.
	Page #
PICTURE DEPICTING THE LESSON	LESSON TITLE Follow-up lessons of each unit will emphasize unit theme and concepts, and may be used as an evaluation tool to assess students.
	Page #

UNIT # - TEACHER BACKGROUND INFORMATION	
The short introductions will give teachers the background information they will need in order to complete the lesson. It is by no means a complete study on the subject matter.	The Teacher Background Information is written for the teacher rather than the student. It <u>should not be read to students</u> , but rather, used to gain information that can be conveyed to the students during the lesson.
Take the necessary time to review this information before starting each lesson.	

HOW TO USE THIS GUIDE

Lessons are Formatted as Follows:

	LESSON OVERVIEW A brief outline of the general theme and concepts as well as a description to help accomplish the lesson. It is useful for scanning different lessons.
Subjects Lessons are primarily science or social studies related, though other disciplines may be covered (art, etc.). Standards National Standards will be listed here, while Arizona State Standards will be listed on Pages v - vii. Objectives Measurable student outcomes. Preparation Includes a list of materials and steps needed to prepare for the lesson. Time The estimated amount of time it will take to complete the lesson. Vocabulary A list of key or foreign words.	LESSON TITLE TEACHER BACKGROUND INFORMATION <ol style="list-style-type: none">1. Step by step instructions.2. Numbered and clearly written.3. Augmented by graphics and other useful information.  <div data-bbox="1023 1081 1421 1375">Enrichment<ul style="list-style-type: none">- Suggestions or other activities appropriate to further study lesson concepts or themes.- Located at the end of the activity instructions.</div>

LESSON # - LESSON TITLE - MASTER PAGE #	MASTER PAGES Master Pages contain activities that are essential to complete the lesson. In most cases, they are student worksheets and will need to be photocopied. Sometimes a teacher copy is sufficient.
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STATE OF ARIZONA - SCIENCE STANDARDS

ACTIVITY	AZ State # 1 N.S.T.A. A SCIENCE AS INQUIRY	AZ State # 2 N.S.T.A. G HISTORY AND NATURE OF SCIENCE	AZ State # 3 N.S.T.A. F SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES	AZ State # 4 N.S.T.A. C LIFE SCIENCE	ARIZONA STATE SOCIAL STUDIES STANDARDS (See Page vi)
UNIT 1 1. Introducing the O'odham					History Economics
2. Life in an O'odham Village	1SC - R2, PO1 1SC - R3, PO1 1SC - F3, PO1		3SC - F3, PO1/2	4SC - R2, PO1 4SC - F1, PO1	History Geography Economics
UNIT 2 3. The Story of the Apache People	1SC - R2, PO1				History Geography Economics
4. The Apache Way		2SC - F2, PO1	3SC - F3, PO1/2		History
UNIT 3 5. Fiesta					History
6. A Gift from Padre Kino		2SC - F1, PO1	3SC - F3, PO1	4SC - F1, PO1/2	History
UNIT 4 7. Dress A Tree	1SC -R3, PO1 1SC -R6 PO1 1SC -F2, PO1/2 1SC -F4, PO1/PO2			4SC - F3, PO3/4	
8. Mesquite House	1SC -R2, PO1 1SC -R3, PO1 1SC -R6, PO1/2 1SC -F2, PO1 1SC -F4, PO1/2			4SC - R2, PO1 4SC - R3, PO1/2 4SC - F1, PO1 4SC - F4, PO2 4SC - F7, PO1/2	

STATE OF ARIZONA - SCIENCE STANDARDS

ACTIVITY	AZ State # 1 N.S.T.A. A SCIENCE AS INQUIRY	AZ State # 2 N.S.T.A. G HISTORY AND NATURE OF SCIENCE	AZ State # 3 N.S.T.A. F SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES	AZ State # 4 N.S.T.A. C LIFE SCIENCE	ARIZONA STATE SOCIAL STUDIES STANDARDS (See Page vi)
<p align="center">UNIT 5 9. Santa Cruz River Cards</p>			<p align="center">3SC - F3, PO1/2</p>	<p align="center">4SC - F3, PO1/2 4SC - F4, PO2 4SC - E1, PO1/2</p>	
<p align="center">10. Santa Cruz River Bingo</p>				<p align="center">4SC - R3, PO1/2 4SC - F4, PO2</p>	
<p align="center">UNIT 6 11. Trash: Can We Live With it?</p>			<p align="center">3SC - F2, PO1 3SC - F3, PO2</p>	<p align="center">4SC - F1, PO1</p>	
<p align="center">12. How Long Does Litter Last?</p>			<p align="center">3SC - R1, PO2 3SC - F2, PO1 3SC - F3, PO2 3SC - F4, PO2</p>	<p align="center">4SC - F1, PO1</p>	
<p align="center">CLASSROOM SLIDE SHOW PRESENTATION Life Along the Santa Cruz River</p>	<p align="center">1SC - R2, PO1 1SC - R4, PO1/2</p>	<p align="center">2SC - F1, PO1</p>	<p align="center">3SC - R1, PO1/2/3 3SC - F2, PO1/3 3SC - F3, PO1/2 3SC - F4, PO2</p>	<p align="center">4SC - R1, PO1 4SC - R2, PO1/2/3 4SC - R3, PO1/2/3 4SC - F1, PO1/2 4SC - F3, PO1/2 4SC - F4, PO1/2</p>	

STATE OF ARIZONA - SOCIAL STUDIES STANDARDS

ARIZONA STATE SOCIAL STUDIES STANDARDS	LESSON 1 INTRODUCING THE O'ODHAM	LESSON 2 LIFE IN AN O'ODHAM VIL- LAGE	LESSON 3 THE STORY OF THE APACHE PEOPLE	LESSON 4 THE APACHE WAY	LESSON 5 FIESTA	LESSON 6 A GIFT FROM FATHER KINO
HISTORY	1SS - R1, PO1 1SS - F2, PO2 1SS - F3, PO1/3 1SS - E2, PO2 1SS - E3, PO1 1SS - E4, PO3	1SS - R1, PO1 1SS - F2, PO3 1SS - F3, PO1/2 1SS - E2, PO2 1SS - E3, PO1	1SS - R1, PO1 1SS - F2, PO3 1SS - F3, PO1/3 1SS - E2, PO2 1SS - E3, PO1 1SS - E4, PO3	1SS - F3, PO3 1SS - E2, PO2	1SS - R1, PO1 1SS - F3, PO1/3 1SS - E3, PO5/6 1SS - E4, PO3	1SS - R1, PO1 1SS - F3, PO1/3 1SS - E3, PO2/3/4 1SS - E4, PO3
GEOGRAPHY	3SS - F2 PO1 PO3 PO5 PO6	3SS - F2 PO2				
ECONOMICS	4SS - R1, PO1	4SS - R1, PO2	4SS - R1, PO1			

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A Pima Remembers, George Webb, U of AZ Press, 1959.

Hohokam Arts and Crafts, Barbara Gronemann, Southwest Learning Sources, 6440 Presidio Road., Scottsdale AZ 85254, 1994.

Of Earth & Little Rain, Bernard Fontana, University of Arizona Press, Tucson, 1989.

Papago and Pima Indians of Arizona, Ruth Underhill, The Filter Press, P.O. Box 5, Palmer Lake, CO 80133, reprinted 1979.

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Sonora, Ignaz Pfefferkorn (translated by Theodore Treutlein), University of Arizona Press, Tucson, 1989.

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The Upper Pima of San Cayetano del Tumacácori, Charles C. Dipeso, The Amerind Foundation, Dragoon AZ, 1956.

Unit 2: The Apache

Books by Joseph Cornell, Dawn Publications, Nevada City, CA

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Indeh: An Apache Odyssey, Eve Ball, University of Oklahoma Press, 1980.

The Apaches: Eagles of the Southwest, Donald E. Worcester, University of Oklahoma Press, 1979.

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Unit 3: The Mexican Americans

California's Hispanic Roots For Kids, Barbara Linse with George Kuska, Art's Publications, 80 Piedmont Court, Larkspur, CA 94939, (415) 924-2633.

Chilies to Chocolates, Foster & Cordell, University of Arizona Press, Tucson,

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Crafts of Mexico, Chloe Sayer, Doubleday and Company, Inc., NY, 1977.

Cuentos - Tales from the Hispanic Southwest, Jose Griego y Maestas and Rudolfo A. Anaya, Museum of New Mexico Press, 1980.

Fiesta! Mexico and Central America, Barbara Linse and Dick Judd, Fearon Teacher Aids, A Paramount Communications Company, 1993.

Folk Wisdom of Mexico, Jeff M. Sellers, Chronicle Books, San Francisco, 1994.

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Mexican Folk Toys, Festival Decorations, and Ritual Objects, Florence and Robert Pettit, Hastings House Publisher, NY, 1976.

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The Mexican-Americans, Julie Catalano, Chelsea House Publishers, NY, 1996.

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The Tortilla Book and Mexican Regional Cooking, Diana Kennedy, Harper and Row, NY, 1975.

Vamos a Cantar, Corvelan, Folkway Records, NY.

The Encounters Box, Teachers' Resource Box, Tumacácori National Historical Park. Teacher/student resources and activities relating to local are history, culture and environment.

Unit 4: Tree of Life

The Banana Slug String Band, (888) 32-SLUGS, slugs@bananaslugstringband.com

Conocer un Arbol, Roy Simpson, Honduras, 1990, roy_simpson@nps.gov.

Project Learning Tree, 1111 19th Street, Washington, D.C., 20036 or contact Jill Rubio, (520) 752-9591, extension 22, jrubio@ag.arizona.edu.

Unit 5: River Critters

A Natural History of the Sonoran Desert, Arizona-Sonora Desert Museum, University of California Press, Berkeley, Tucson and Berlin, 2000.

Birds: A guide to Field Identification of North America, Chandler S. Robbins, Bertel Bruun and Herbert S. Zim, Golden Books, New York, 1966.

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What's a Chiricahua and Chiricahua: Much More Than You Think, Chiricahua National Monument, Wilcox, AZ, 1993, (520) 824-3560, 1993.

Unit 6: Basura - Alias Trash

A Sanitary Code, Rules and Regulations, Solid Waste, Chapter VII, pg. 140-143, Santa Cruz County Health Department, Nogales, AZ 85621, (520) 761-7800.
Project WET, Contact Kerry Schwartz, University of Arizona, (520).752-9591.
Project Learning Tree, 1111 19th Street, Washington, D.C., 20036 or contact Jill Rubio, (520) 752-9591, extension 22 - jrubio@ag.arizona.edu.
Ranger Rick's Nature Scope, National Wildlife Federation, Washington, D.C.
Biological Diversity Curriculum, National Park Service, Midwest Region.

Other Useful Resources

Arizona Association for Living in out the Environment (AALE), 602/786-9969.
Arizona Department of Agriculture, (520) 287-7887.
Arizona Department of Environmental Quality, (800) 234-5677.
Arizona Department of Health Services, (800) 221-9968.

Arizona State Government Water Resources, (520) 761-1814.
Arizona State Parks, Tubac Presidio State Historical Park, (520) 398-2252.
Friends of the Santa Cruz River, P.O. Box 4275, Tubac, AZ 85646, (520) 398-8269.
Household Hazardous Waste Program, Office of Public Works, Santa Cruz County, Nogales, AZ 85621, (520) 761-7800.
National Park Service, Tumacácori National Historical Park, PO Box 67, Tumacácori, AZ, 85640, (520) 398-2341.
Nogales Chamber of Commerce, Nogales, AZ 85621 (520) 287-6570.
Nogales Wastewater Treatment Project, 777 N. Grand Ave., Nogales, AZ 85621, (520) 287-6571.
Tubac Chamber of Commerce, Tubac, AZ 85646, (520) 398-2704.
U.S. Fish and Wildlife Service, Phoenix, AZ (520) 823-4251;
U.S. Forest Service, Nogales, AZ, (520) 281-2297.

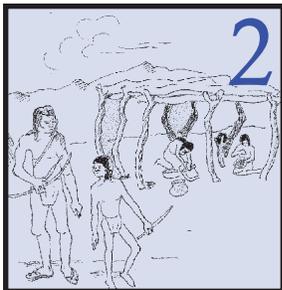
THE O'ODHAM



INTRODUCING THE O'ODHAM

Students will learn about the O'odham culture through listening to a traditional story, participating in a simple O'odham language lesson, and completing a craft “weaving” project.

PAGE 1.5



LIFE IN AN O'ODHAM VILLAGE

Students will learn about traditional O'odham village activities through a cut and paste project. They will discuss different ways the O'odham used their resources and then create sentences describing the different resource-related activities portrayed.

PAGE 1.11

The people who lived along the Santa Cruz River, when first contact with the Spanish was made, were called the Sobaípurí, a branch of the O'odham or Pima people. Their agrarian culture revolved around the resources of the Santa Cruz and San Pedro Rivers, farming corn, beans and other crops while augmenting their diet by hunting and gathering. Due to loss of the population to disease, intermarriage and deaths from Apache attacks, the name Sobaípurí is no longer heard. Their descendants, however, live on as part of the O'odham people.

The present-day O'odham living near the Santa Cruz Valley are the Tohono O'odham (Papago) or desert people, and the Akimel O'odham (Pima) or river people. Because the Sobaípurí were a river-based culture, traditions most likely were a combination of both the river-based Akimel O'odham people and the desert-based Tohono O'odham.

The O'odham nation consists of various smaller tribes or sub-groups, including the above mentioned Akimel and Tohono groups. Their native language and customs are similar, yet distinctly

different, giving each branch its own uniqueness. They believe themselves to be descendants of the ancient Hohokam civilization or "those who came before." Their culture is rich and colorful and many participate in traditional activities such as those described below.



STORYTELLING AND LANGUAGE

Storytelling plays a very important role in the O'odham culture. For centuries, history, tradition and culture have been transferred from one generation to the next through stories. O'odham legends, therefore, are not just fun stories, but an important passing on of tradition and language.

The dialects of the O'odham or Pima language are numerous, and include those spoken along the Santa Cruz River, by Tohono O'odham

(desert people) and Akimel O'odham (river people). The O'odham language is a member of the Uto-Aztecan language family, distantly related to Yaqui, Hopi, Comanche and Ute, among others.

BASKETRY

The Tohono O'odham and their ancestors have been making baskets in the current techniques and style for several centuries. This strong tradition continues today.

Baskets were first made by the O'odham strictly for utilitarian purposes, and had a number of practical uses, such as transporting and storing materials, and food gathering. Some baskets were even used as cooking containers, with hot rocks being placed in a basket filled with wet grain.

The principal materials used for basket weaving, still used today, are devil's claw, bear grass, yucca leaves and roots. No dyes are used. The natural materials give the baskets their distinctive colors.

The durability and beauty of Tohono O'odham baskets is renowned. Although most baskets today are used for decorative purposes, their quality and attractiveness have remained unchanged.

TRADITIONAL NAMING OF AN O'ODHAM CHILD

“Before a child is a year old, the child is named by friends of the parents in the following manner: the friends, or godparents, accompanied by other visitors, come for four successive mornings and seat themselves just before sunrise on the ground before the house in which the child lives. First one and then another of the company holds the child for a moment. If it is a boy, the kompalt, godfather, repeats a ceremonial speech, passing his hands across the infant and holds him aloft to receive the first rays of the rising sun; then he bestows upon the boy the name by which he will be known throughout life. However, nicknames are common and often supplant the baptismal name. If it is a girl, the kamult, godmother, delivers the speech and gives the name. The parents in their turn reciprocate by naming the children of the couple that acts as godparents to their own.



“From the age of ten until about the time of marriage neither boys nor girls are allowed to speak their own names. The penalty is bad luck in losing arrows in the case of the boys, and the rsalika or kiahaha stick for girls.

“The name of a deceased person is not used; he is alluded to as the brother of So-and-So. The word or words in the name, however, are not dropped from the language.”

TATTOOING

“The O’odham practiced both tattooing and body painting. They usually tattooed both sexes during their adolescence between fifteen and twenty years of age. Designs were first outlined in charcoal and the skin then was pricked with needle points dipped in wet charcoal. (Needle points were made by using two to four Prickly Pear or Saguaro thorns tied with sinew and cotton.) They usually tattooed men along the margin of the lower eyelid and with a horizontal line across the temple. Generally they made a band design across the forehead with a traverse series of lines or . . . short vertical zigzags. Like the men, the women were usually decorated

along the margin of the lower eyelid. Two vertical lines pierced on each side of the chin ran from the top to the lower portion of the jaw. On occasion these two lines were connected under the lip with a band design. Painting was used to emphasize the tattoos.”



GAMES

Games were traditionally separated by gender. It was a cultural taboo to mix sexes. Only boys played Ginz, the Pima Stick Game. The same would apply for an activity like food preparation, done only by women. Both sexes performed duties such as tattooing and pottery, although most likely, males and females worked apart.

** The Pima Indians, Frank Russell, University of Arizona Press, Reprint 1975*

An Expanded O'odham Language Lesson

Greetings

Shap ai masma ida hudunk? (*Shop aye mahsma eedah hood oonk*)
How have you been this evening?

Tom nei. (*Tom mnee*)
I'll see you again (used like goodbye).

He'ekia ap ed ahidag? (*hou ou kee ah ahp oud ah ee dahg?*)
How old are you?

Gook ani ed ahidag! (*goak ahnee eed ah ee dahg*)
I am two years old.

Vowels: All vowels are the same as in Spanish except “e” which is pronounced like the “u” as in P U T. All of the consonants are the same as in English.

A FAR	G GET	M MOM	SH SHOP
B BOY	H HAT	N NINE	T TOM
C CHAT	I RING	Ñ CANYON	U MUTE
D HEARD	J JACK	O BOAT	V VAT
E PUT	K KIT	P PIG	W WAKE
F FIX	L LOOK	S SUN	Y YOU

<u>Numbers</u>		
ONE	Hemako	<i>Hu mah ko</i>
TWO	Gook	<i>Go ok</i>
THREE	Vaik	<i>Vah eek</i>
FOUR	Giik	<i>Geek</i>
FIVE	Hetasp	<i>Huh tahsp</i>
SIX	Cudp	<i>Choodp</i>
SEVEN	Veva'ak	<i>Vuhvah ahk</i>
EIGHT	Gigi'ik	<i>Geegee eek</i>
NINE	Humukt	<i>Hoomookt</i>
TEN	Vestmam	<i>Vuhst mam</i>

<u>Colors</u>		
RED	s-veg	<i>s -vuhg</i>
YELLOW	s-oam	<i>s -oahm</i>
BLUE	s-heedag	<i>s -chuh dahg</i>
GREEN	s-heedag	<i>s -chuh dahg</i>
BLACK	s-cuk	<i>s -chook</i>
WHITE	s-koomag	<i>s -to hah</i>
GRAY	s-toha	<i>s -koo mahg</i>
BROWN	s-oam	<i>s -oahm</i>
ORANGE	s-oam	<i>s -oahm</i>



LESSON OVERVIEW

Students will learn about the O'odham culture through listening to a traditional story, participating in a simple O'odham language lesson and creating a craft "weaving" activity.

Subjects

Language Arts and Social Studies.

Social Studies Standards

History, Economics

Objectives

Students will:

1. Listen to and review events from a traditional O'odham legend.
2. Recall and recite traditional O'odham greetings.
3. Construct (weave) a mat using techniques similar to those used by the O'odham.

Preparation

Review pages 1.5 and 1.6; Make student copies of Page 1.9; provide 1/2" x 9" strips of construction paper (2 to 8 colors) glue, tape and scissors.

Time

Two 50 minute sessions.

Vocabulary

Agave, basketry, bear grass, devil's claw, mano, mat, metate, weaving, yucca.

INTRODUCING THE O'ODHAM

Activity 1

Read the following story to your students to introduce them to the O'odham people and their culture. Discuss similarities and differences in character and attitude between the traditional O'odham and modern culture.



The O'odham Legend of Ca Kai Choo and Bun

As passed down to Nathan Allen

Tohono is the home of *Ca Kai Choo* (quail) and *Bun* (coyote). *Ca Kai Choo* often played tricks on *Bun*. One time they took some of his body fat while he slept. *Bun* awoke and was angry! He chased the *Ca Kai Choo*, but they flew to safety, into their little holes along the *Akimel* (river). *Bun* went to the first hole and reached in. He grabbed the first *Ca Kai Choo* and growled, "Are you the one who did this to me?"

A tiny peep, "No! try the next hole," was heard. And so *Bun* went from hole to hole until he came to the last one. "Was it you?" Again a tiny peep, "No! try the next hole." *Bun* stuck his paw into the next hole full of *hanum* (cholla)! *Bun* howled with pain as the *Ca Kai Choo* ran away with glee and laughter. Again *Ca Kai Choo* had gotten the best of *Bun*, their worst enemy!

Activity 2

An O'odham Language Lesson

Use the following O'odham greetings to introduce students to its traditional culture.

If possible, use an emersion language approach in which you speak only in O'odham. The students love it and the lesson will have more of an impact.

Use the information in the Teacher Background Information on Page 1.3, "An Expanded O'odham Language Lesson" to help you learn the language.

If available, play the tape "An O'odham Language Lesson" from the Encounters Box (see resources and references).

SIMPLE O'ODHAM GREETINGS

Shap aye Masma? (*Shop - I - Mahsma*)
How have you been? (Common Greeting)

Shap Kaij? (*Shop - Kye - eji*)
What do you say? (informal greeting)

Pi has. (*Pee hass*)
Nothing really.

Shap chegig? (*Shop Cheh geeg*)
What is your name?

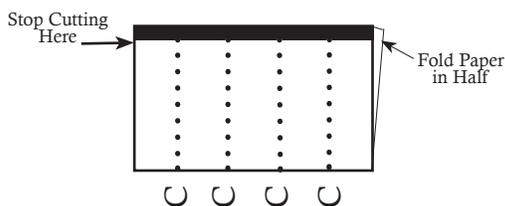
John bun chegig. (*Buhn Cheh geeg*)
John is my name.



Activity 3

**O'odham Mat Making
Session 1**

1. Discuss the importance of weaving in the O'odham culture with your class using the teacher background information on **pages 1.1 and 1.2**. If possible, use examples from books (see references) or other sources. (Bring in samples, if possible)
2. Pre-cut, or have students cut strips of different colored construction paper, approximately 1/2" wide by 9" long.
3. Give a copy of **Page 1.9** to each student.
4. Demonstrate the procedure by first asking students to fold **Master Page 1.9** in half. Then have students carefully cut along the dotted vertical lines, stopping at the blackened outlines on the top and bottom of the page.

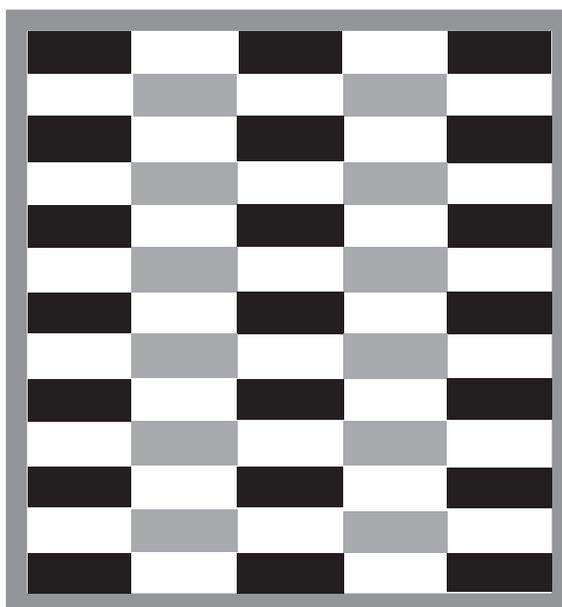


5. Using the pre-cut strips of colored construction paper and the instructions on **Master Page 1.8**, demonstrate how to weave by alternating a strip of colored paper onto the cut mat. Repeat the demonstration for at least two strips.

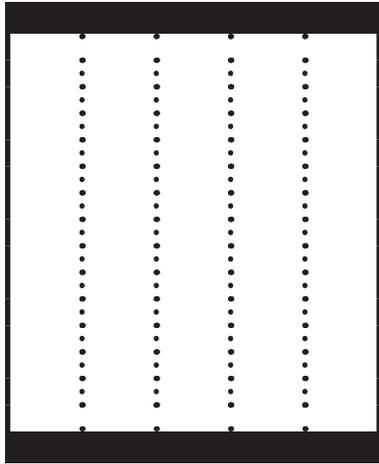
**O'odham Mat Making
Session 2**

1. Instruct students to complete their own weaving, alternating different colors of paper.
2. Once the weaving is complete and the work has been checked by a teacher or an aide, ask students to trim the colored paper flush with the edge of their mat (**Page 1.9**). Glue the ends of the colored strips to the mat.
3. Complete the activity by discussing current uses of weaving (Easter baskets, blankets, etc.). Bring in examples of weaving, check out and display library books on the subject and search for any woven materials in the home or school environment to prompt a discussion.

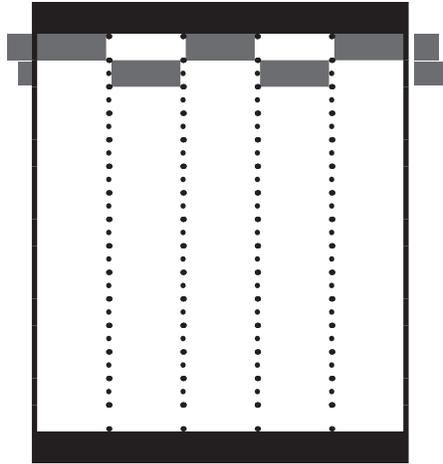
Completed O'odham Mat



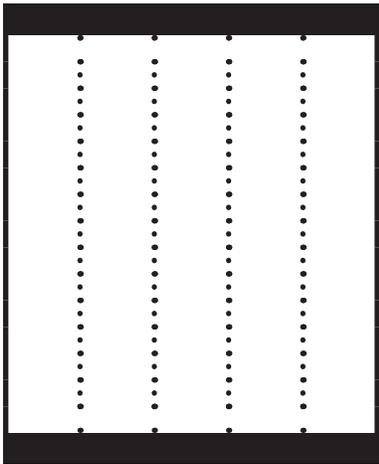
LESSON 1 - INTRODUCING THE O'ODHAM - - MASTER PAGE 1.8



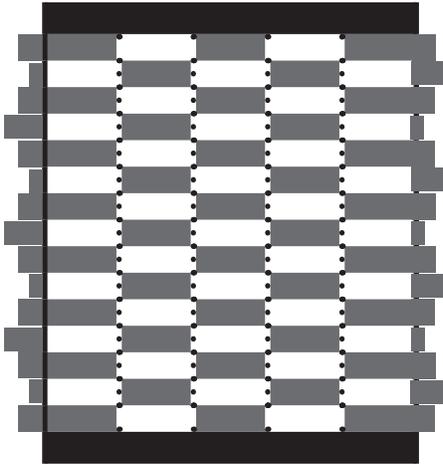
1
MAKE COPIES
OF MASTER
PAGE 1.9
OR HAVE
STUDENTS
MAKE THEIR
OWN ON
CONSTRUCTION
PAPER.



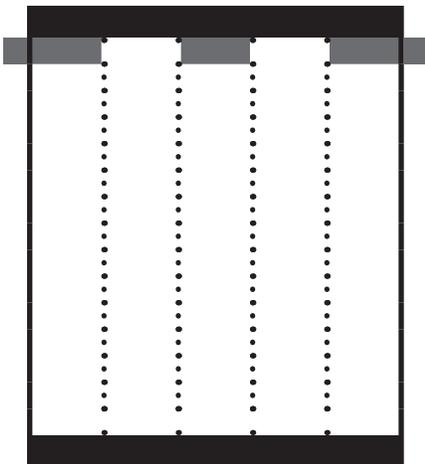
4
WEAVE
ANOTHER
COLORED
STRIP
OPPOSITE
TO THE
ONE IN
STEP 3.



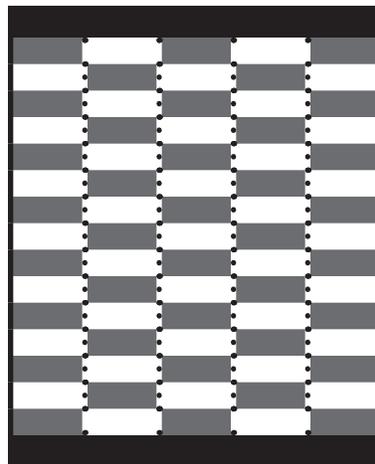
2
CUT ALONG
DOTTED LINE,
STOPPING
AT THE
BLACK BOX,
LEAVING
A 1/2"
MARGIN.



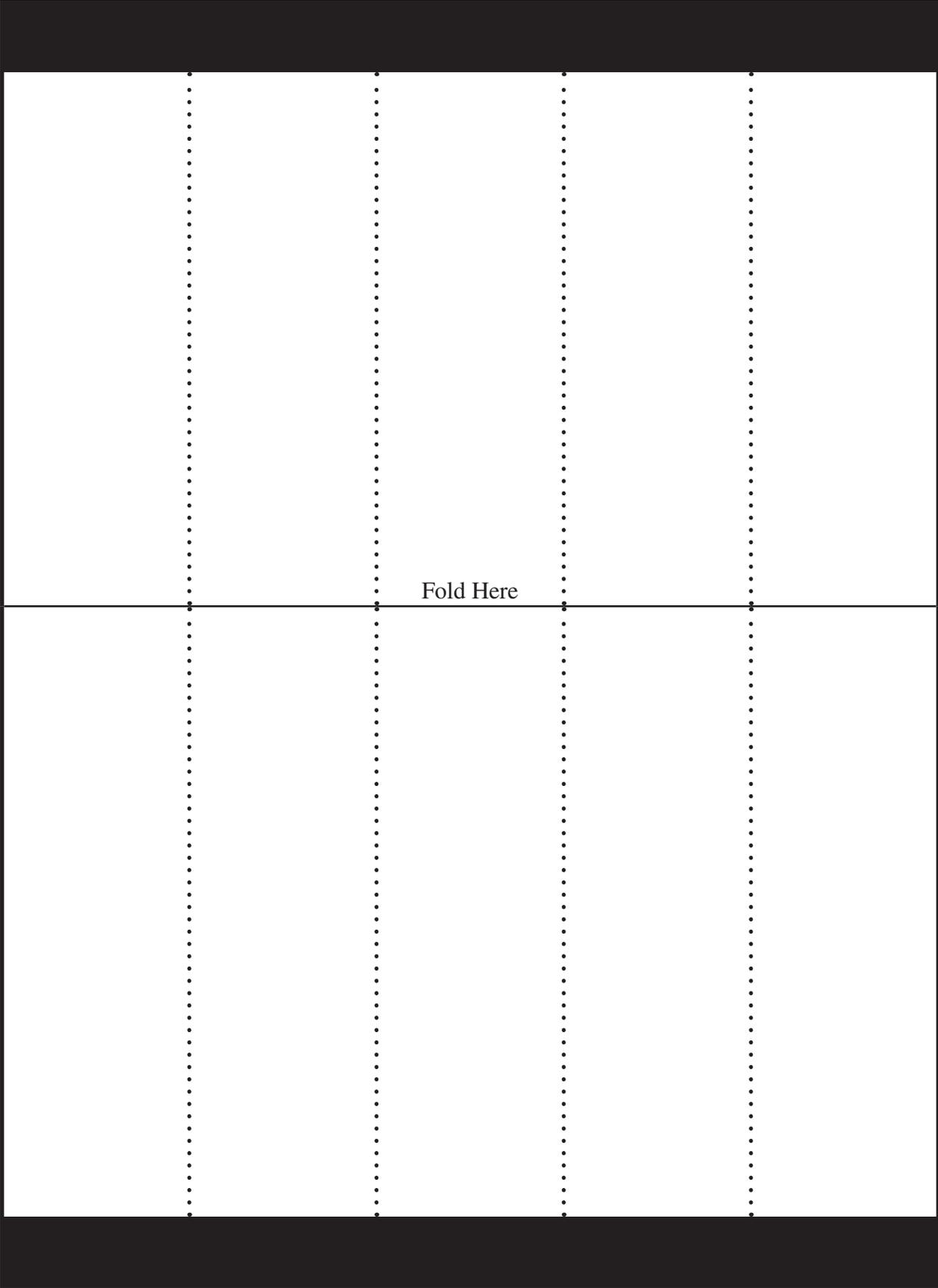
5
CONTINUE
WEAVING
STRIPS
UNTIL
COMPLETE.

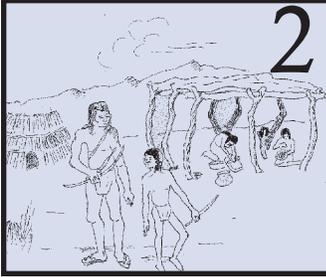


3
WEAVE A
STRIP OF
COLORED
PAPER
OVER AND
UNDER
CUT STRIPS.



6
TRIM
COLORED
PAPER AND
GLUE STRIPS
TO PAGE.





LESSON OVERVIEW

Students will learn about traditional O'odham village activities through a cut and paste project. They will discuss different ways the O'odham used their resources and then create sentences describing the different resource-related activities portrayed.

Subjects

Art, English and Science

Social Studies Standards

History, Geography, Economics

Science Standards

Personal and Social Perspectives in Science, Life Science

Objectives

Students will:

1. Create an O'odham village scene.
2. Discuss traditional uses of resources.
3. Construct sentences describing uses of traditional resources.

Preparation

Give each student copies of **Master Pages 1.13** and **1.14**. Have glue, scissors and colors available.

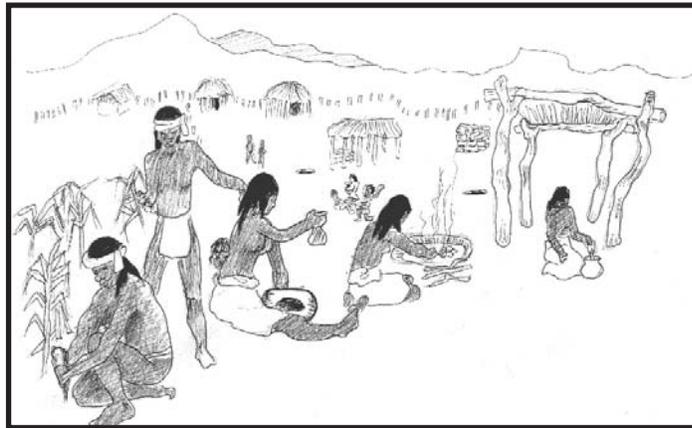
Time

One 50 minute session

Vocabulary

Gather, grind, firewood, natural resources, mesquite, prickly pear cactus, weave, yucca.

LIFE IN AN O'ODHAM VILLAGE



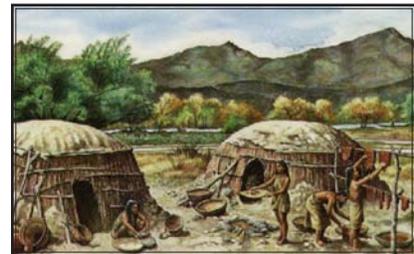
Part 1

1. Define *natural resources* (materials provided by nature) with students and brainstorm a list of local natural resources such as water, trees, etc.

2. Explain to students that the O'odham people relied on their land to survive and most of their activities used or relied upon natural resources. Augment the list to include the resources used by the O'odham. Are they the same as today? Why or why not?

3. Brainstorm different ways in which the traditional O'odham people used their resources such as hunting, weaving, etc.

4. Hand out copies of **Master Page 1.13** to each student and explain and model procedures to cut out individual pictures and paste them to create an O'odham village scene.



LESSON 2 - LIFE IN AN O'ODHAM VILLAGE

Part 2

1. Once the cut and paste project is complete, discuss the different activities portrayed in the O'odham village scenes.

What activities are portrayed? (*Grinding flour, hunting, weaving, gathering, cooking and farming.*)

Which natural resources were used for each activity? (*wood, stone, plants, trees, animals, water, firewood, soil, etc.*)

Did the use of natural resources impact the environment. How? (*Firewood, hunting, clearing fields for crops, materials for construction all impacted the environment, but because populations were relatively low, the impact was minimal.*)

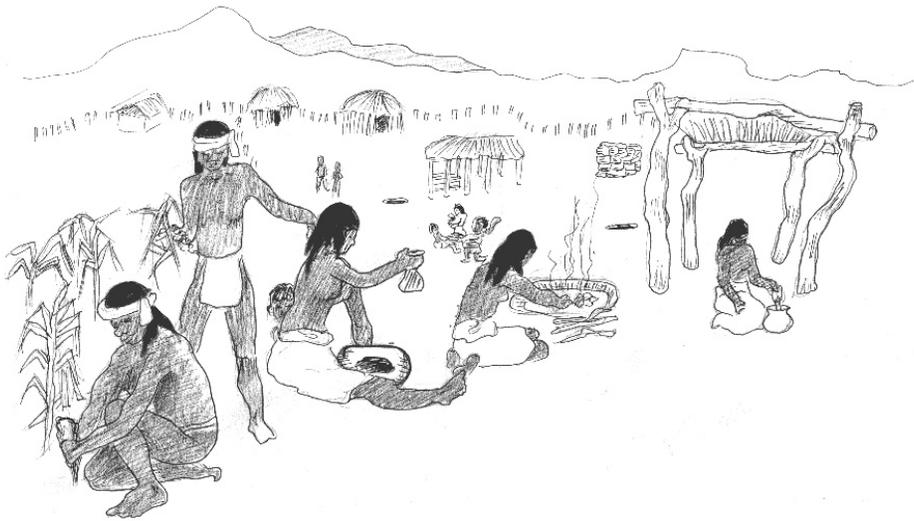
Do we use our natural resources today in ways similar to the traditional O'odham? In which ways were they similar or different?

2. Hand out copies of **Master Page 1.14** to each student (or alternatively write the assignment on the board for students to copy.

3. Using the example at the top of the **Master Page 1.14**, model different ways to make a sentence using the two given words.

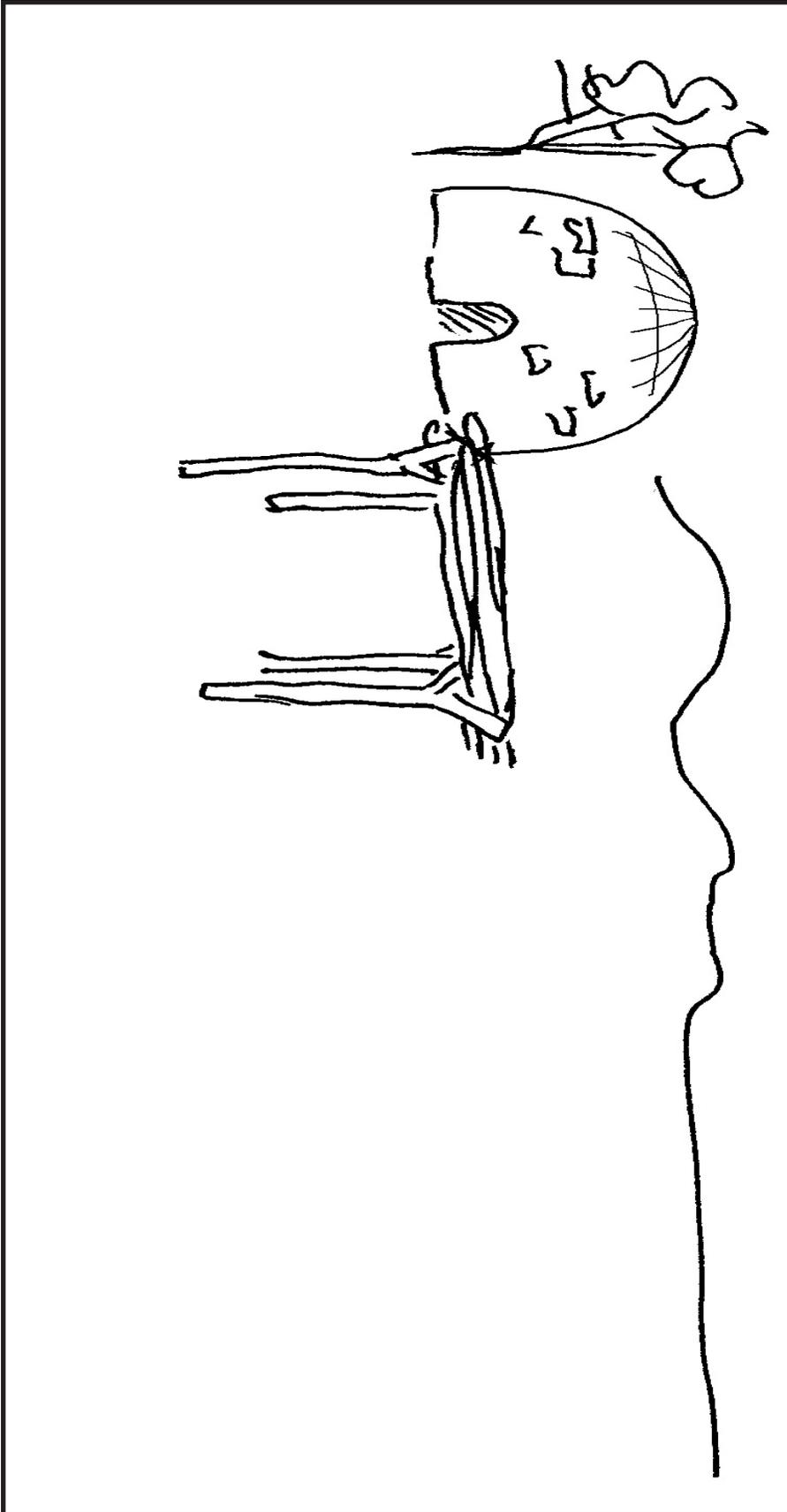
4. Have students create complete sentences using the given words for numbers 2-5. For ESL or other students learning to read, use the "book on a hook" pedagogy in which students dictate a sentence or story and the teacher or aid writes the sentence. Students then need to trace over the sentence.

5. Complete the activity by reviewing and comparing sentences for each example, and by further discussing the use of natural resources.

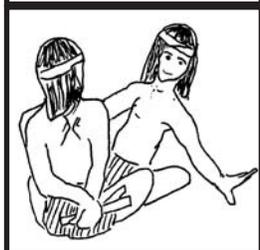
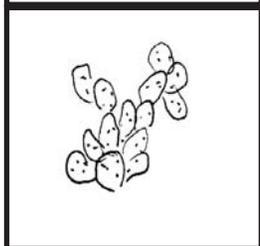


Enrichment

- Augment Part 2, steps 3 and 4 to include writing; describe the use of verbs and nouns.
- Give students other verbs and nouns to discuss other aspects of O'odham life or uses of resources. Ask them to create their own sentences.
- As an advanced assessment, have students put together created sentences to make a paragraph describing life in an O'odham village.



Cut the pictures above and paste them in the O'odham village.
Add your own drawings and colors to complete the picture.



LESSON 2 - LIFE IN AN O'ODHAM VILLAGE - MASTER PAGE 1.14

The O'odham people lived by the river and had to make everything with natural materials. Can you use the land like they did? Use the words to make a complete sentence that describes how the O'odham people use their land.

1

Example



Grind

Mesquite Beans

The O'odham people used to **grind** corn, wheat, and **mesquite beans** to make flour.

2



Hunt

Deer and Rabbits

3



Weave

Yucca Leaves

4



Gather

Prickly Pear Cactus

5



Cook

Firewood

6



Plant

Corn

UNIT 2

THE APACHE



THE STORY OF THE APACHE PEOPLE

Students will learn about the Apache People and their culture through listening to and reading an essay. They will summarize their reading by drawing a picture, then compose and answer questions regarding the assigned reading.

PAGE 2.3



THE APACHE WAY

Through participation in one or more activities, students will experience their local environment first-hand while learning about how the historical Apache people related to nature.

PAGE 2.7

UNIT 2- THE APACHE - TEACHER BACKGROUND INFORMATION

The Apache people and culture are an integral part of the history of the Pimería Alta (upper Pima land). Their role, however, was not one of friend to the missionaries and O'odham, but of enemy. Father Kino recorded his first contact with the Apaches when he described them attacking the O'odham in the San Pedro Valley near Tombstone. From this first contact, until the surrender of Geronimo in 1886, the history of the Apaches in the Santa Cruz Valley is full of warfare.

Anthropologists believe that the Apache people came to Arizona sometime in the 1600s. Descendants of the northern Athapascan language speakers, they traveled slowly through the plains just east of the Rocky Mountains, eventually arriving in the Southwest. They separated into seven groups and each group lived in a different place. Many Apaches who still live in this state are part of the "Western Apache" group and are descendants of the Apaches who lived in the Pimería Alta during Father Kino's time. They are the people we discuss here.

The Apaches call them-

selves "Nde", which means "People." When they first arrived in Arizona and New Mexico, they found other indigenous people with whom they had to compete for land and resources. Farmers and hunters, the Pueblo Indians of New Mexico lived in stone houses



grouped closely together like apartment buildings. To the west were the Pima (Akimel O'odham) and Papago (Tohono O'odham) people living in desert villages along the river's open spaces of southern Arizona.

At first, Apache people moved a lot. In the spring and summer, they camped in the mountains and hunted deer, rabbit, and other wild animals. Other groups started gardens of corn, beans, squash and tobacco. Cactus fruit, acorns, agave, walnuts, juniper berries, and many

other edible and medicinal plants were gathered near their mountain camps. The women had to be able to identify the plants, know where each plant grew, when to harvest, specific collecting techniques, cooking preparation and proper storage.

In winter, the people moved their camps to lower elevations where it would be warmer. The men continued to hunt and the women spent time tanning hides and making them into bags, clothing, and containers.

In the spring, the people went back to their mountain camps, replanted their gardens and continued to hunt and to collect wild plants. Toward the end of the summer, if there was extra food, it was dried and stored for leaner times.

Apache women are renowned for their basketry. Thin sticks of willow, cottonwood, or sumac were stitched together with split sticks of the same material that became flexible when soaked in water. The black in the designs was made from the devil's claw plant and the red color was made with the bark of the yucca root.

In addition to baskets used for storing grain, others were made for carrying things. These were burden baskets that had buckskin fringes and painted designs. For carrying water, the women made a bottle-shaped basket and then covered the outside of it with pitch (sap) to make it water-tight.

Although lightweight baskets were preferred for their nomadic lifestyle, some pottery was necessary for cooking. These were adapted for traveling with shapes just right for cooking quickly over a campfire. Dark in color, they had pointed bottoms and slanting sides. They could be placed right in the fire, so the sides could heat as fast as the bottom.

Babies were put in cradles made of wood and deerskin that were carried on the back, to keep them safe and easy to carry. Cradleboards are sometimes used today, albeit made with yellow canvas instead of deerskin.

Because the Apache people moved a lot, their housing patterns were adapted to their lifestyle. People who lived on the edge of the plains had teepees made of animal skins. People who lived in the mountains made grass houses called

"gowaa" or "wickiups." Houses were used mostly for sleeping and storing things. Most of the cooking and other work was done outside, similar to what we do in present-day camping.

Relationship to the Environment

The Apaches were closely tied to their environment. As nomadic hunters and gatherers, they relied on nature for their food, clothing and shelter. An intimate knowledge of their environment was essential. From a very young age, Apache boys and girls started learning the different plants and animals and their uses as they worked alongside their mothers gathering and preparing food and doing daily camp chores. At about age seven or eight the boys, were separated from the girls to learn different things.

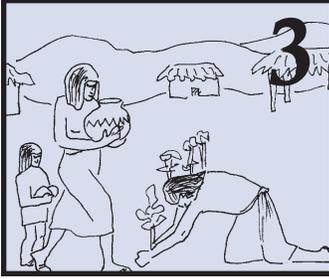
The girls continued to work with and learn from their

mothers and other women. The identification and uses of plants were particularly important to their survival. Edible versus non-edible plants needed to be distinguished, and they had to learn to prepare each plant for consumption and storage. Basket weaving required that they become versed in the different reeds and grasses, as well as in the plants used for dyes and paints. Plants were of utmost importance for medicinal uses. Many young women would become herbalists and healers.

Boys started learning how to hunt and become warriors. Their training was based on survival in nature. They were required to identify plants, learn the habits and characteristics of animals, and study the cycles of nature. Often they were required to observe nature or stalk animals for hours.

Becoming a warrior meant that they needed to become masters of hiding and escape, for which an intimate knowledge of the local geography was vital. In fact, so much so that they learned the location and names for specific trees, rocks, caves and geographical landscapes.





LESSON OVERVIEW

Students will learn about the Apache People and their culture through listening to and reading an essay. They will summarize their reading by drawing a picture, then compose and answer questions regarding the assigned reading.

Subjects

Social Studies, Reading

Social Science Standards

History, Geography,
Economics

Objectives

Students will:

1. Listen to and read a story about the Apache people.
2. Illustrate the contents of a reading assignment.
3. Compose and answer questions related to assigned reading.

Preparation

Review and make 2 copies of "The Story of the Apache People" (Master Pages 2.5 to 2.6). Use one copy as a teacher reference. Cut the other copy into six boxes, as defined by the text, that will serve as group reading assignments; Have available construction paper, pencils, markers, etc.

Time

Two 50 minute sessions

Vocabulary

Apache, ceremony, cradle, *gowaa*, *Nde*, reservation, wickiup.

THE STORY OF THE APACHE PEOPLE

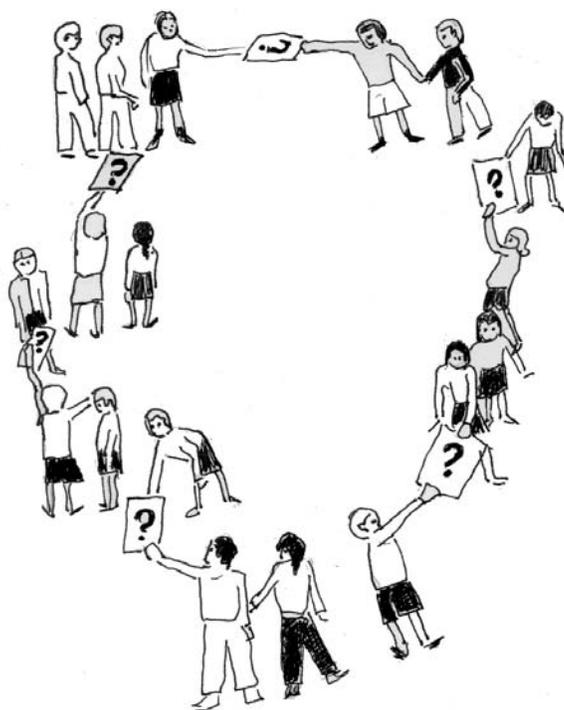
Part 1

1. Read aloud "The Story of the Apache People" on Master Pages 2.5-2.6 to the class.
2. Review any new vocabulary words.
3. Divide the class into six work groups of no more than four students, based on student reading ability with a strong reader in each group. Assign one reading paragraph cut out from Master Page 2.5 - 2.6 to each group to be read together.
4. Ask each work group to read their section of the story twice.
5. Assign each group the task of creating an illustration depicting the contents of the paragraph that they read.
6. Using the picture as a guide to paraphrase, have a member of each group present a brief summary of what their group read to the rest of the class.



Part 2

1. Model how to make a question with your students, reviewing basic question words such as who, what, when, where, why, etc.
2. Maintaining the same groups as described in Part one, ask the groups to create one question about their selected reading. Ask a student-recorder to neatly write it on lined notebook paper.
3. Rotate the student-recorded questions to the different groups allowing time for each group to answer before circulating. (For example, group two has group one's question, group three has group two's, etc.)
4. Continue rotating questions until each group has answered all six questions. Have each group use their same answer sheet for all six questions.
5. Make sure students write their team members' names on their completed answer sheets and turn them in.
6. Evaluate your students by doing one or both of the following: a) collect and grade group papers, and/or b) select three to six of the student questions to prepare a quiz to be given to each student.



ENRICHMENT

- The "Apache Life" activity from the *Encounters Fourth Grade Teachers' Guide* (page 6.1) contains traditional stories, songs and games that can be easily adapted to second grade. It can be found in the Encounters Box (teachers' resource box) at Santa Cruz County Schools, Pima County Libraries, or by request from Tumacácori National Historical Park.

THE STORY OF THE APACHE PEOPLE

The Apache people came to Arizona about 400 years ago. They called themselves "Nde," which means "People." They were hunters and farmers. In the spring and summer, the Apaches moved and camped in the mountains. The men hunted deer, rabbits, and other wild animals. They started gardens of corn, beans, squash and tobacco and the women gathered many wild plants like cactus fruit, acorns, and agave to eat. In winter when it became cold and the snow began to fall, the Apache people moved their camps to lower places to stay warm. The men still hunted and the women made clothing and bags out of animal skins.



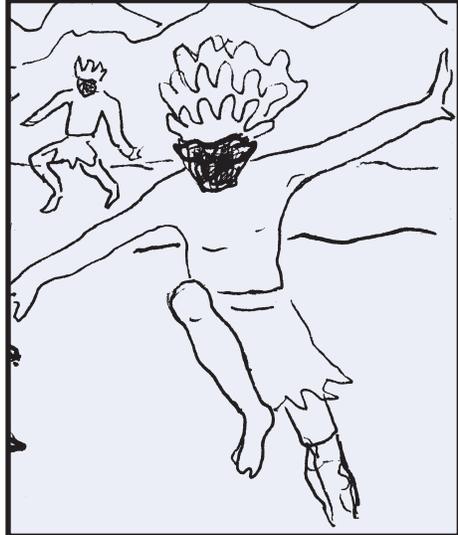
The Apache men had to know how to hunt for food, build houses, plant the gardens, harvest the crops, and protect and care for the family. The Apache women had to know how to plant gardens, look for wild plants, decide when the plants were ready to pick, cook the plants, save the leftovers, make baskets and pottery, make clothing and bags, make baby cradles from wood and deerskin, and care for the children.



Apaches traded items with other tribes, like clay pots for cooking. The pots were made to cook food quickly in the fire so the sides would heat as fast as the bottom. Extra food was dried so that it could be saved for a long time in large baskets made by the women. There were other kinds of baskets too. For carrying water, the women made a basket shaped like a bottle and then covered the outside of it with pitch (sap) from a tree so that the water wouldn't leak out.



Ceremonies are an important part of Apache life. One beautiful and old tradition celebrates the time when a girl becomes a woman. The people are happy at the ceremony because it brings good luck to all who come. It also helps the girl to be healthy, to know her jobs as a woman, and to live a long life. During this special evening ceremony, there is a mountain spirit dance in which dancers wear masks and large head-dresses. They dance to drive away evil powers and bring good luck to all the people. They dance at other times as well as when needed to cure sickness or keep away disease.

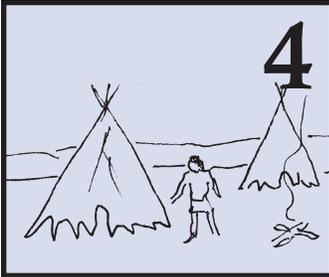


Long ago, the Apache people moved during certain times of the year and built different kinds of houses. The people who lived on the edge of the plains had tepees made of animal skins. The people who lived in the mountains made grass houses called "gowaa" or "wickiups." Houses in those days were used mostly for sleeping and storing things. Most of the cooking and other work was done outside.



Today, some Apaches live in cities while others still live on reservations. They often live with their families (mother, father, children and sometimes aunts, uncles and grandparents), so there are always plenty of people to do the work and someone to play with as well. Apache boys and girls go to school and help their families. Boys learn to ride horses and help with rounding up cattle or farming. Girls are taught how to be good wives and mothers. There are many Apaches living in Arizona today. Maybe someday, you will get a chance to visit Apache land and talk with the people.





LESSON OVERVIEW

Through participation in one or more activities, students will experience their local environment first-hand while learning about how the historical Apache people related to nature.

Subjects

Science, Social Studies

Science Standards

Personal and Social Perspectives

Objectives

Students will:

1. Describe personal experiences with the natural environment.
2. Express their experience with nature through drawing or writing.

Preparation

Select a quiet area, preferably natural, or on the school playground to play the games. Read individual activities on pages 2.7 and 2.8.

Time

One or more 50 minute sessions.

THE APACHE WAY

Instructions for each Activity

Using the background information on pages 2.1 and 2.2, discuss the Apache lifestyle and the importance of developing an intimate relationship with nature. Explain that the students will have the opportunity to develop skills similar to what the Apaches did when they were young.

1. Complete one or more of the following activities with your students.
2. Upon completion of each activity, discuss personal experiences and the importance of observing nature as it relates to survival and science.
3. Have students express their experiences through drawing or writing.



Activity 1

Sounds and Colors

The Apaches' keen relationship to the environment was heightened by observation and listening skills.

Setting: A place where you and your students can sit quietly, as free from artificial sounds as possible.

1. As a group, sit quietly in a place where natural sounds can be heard (birds, wind, etc.) Ask students to close their eyes and listen for natural sounds, counting each new sound on their fingers. How many different sounds were heard? Can students identify any sounds?
2. Maintaining silence, repeat this process with eyes open

and count the colors they see. How many true colors can they find? How many shades of green? Blue?

Activity 2**Magic Spot**

During this activity, listening and observation skills are often heightened while spending intimate time alone in nature. Variations of Magic Spot are often referred to as a “Vision Quest” by many Native American cultures. It can last for many days and requires the participant to locate all necessary food, shelter and protection in order to survive.

Setting: The Magic Spot activity can be done just about anywhere there is nature. A lawn, grassy area, or decorative trees or shrubs are sufficient for a student to explore. If you have a large class with limited space, send only a few students at a time, extending the activity over time.

1. Take your students out to a natural area. It may be a nearby park or forest, or it might be on the school grounds. Select and assign a place where each student can sit and observe nature, far enough away from other students so that each can remain alone and quiet, yet within teacher supervision. Have students sit for at least five minutes, observing the area. After a specific period of time, call all the students together. Have them draw a picture or write a poem about their magic spot. Back in the classroom, discuss and share individual experiences.

Activity 3**The Good Listener**

The Good Listener is a game also known as “Sleeping Miser” from *Sharing Nature with Children* by Joseph Cornell. This game requires good listening and coordination skills which were essential life-skills for the Apache.

1. In preparation, collect a variety of objects that will serve as treasures. If you are outside, you may also use sticks and pine cones, etc.
2. Select one person to be the “good listener.” Blindfold and have him or her sit quietly cross-legged. Place the “treasures” within touching distance of the selected student. His/her job is to protect the treasure by listening attentively for any intruders, (other students), and then pointing to or touching anyone who tries to steal anything.
3. Locate the rest of the students at a specific distance from the “listener.” Explain that their job is to walk as quietly as possible to try to get the “treasure” without getting caught (pointed at or touched). When the teacher says go, all students move at once. Once caught they must sit down in a designated area for the remainder of the round.
4. The game is complete when either all the students are caught, or else the treasure is gone.

ENRICHMENT

- The selected activities are taken primarily from the work of Joseph Cornell and other books as listed in the Resources section. However, there are a myriad of activities dealing with learning about, observing, and appreciating nature. Explore your library and other educational resources to find and teach other appropriate activities.
- Invite a representative from the Apache or Native American nations to talk about different ways their ancestors explored and learned about nature.

THE MEXICAN AMERICANS



FIESTA

By creating a small fiesta in the classroom, students will gain a better understanding of Mexican-American culture. Fiesta activities include celebration, history, music and food.

PAGE 3.5



A GIFT FROM PADRE KINO

Through listening to a story and a matching activity, students will classify food items, compare and contrast "introduced" with "native" goods and discuss how these foods both helped and hurt the Indians and the environment.

PAGE 3.11

The Spanish influence in present-day Arizona is tremendous. Beginning with the arrival of Father Kino in 1691, other missionaries and settlers followed. Change was inevitable and Indian culture intermixed with Spanish and other Europeans to create a unique and rich culture. Close to Mexico, yet uniquely American, the hispanic culture of Southern Arizona celebrates age-old and colorful traditions which have been handed down from generation to generation.

QUINCEAÑERA

One such tradition is an important event known as a *quinceañera*, which celebrates the coming of age for a 15 year old Mexican-American girl.

Special religious importance is placed on this celebration. Starting with a solemn parade, one or more girls, clad in formal gowns, are escorted down the aisle of the church followed by proud parents and god-parents. During the ceremony the “*quinceañera*,” (as the girl is called throughout the occasion), receives a medal representing her patron saint. She places white carnations before the statue of the Virgin Mary and

receives the Eucharist and renews her vows. The ceremony concludes with the giving of gifts to parents, godparents and other sponsors.

Depending on the family’s budget, the event may be as simple as attendance at Mass followed by a small birthday party, or it can be a formal affair with a champagne toast, a large tower cake, a live band, and dinner.



In some cases, families will join resources in an event similar to what is known as a debutante party. In this event, a number of 15 year old girls, together with their escorts, gather together at a ball. They also wear beautiful long white gowns. During the ceremony each girl is announced individually, given a single rose, and escorted to the

dance floor for her first dance.

If economically possible, the *quinceañera* celebration is dedicated to only one girl. In this case, the family throws their own ball-type party. Again all the girls in attendance wear long formal gowns. For this party, the *quinceañera* chooses a male escort, and has as many *damas* (maidens) and *chamberlânes* (male escorts for the *damas*) as she wishes. The honored girl is given a formal Catholic Mass, which is attended by family and friends. After Mass, she then attends a party in her honor. As in a wedding, she waits for all the guests to be seated before she enters but only after all the other members of her party have been formally introduced to the guests. The *quinceañera* first dances with her escort, then with her father, and finally with her godfather. The *quinceañera* has the choice of opening her gifts at the party or in private.

For many parents and relatives, the *quinceañera* celebration is a sacrifice of time and money but they believe it is a stepping stone to building responsibility, spirituality and education. For the girl, however, it is a fun party as well as her rite-of-passage into womanhood.

DIECISEIS DE SEPTIEMBRE

Mexico's Independence Day is celebrated on September 16th (*dieciseis de septiembre*). The holiday commemorates Father Miguel Hidalgo's "*Grito de Dolores*" (cry for freedom) from Spain in 1810. Father Hidalgo was a priest instrumental in planning and executing the war against Spain. With him at its head, a small group of revolutionaries, mostly Indians, began the long struggle against the Spanish empire.

El dieciseis de septiembre commemorates the night in 1810 when Hidalgo, made his famous cry from the church tower in Queretaro, located northwest of present-day Mexico City.

The celebrations begin on the night of the 15th with the ringing of church bells and Hidalgo's cry "*Viva Mexico! Viva la Virgen de Guadalupe!*" It continues throughout the night and the following day, including receptions, banquets, music, dances, parades, cockfights, bullfights, horse races, baseball games, and fireworks.

For years there had been dissatisfaction among the Mexican-born Spaniards, wealthy and poor alike.

Only those born in Spain and of noble blood could hold office. In other words, all government was ultimately ruled by the Spanish. Throughout Mexico, churches held small community meetings under the pretense of "literary



clubs," to plan a revolt. The date was set for December 8, but the plans for the revolt leaked to authorities. Arrests were made and word spread to rebel leaders Ignacio Allende and Father Hidalgo. They decided to strike immediately and Hidalgo climbed into the church tower, rang the bells and cried his famous *grito*. The struggle was long and fierce, resulting in the capture and execution of both Allende and Hidalgo a year later. Others then took up the call.

Eleven years later in 1821, an officer in the Royalist Army, Lieutenant Agustín de Iturbide, joined the rebel cause. He brought many other soldiers with him and won the last decisive battle. The flag of Mexico flew for the first time over the capital with Iturbide as the new ruler.

CINCO DE MAYO

One of the major *fiestas patrias* (patriotic holidays) is *cinco de mayo* (fifth of May). On this date in 1862, an elite invading French army was defeated at the city of Puebla by only 4,000 Mexican soldiers led by General Ignacio Seguín Zaragoza, one of Mexico's most famous leaders.

Mexico had suffered through incompetent leadership and civil wars since its independence from Spain in 1821. Mexico lost half of its territory, including Texas, during the Mexican-American War (1846-1848). The country was deeply in debt to France, Spain and England after the war. Conservative monarchists conspired with Napoleon III of France to create and place an Emperor on the Mexican throne.

Although the Mexicans won the battle at Puebla on May 5, 1862, the French were triumphant. President Benito Juarez fled north and continued the struggle from there. Maximilian of Austria was crowned Emperor of Mexico in 1864.

Maximilian, however, was short lived. The French were defeated, and he was executed in 1867.

A young war hero, Brigadier General Porfirio Diaz, succeeded Juarez and remained president until 1911. It was sometime during the latter part of the Mexican Revolution (1919-1920) that *cinco de mayo* became an important patriotic holiday.

Although the French remained in power for just a short time, *cinco de mayo* became a symbol of Mexico's victory over European imperialism. Celebrations for this holiday are similar to those for *dieciseis de septiembre*, including fiestas, dances, and fireworks. Throughout the United States and Mexico it is a celebration of Mexican pride and heritage.





LESSON OVERVIEW

By creating a small fiesta in the classroom, students will gain a better understanding of Mexican-American culture. Fiesta activities include celebration, history, music and food.

Subjects

Social Studies, Art, and Music.

Social Studies Standards

History

Objectives

Students will:

1. Compare various Mexican cultural activities.
2. Compose at least one Mexican saying.

Preparation

Create a Mexican atmosphere in class: decorating with paper flowers and crepe paper. Select stories and dichos from Mexican traditions (**Page 3.6**) and gather ingredients for traditional Mexican foods and drink (**Pages 3.7**) Gather yarn and craft sticks for craft activity (**Pages 3.8 - 3.9**)

Time

One or more 50 minute sessions.

Vocabulary

Banderolas, Cinco de mayo, dicho, Dieciseis de septiembre, fiesta, grito

FIESTA

Hold a Fiesta!

Choose a birthday party or one of the events listed in the Teacher Background Information on pages 3.1 - 3.3 for a theme. If possible, work with your students to decorate the room with paper flowers, piñatas, crepe paper or other materials in preparation for the fiesta. (See the bibliography for more ideas.)

As part of the fiesta, use one or more of the following activities to give students a first-hand experience of the Mexican-American culture.



Activity 1

Dichos (Sayings)

In all societies, language reflects cultural values. *Dichos* (sayings) are commonly used among Mexican-American people.

1. Share some common sayings with your class such as “You will reap what you sow,” “An apple a day keeps the doctor away,” or “Patience is the medicine of the world.”

2. Introduce the idea that “sayings” are not exclusive to English, but exist in other cultures. Read and discuss the following *dichos*.

Hay que aprender a perder antes de saber jugar.

One must learn how to lose before learning how to play.

Una onza de alegría vale mas que una onza de oro.

An ounce of gladness is worth more than an ounce of gold.

El sol es la cobija del pobre.

The sun is the blanket of the poor.

3. Complete the Sentence!

Write the following incomplete sayings on the board and ask your students to complete them. Review and discuss.

A penny saved is _____.

You can lead a horse to water but _____.

Birds of a feather _____.

My _____ is your _____.

Don't cry over _____.

Don't put the _____ before the _____.

If the shoe fits _____.

Do unto others as you would have others _____.

Activity 2

Cuentos (Stories)

A fiesta might end around a fire with the grandparents chatting and sharing tales like the one that follows. Read and discuss the following traditional tale with your class.

THE CHICKEN DINNER

It was a wet and muggy day and many travelers were looking for a place where they might stay the night. One such traveler began talking with a farmer and discussing the weather.

Seeing that it would rain, the farmer took pity on the traveler, and even though he already had two guests, he invited him to dinner.

The traveler entered the kitchen just as the farmer's wife was setting the table. "Since you are my last guest," commented the farmer to the newcomer, "you may have the honor of serving the meal."

The young traveler looked at the feast and couldn't remember when he last saw such a meal. The chicken was baked just right, with gravy, potatoes and a bowl full of fresh vegetables. He took out the carving knife and set to work, dividing the chicken in the following manner.

"The head of this bird should go, of course, to the head of the family" and he placed the head of the chicken on the farmer's plate.

"The neck of the fine animal then goes to the one who supports the head of the family" and he carefully placed the neck on the farmer's wife's plate.

Looking at the daughter he said, "And for this lovely maiden who is now almost an adult, and her brother who must start his own farm and family soon because both are to fly away, they shall receive the wings."

"As for my fellow travelers," he went on, "I notice that the one on my left is rubbing his leg and needs a little support for his journey." A leg was put on the traveler's plate. "And for the one on my right, because he has been traveling so far and long, he should have the other." The other leg was dished out.

"Praise be to God," he then stated "That leaves what little bit is left for myself. . . ." And with a big smile on his face he placed the rest of the fat, plump, juicy chicken on his own plate!

Activity 3

Music

Teach and sing *Las Mañanitas*, the Mexican birthday song, to your class. A copy of the music is found on **Master Page 3.10**. Many recordings are also available.

Traditionally the song is sung to the birthday person as an early morning wake-up call on their birthday, but it can be sung anytime. Try taking it to other classes and/or make it part of your regular birthday celebrations.

Activity 4

Drink

Traditionally, *Champurro* (Mexican hot chocolate) is made of chocolate blended with sugar, cinnamon, and occasionally ground almonds. It is made frothy by beating it with a *molinillo* (a special carved, wooden beater). You may get similar results using a hand or portable mixer.

If you have any students of Hispanic heritage, see if a parent or relative might be willing to bring some traditional *Champurro* to the class fiesta. A simplified version of instant hot chocolate and cinnamon could be used as an alternative.

Activity 5

Food

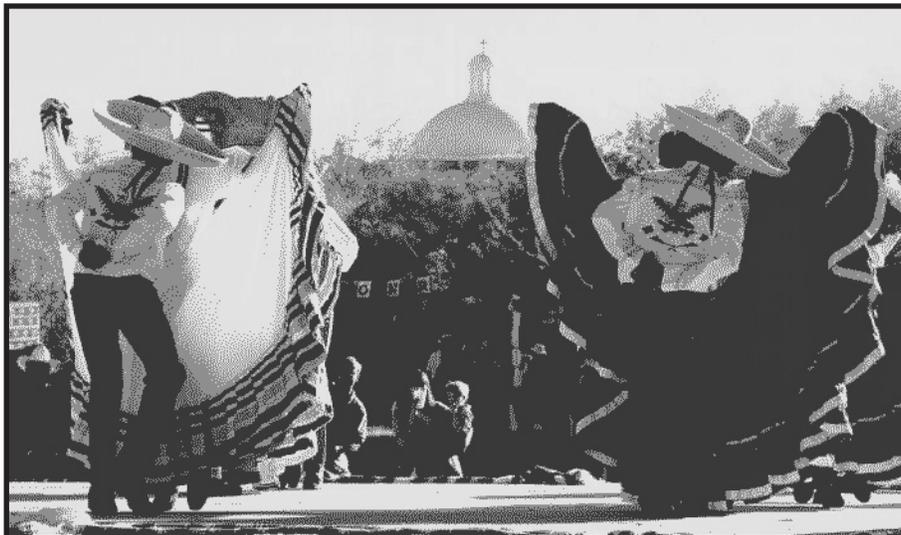
What would a fiesta be without food? Turn your classroom into a kitchen and make a traditional Mexican-American snack:

SALSA AND CHIPS

Ingredients:

- Tomatoes (diced)
- Cilantro (finely chopped)
- Onions (finely chopped)
- Garlic (minced)
- Green chilies (finely minced)

Mix ingredients together and add salt and pepper to taste. Bring out a bag of tortilla chips and watch it disappear.



God's Eyes

Background Information

The God's Eyes, also known as *Ojos de Dios* is a traditional craft that comes from the Huichol Tribe of the Sierra Madre Mountains, Mexico. They were thought of as the eye through which God would see the person asking for health and long life for their children. God's Eyes represent the four cardinal directions (north, south, east, and west) often referred to in Native American lore. *Ojos de Dios* in no way represent the cross in Christianity! The reference to "God" refers to the indigenous belief in nature spirits or Gods.

Other than in the Huichol Tribe, God's Eyes are only found in Chilean and Tibetan cultures.

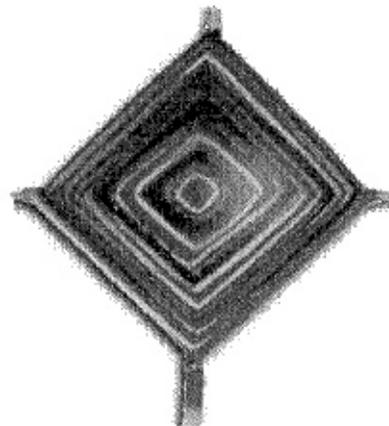
According to tradition, when a child is born, the center eye is woven by the father. Then every following year another "eye" is added to each of the four directions until the child reaches the age of five.

Today, God's Eyes are considered a traditional craft throughout Latin America.

Activity 6

God's Eyes

1. Using the information from the previous description of God's Eyes, briefly introduce the history and present day uses of the craft.
2. Model how to make a God's Eye using the instructions on **Master Page 3.9**.
3. Pass out materials to the class and help students with the step by step process as needed.



ENRICHMENT

- Check local recipe books for other culinary treats.
- Contact the Pimería Alta Historical Society in Nogales or the Arizona Historical Society in Tucson for information about special Mexican-American events.
- Have your students memorize and recite the *dichos* (sayings) in either English or Spanish. Ask them to create their own *dicho*.
- God's Eyes can be expanded to include more than two sticks to make multi-sided or circular patterns, etc. Experiment with different sized designs and colors.

Cross two sticks in the middle and glue them together.

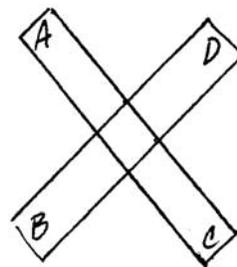


Figure 1

Tie the yarn in a knot around "A" then wind it once around "B." Proceed in the same manner with "C" and "D."

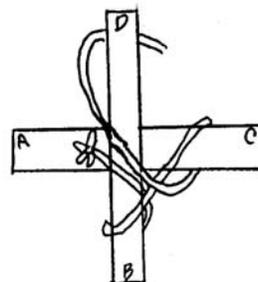


Figure 2

Continue in this manner until you wrap the yarn, over and over, around each stick.

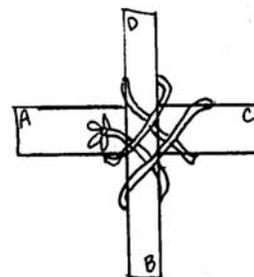


Figure 3

When complete, tie a knot at the end of the yarn and tuck it in.

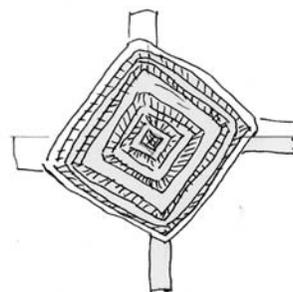
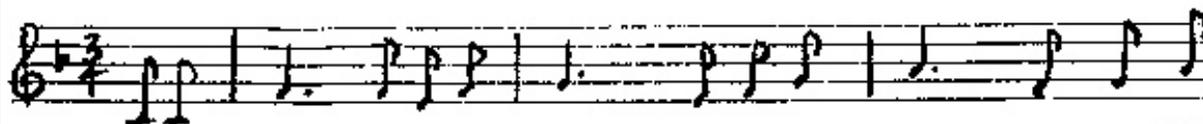
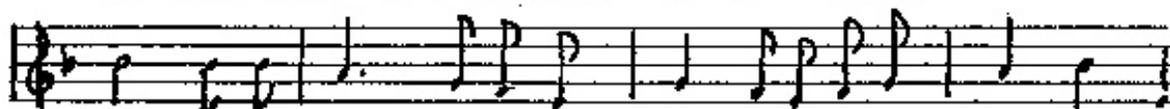


Figure 4

LAS MAÑANITAS MORNING SONG



ESTAS SON LAS MA-ÑA-NI- TAS QUE CAN-TA- BA EL REY DA-
WE WILL SING A MORNING GREET-ING AS KING DA-VID USED TO



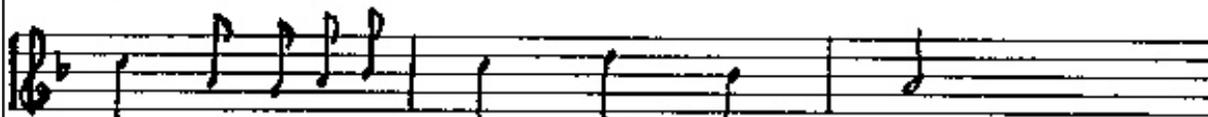
VID. A LAS MU- CHA-CHAS BO- NI-TASSE LAS CAN-TA-BA A-
DO. HE WOULD SING IT TO THE LA-DIES, AND WE WILL SING IT TO



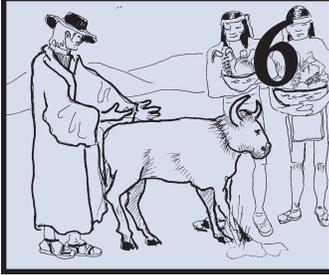
SÍ: DES-PIER-TA, MI BIEN, DES-PIER-TA, MI-
YOU: GOOD MORN-ING, MY LOVE, GOOD MORN-ING, WAN



RA QUE YA R-MA-NE-CIÓ; YA LOS PA- JA-RI-LLOS
UP NOW AND GREET THE DAWN; LIT-TLE BIRDS ARE SING-ING



CAN-TAN, LA LU-NA YA SE ME - TIÓ.
GAI-LY, THE MOON IS AL - REA - DY GONE.



LESSON OVERVIEW

Through listening to a story and by doing a matching activity, students will classify food items, compare and contrast introduced versus native foods and discuss how these foods both helped and hurt the Indians and the environment.

Subjects

Language Arts, Science and Social Studies

Social Studies Standards

History

Science Standards

Science as Inquiry, Personal and Social, Perspectives in Science

Objectives

Students will:

1. Compare and contrast historical with present-day items.
2. Classify native versus introduced food items.
3. Discuss positive and negative implications of introduced goods.

Preparation

Make copies of **Master Page 3.12**, one per two students (to later be divided in half); Review and make a working copy of *A Gift from Padre Kino* on **Page 3.13**, and copies of **Master Pages 3.14** for each student.

Time

One 50 minute session

Vocabulary

Crops, introduced, mission, new world, O'odham, rodents, settlers

A GIFT FROM FATHER KINO

1. Hand out and have each student complete **Master Page 3.12**, (one page per two students). Once completed, correct and discuss the results.

How are traditional foods different from those of today?

What was required to prepare foods in contrast to today?

Would students like to live on only traditional foods? Etc.

2. Read aloud to the class "Spanish Gifts" on **Page 3.13**. Review the contents checking for student retention and understanding.
3. Brainstorm and list on the board "Native" versus "Introduced" foods.

4. Hand out and have students complete "Who Brought What?" on the top half of **Master Page 3.14**. Review answers.

5. Introduce and discuss the concept of helpful versus harmful in relation to introduced products.

6. Ask students to complete "Helpful or Harmful" on the bottom half of **Master Page 3.14**.

7. Hold a general discussion about the positive and negative consequences of Spanish imported items. Expand it to include effects on the environment in addition to human lives and cultures.

Teacher Key to "Who Brought What?"

Native Americans brought = agave, avocados, beans, cocoa, corn, devil's claw, mesquite, onions, potatos, prickly pear, pumpkin, squash, sweet potatoes, turkey.

ENRICHMENT

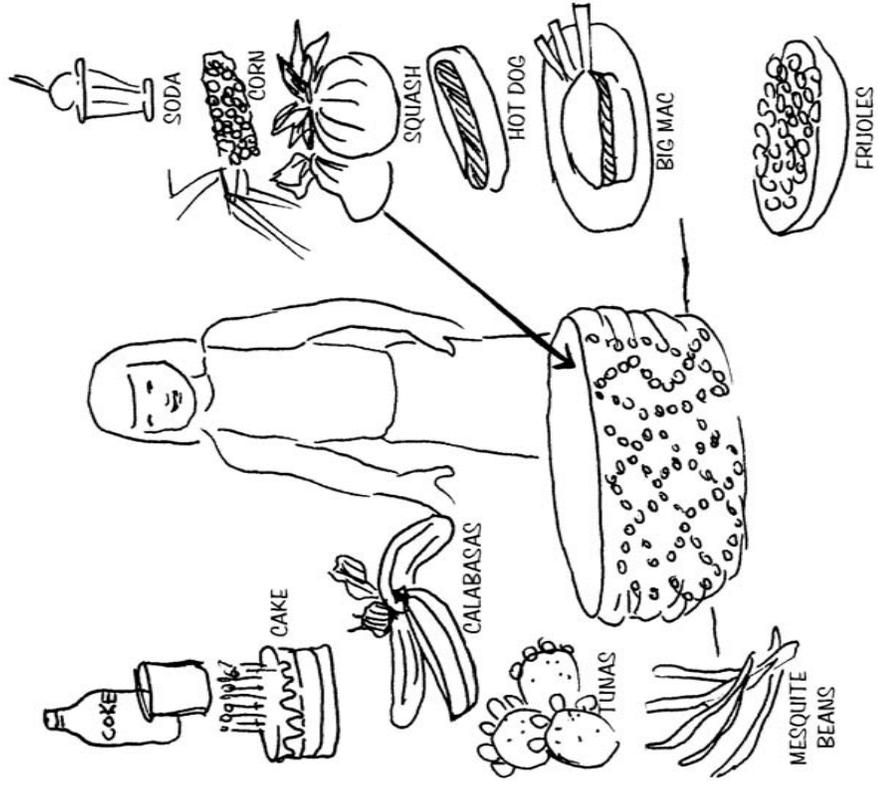
- Many of the things we eat today are combinations of native versus introduced foods. Create a menu with at least three dishes, each using one or more native or introduced ingredients.

For Example:

Wheat (Introduced) + Cocoa (Native) = Chocolate Cake

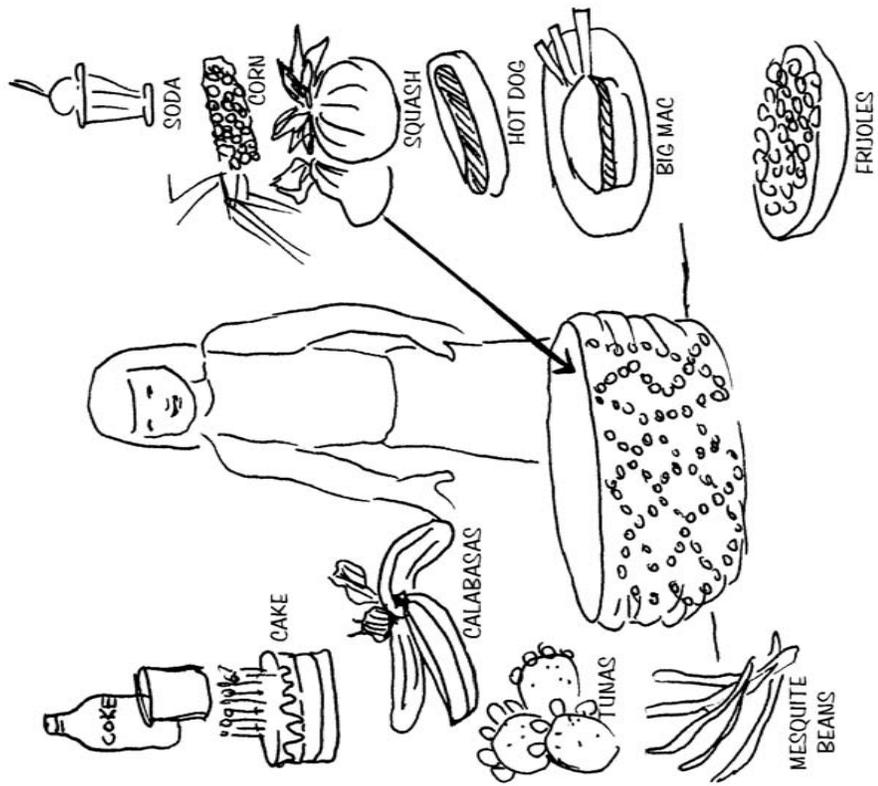
Yesterday and Today

The O'odham did not have grocery stores and had to hunt, gather, and farm for their food. Can you harvest enough traditional food for dinner? Place O'odham food items in the basket in the basket by drawing a line as shown below



Yesterday and Today

The O'odham did not have grocery stores and had to hunt, gather, and farm for their food. Can you harvest enough traditional food for dinner? Place O'odham food items in the basket in the basket by drawing a line as shown below



A GIFT FROM FATHER KINO

The *O'odham* or Pima people lived along the Santa Cruz River. They were farmers who used the river to water *crops* of corn, squash, beans and cotton. They collected local plants such as mesquite, devil's claw, and cactus. They also hunted *rodents*, birds, deer and mountain sheep.

Their lives depended on the river. A bad year might bring a flood or a drought that killed their crops. Sometimes it would get very cold in the winter and the plants would freeze. That meant they could not grow food in the winter and had to rely on hunting and gathering food. After time, cotton made the soil unusable and nothing would grow.

The O'odham heard about how Father Kino was kind, generous and very smart, so they invited him to the village of Tumacácori. He spoke to them about a new God and gave them gifts such as colorful beads, sheep, horses, cattle and a plant called "wheat" that grew in the winter. He also brought lots of other good things to eat like sugar, oats, olives, grapes, pork, cabbage, barley, and beets. The people liked Father Kino and asked him to stay, so he built a *mission* where the Indians could learn about and practice their new life. Father Kino never lived in Tumacácori but he visited the village, each time coming with new gifts and ideas.

Gifts brought by Father Kino, other priests, and the early *settlers* changed the way the O'odham lived. Because they could plant wheat and raise cattle and other animals in the winter, it meant that the people did not need to move around as much in search of wild foods or to go on long hunts. They could grow new foods like beets, grapes, and sugarcane; and animals such as cattle, sheep and pigs gave them plenty of meat. *New World* inventions such as metal knives and digging tools also made their work easier.

Many of the changes were good, however, the *introduced* items brought a new set of problems to the people and their environment. More people lived in larger villages and needed to be fed. Instead of hunting during the winter they planted crops all year long. If they didn't hunt enough game and those crops failed, they might not have enough to eat. The cows ate some kinds of grass and left others, so after awhile the best grasslands were gone, leaving grasses that even the cows wouldn't eat.

The worst change came from diseases. Without knowing it, the new settlers brought sickness and disease to the Indians. Smallpox, measles, influenza, malaria and other diseases sometimes killed hundreds of people.



WHO BROUGHT WHAT?

Listed below are goods that were exchanged between the Native Americans and the missionaries. Can you decide who brought what? Circle all of the things which came from the missionaries. Underline those that were used by the Native Americans throughout the Americas before the Europeans came.

Example: Rice = Spanish Avocado = Indian

Agave	Corn	Pigs	Sugar
Avocados	Devil's Claw	Pineapple	Tomatoes
<u>Bananas</u>	Grapes	Potatoes	<u>Turkey</u>
Barley	Horses	Prickly Pear	Vanilla
Beans	Mesquite	Pumpkins	
Beets	Oats	Rice	
Cabbage	Olives	Squash	
Cattle	Onions	Sheep	
Cocoa	Peanuts	Sweet Potatoes	

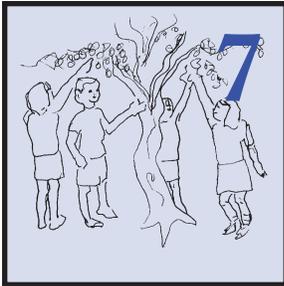
HELPFUL OR HARMFUL?

The European settlers introduced the Native Americans to many new ideas and objects, some good and some not so good. Can you tell which ones were helpful and which were harmful? Draw a line between each thing they brought and the description of how each item helped or hurt the O'odham.

(Hint: there may be more than one answer.)

Disease		Makes good wine.
Vegetables		Tastes great but not too good for you.
Cattle		Unwanted plants came from this fruit.
Grapes		A permanent source of food.
Sugar		Lots of people died from this.
Horses	← Example →	Better than walking!
Wheat		Ate too much grass.
		Provided variety to their diet.

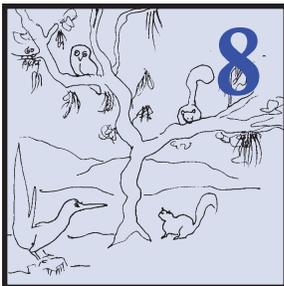
TREE OF LIFE



DRESS A TREE

Students will participate in an art activity in which they will learn about different parts of a mesquite tree, their functions and uses.

PAGE 4.5



MESQUITE HOUSE

Students will learn about the inhabitants of, and their relationship to, a mesquite tree while participating in a cut-and-paste craft activity.

PAGE 4.9

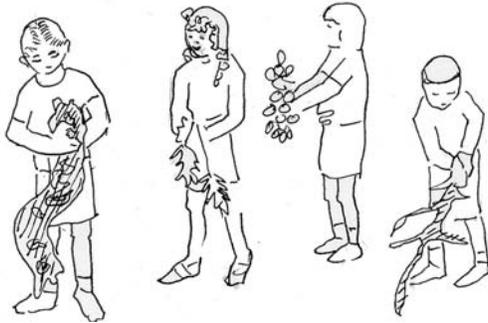
PARTS OF A MESQUITE

In the Santa Cruz Valley, the mesquite is the dominant species found bordering the river corridor. Native to the area, the mesquite provides habitat for a myriad of animals. It also played an essential role in sustaining life among the early O’odham and other people living in the area.

The basic botanical parts and functions of a mesquite tree are identical to that of any tree. The roots are the main support for the tree. They can reach a depth of 200 feet, depending on water level, soil conditions, and strong winds. The roots also function as the mouth of a tree. With the help of microrizoi fungus, they take in water and nutrients that are transported up through the trunk to the leaves.

The function of the trunk is to support the branches and leaves while conducting food and water upward. The center of the trunk is called heartwood. It is essentially dead wood that provides support, and allows the conduction of water and nutrients. Surrounding the heartwood is the sapwood or xylem cells, essential

for transporting water and nutrients up the tree. A thin, cell building cambium layer, is sandwiched between the sapwood and yet another layer called phloem, which is responsible for transporting photosynthesized sugar



down from the leaves to sustain other parts of the tree. The final layer is the bark, essentially dead phloem cells that serve to protect the tree, similar to the way our skin protects us.

The branches support the leaves, flowers, and fruit while also transporting water and nutrients. In many cases they can get almost as large as the trunk, spreading as wide as the tree is tall.

The mesquite tree produces an oblong bean pod, about eight inches in length. Regardless of heat, drought, or cold, each year a mature mesquite tree can produce more than 35 pounds of fruit, (about 140,000 seeds). It takes a number of years for germination to take

place because the bean is so hard. However, it can germinate in one season if it passes through the stomach of a ruminant. This means that domestic livestock such as cows and sheep help the germination process by spreading the seeds from place to place. Otherwise the seeds might lie on the ground for years, subject to infestation from insects. Many ranchers consider the mesquite to be a weed and have tried to eradicate the tree.

A mesquite flower is tiny and only a few millimeters in size. The many flowers grow clustered together in a long yellow bloom, one to three inches in length. They blossom from April through June. Only a few of the many flowers in each bloom will produce fruit which will eventually turn into bean pods. The flowers are visited and pollinated by flies, wasps, and over sixty varieties of bees.

The leaf of the mesquite tree is compound with many leaflets. They are small in order to conserve energy and water. The leaves provide shade during the hot summer months and fall off in winter. The fallen leaves then provide nutrient-rich ground cover.

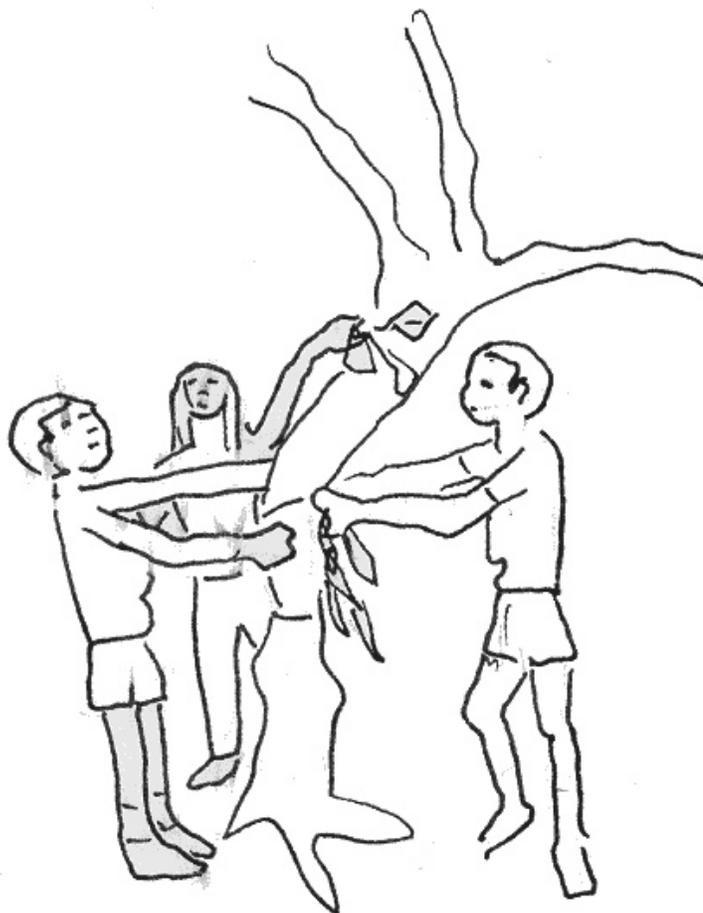
ETHNOBOTANY

(How people used the Mesquite)

Today, as in the past, the O'odham people grind the mesquite beans into a mealy flour. It is sweet, high in protein, and can be made into bread. Pods are traditionally gathered dry and toasted just before the summer rains. The flour is then fried or baked into tortillas, breads, and cakes.

Most southwestern tribes used all parts of the mesquite tree. The trunk and stems were used for making bowls, balls, planting sticks, awls, war clubs, trays, cradles, and firewood. Roots were used as a type of string. The O'odham built a *Ki* or traditional house made out of mesquite logs, ocotillo, mud, and other local materials. The black gum or tar can be dissolved to make a tea for head and stomach-aches. It can also be topically used as a cure for sunburn or other burns. Cosmetically, it was used as a form of chapstick or hair-dye. It was also used for pottery paint by boiling the resin.

Today, people still use the mesquite for medicinal purposes but it is more commonly used as firewood for grilling steaks and flavoring other foods.



MESQUITE AS HABITAT



The mesquite tree is found in washes of the Santa Cruz River Valley, on bottomlands, mesas, and sandy flats of the desert at elevations below 3,000 feet, and between 4,000

and 5,000 feet in the desert grasslands. The mesquite, a survivor, has adapted to the desert while providing a home or habitat for many animals.

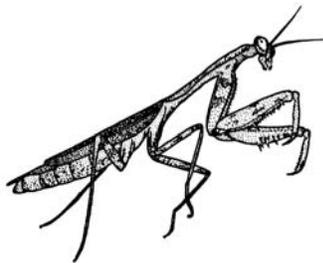
GIANT MESQUITE BUG
(1,5).



One of the flashiest insects around is the Giant Mesquite Bug. The colorful adult can be two inches long, reddish-brown with yellow markings on the forewings, and have patterns that resemble a design found on a flag. The bug feeds exclusively off the mesquite by sucking up plant juices.

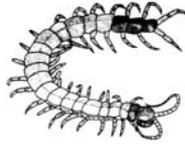
PRAYING MANTIS (1,2,4,5).

Among the well-known predatory insects is the Praying-Mantis. The desert species is well camouflaged and comes out in a desert soil brown, green, yellow, or tan. It uses the mesquite tree for a place to lay its eggs and as a hunting site for other insects.



CENTIPEDE (3)

The creature with “one hundred legs,” commonly lives in the soil near or under a mesquite tree. It is three to six inches long with tan and darker bands.



It only comes out at night to hunt on small insects but will prey on lizards and small mice. Centipedes found in the Sonoran desert can issue a painful sting, but are not life-threatening to humans.

BARK SCORPION (4).

Another stinging friend is the Bark Scorpion. Mistaken for an insect but really in the spider family, it is light colored and small (about 2 inches



long). It has a neurotoxic venom that affects the whole body, making it the most dangerous of all scorpions in Arizona. It generally hides under tree bark, leaves, and debris, from which it feeds on soft-bodied insects. The bark scorpion is very common in Santa Cruz County.

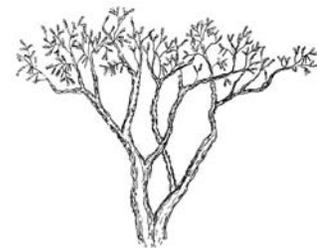
VERMILLION FLYCATCHER (8).

Perhaps the most colorful inhabitant to be seen in the mesquite canopy is the Vermillion Flycatcher. It is normally migratory but is taking up permanent residence more and more. The male is about 6 inches long and has a bright vermilion-red breast with



black or grey on top and on its wings. True to its name, it demonstrates acrobatics from the branches of mesquites while looking for flying insects. It is quite common to find its nest tucked into the trunk of a tree.

THE GILA



WOODPECKER (4,6)

The Gila Woodpecker is a noted resident of the mesquite. The colorful red cap, black and white cape, and excessively noisy call,



makes identification of this bird easy. Nest cavities are dug into trees that also serve as hunting and gathering grounds. Their diet consists of insects, fruit, and eggs of smaller birds.

GREATER ROADRUNNER (7)

Known as the “clown of the desert,” this legendary bird can grow to be 23 inches long. It is one of the most proficient hunters, eating insects, lizards, spiders, scorpions, rodents and snakes, including

rattlesnakes. It uses the mesquite for cover and to climb if threatened.



GREY ROCK SQUIRREL (2,4,6)

The ground-dwelling Grey Rock Squirrel is common to the mesquite tree and the area. Up to 20 inches long with a large fluffy tail, this furry animal is in the



rodent family. Although considered cute, it can be a common carrier of plague or rabies, and therefore, like any wild animal, should not be fed or handled. It

uses the mesquite as a perch, to gather and eat a variety of foods, including bird eggs.

POCKET GOPHER (9)

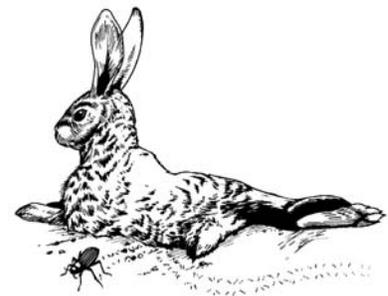
An unwelcome and common garden visitor is the Pocket Gopher. Up to eleven inches long, it burrows under the mesquite tree, (one of the few plants it won't eat), and other trees.

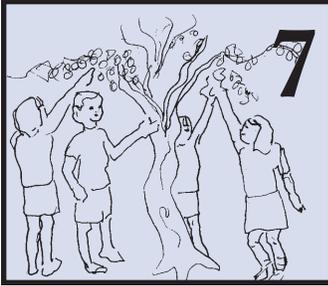
Its diet is primarily made up of plants, roots, and bulbs that are taken from below the surface of the ground.



COTTONTAIL RABBIT (10)

Another desert animal is the Cottontailed Rabbit. Often found resting under a mesquite tree or in the burrows of other animals. The cottontail's primary foods are grasses, mesquite leaves, and cactus.





LESSON OVERVIEW

Students will participate in an art activity in which they will learn about different parts of a mesquite tree, their functions and uses.

Subjects

Science and Art

Science Standards

Science as Inquiry,
Life Science

Objectives

Students will:

1. Classify and label different tree parts.
2. Construct a model of a tree and its parts.

Preparation

Make five copies of Master Page 4.7: Draw a picture or cutout a tree trunk in proportion to a large piece of paper and display it in front of the classroom. Supply construction paper (black, brown, beige, green and yellow), pencils, crayons or other colors, scissors and masking or double-sided tape.

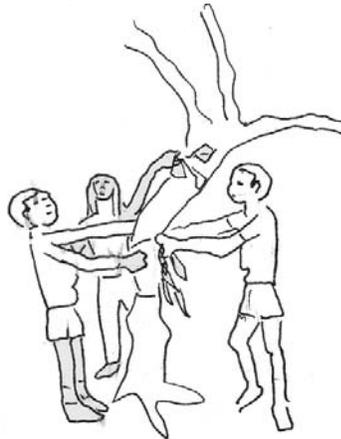
Time

Two 50 minute sessions.

Vocabulary

Bark, buds, bean pod, flowers, leaves, mesquite, roots, stems and trunk.

DRESS A TREE



SESSION 1

1. Prior to the lesson, make a picture or a cut-out of a mesquite trunk and gather materials listed in "Preparation."

Locate a mesquite tree(s) close to your classroom with enough space for your class to gather around it and explore.

2. Take your students out to the mesquite tree and ask them to explore the tree with their senses (smell, touch, sight, hearing and taste) If available, use magnifiers to see close-up details.

3. Hold a discussion about the mesquite tree while identifying its parts, functions and cultural uses as explained on **pages 4.1 and 4.2.**

4. Returning to the classroom, present to your students the pre-made trunk and display it in front of the class. Explain that it represents a tree trunk and that together they will "dress" it. Pose the following questions: "what parts do we need to dress on this tree, and what is the function of each part?" Review the basic parts of the tree (roots, trunk, stems, leaves, flowers, fruit beans, and bark).

5. Divide your class into five workgroups and assign each group one of the different parts: stems (black paper with white chalk or crayon), leaves (green paper), roots (brown paper), flowers (yellow paper), and beans (beige paper).

LESSON 7 - DRESS A TREE

6. Give each group art supplies and a copy of **Master Page 4.7** as a guide. Direct each student to illustrate and cut out one or more assigned tree parts. (There will be duplicates of each part).

7. When the tree parts are complete, have students label them while reviewing vocabulary and spelling.

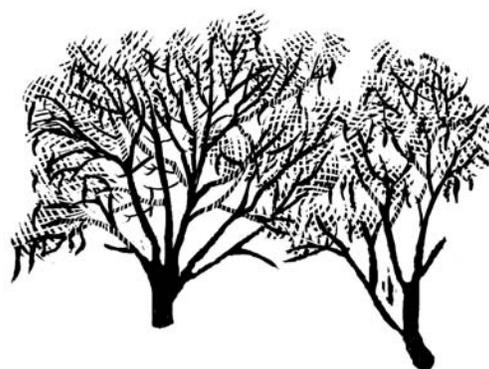
8. Give students masking or double-sided tape and have them place the tape on the back of their tree part, ready to attach to the tree poster. (This step is important to expedite placing the parts on the trunk.)

2. Call students to individually dress their tree with tree parts. Starting with the roots, have each student obtain a root and attach the appropriate piece on the prepared trunk. Review each part and its function. Repeat this process for each part in sequence, (roots, branches, leaves, flowers and beans)

3. Once the tree is complete or “dressed,” review again the different parts, functions, and cultural uses.

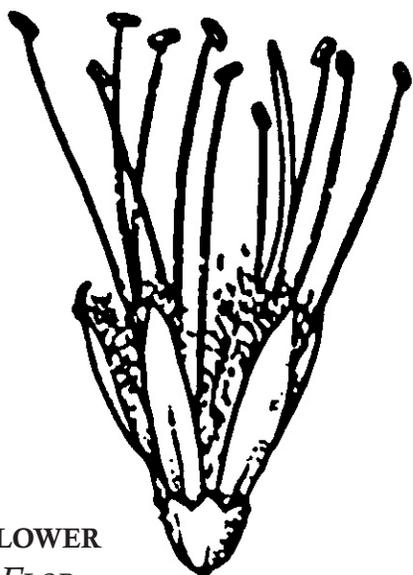
SESSION 2

1. Assemble the class and make sure that all students are ready to tape their tree parts onto the pre-made tree trunk, strategically placed at the front of the class.

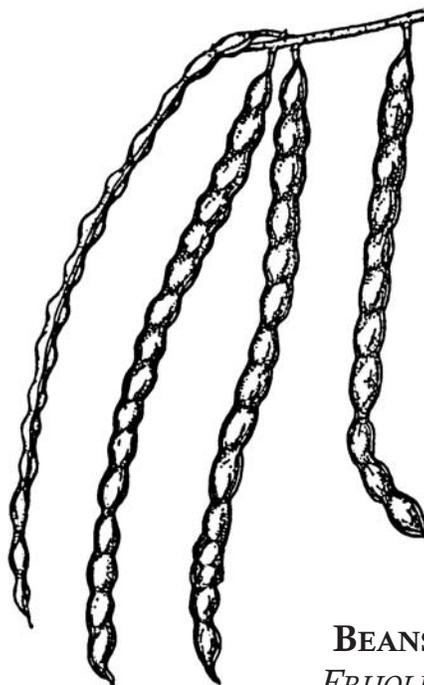


ENRICHMENT

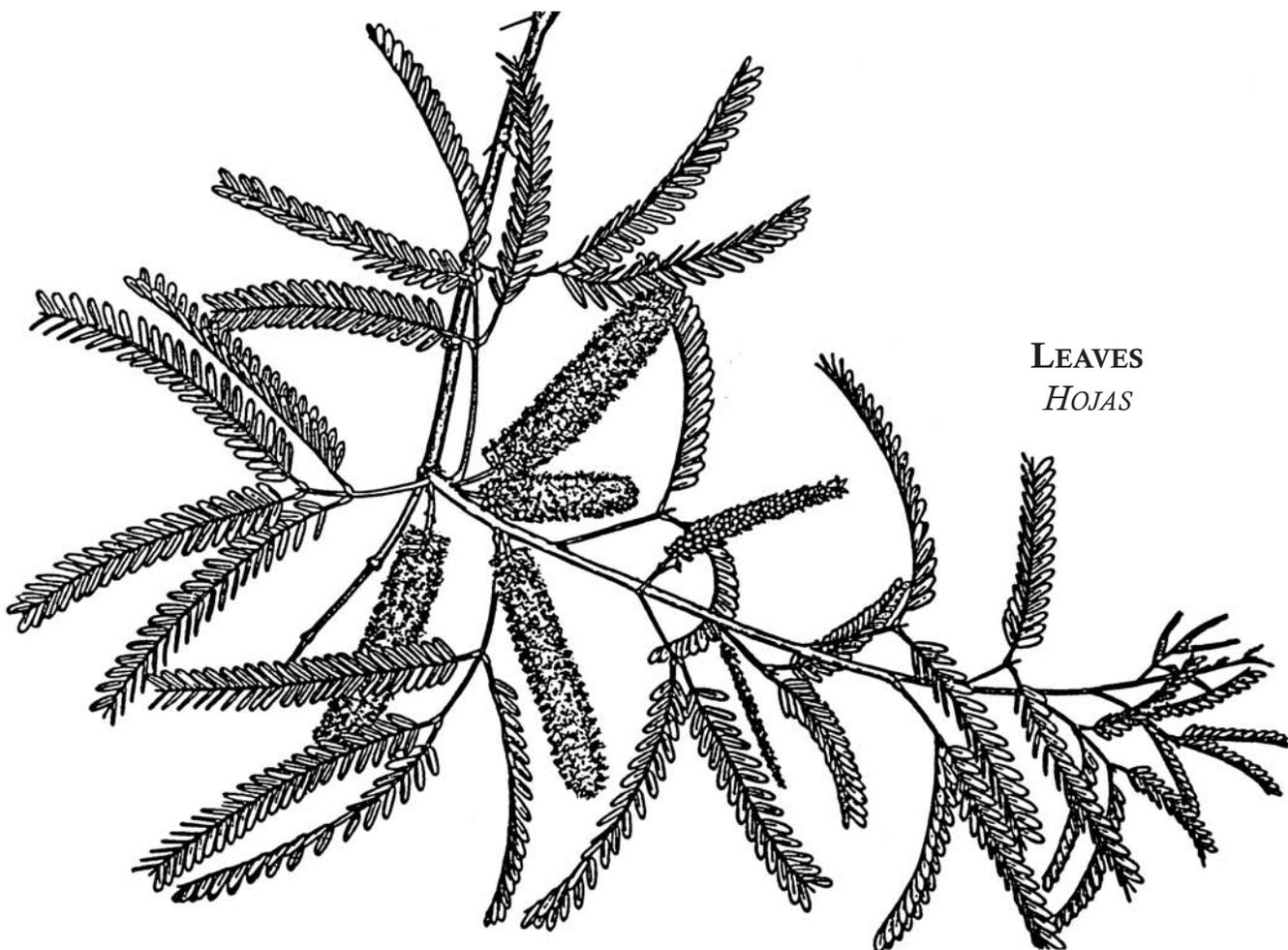
- Consider using dead or dried parts from an actual mesquite tree collected at or nearby the school. In doing so, please make sure that living trees are not damaged in the process.
- Have each student draw a tree and label all its parts.
- Listen and sing the song “*I’m a Tree*” or “*Roots, Flowers, Stems, Leaves, Fruits and Seeds*” by the Banana Slug String Band. (see Resources and References)



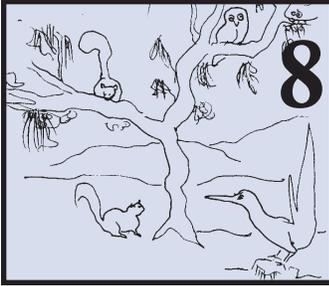
FLOWER
FLOR



BEANS
FRIJOLES



LEAVES
HOJAS



LESSON OVERVIEW

Students will learn about the inhabitants of, and their relationship to, a mesquite tree while participating in a cut-and-paste art activity.

Subjects

Natural Science, Art

Science Standards

Science as Inquiry,
Life Science

Preparation

Review the Teacher Background Information on **Master Pages 4.2 - 4.4**; make copies for each student of **Master Page 4.11** and of **Master Page 4.12**, one per every two students and pre-cut in half; pre-cut a set of circled animals on **Master Page 4.12** and attach masking or two-sided tape to the back of each circle, set aside; have scissors and glue readily available.

Time

One 50 minute session

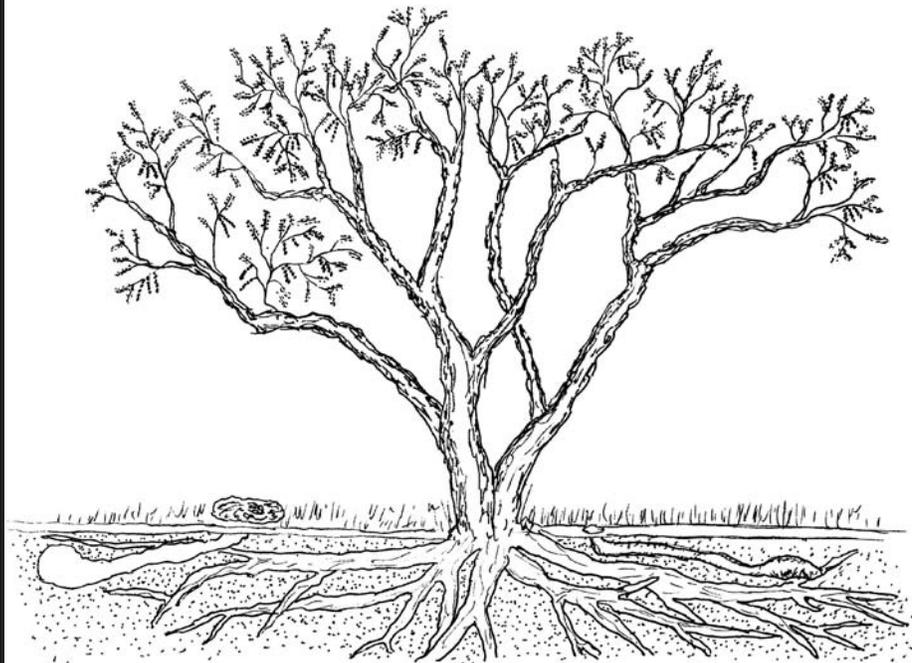
Vocabulary

Bark Scorpion, Centipede, Flycatcher, Gopher, Habitat, Mesquite Bug, Praying Mantis, Rabbit, Squirrel.

MESQUITE HOUSE

1. In preparation, take a copy of **Master Page 4.11** and hang it in front of the class where all students can see it. Pre-cut a set of ten circled animals from **Master Page 4.12** and place masking or two-sided tape on the back of each circle. Stick them next to the displayed mesquite tree picture.
2. Ask students what they know about the mesquite tree. What can they remember from Lesson 7, *Dress a Tree?*, Can the mesquite be used to make medicine or food?, What kinds of animals use the mesquite and how?
3. Define or review

Habitat: the area that provides an animal or plant with food water, shelter, and living space.



4. Hand out copies of **Master Page 11** and the half page of the ten circled animals on **Master Page 4.12** to each student.

5. Using the Teacher Background information on **Page 4.2 - 4.4**, separately discuss each animal species and how it might use the mesquite as a habitat.

Note: depending on time and student attention span, you may choose to skip step number 5.

6. Hand out scissors and ask students to cut out the animal species (circled) on **Master Page 4.12**.



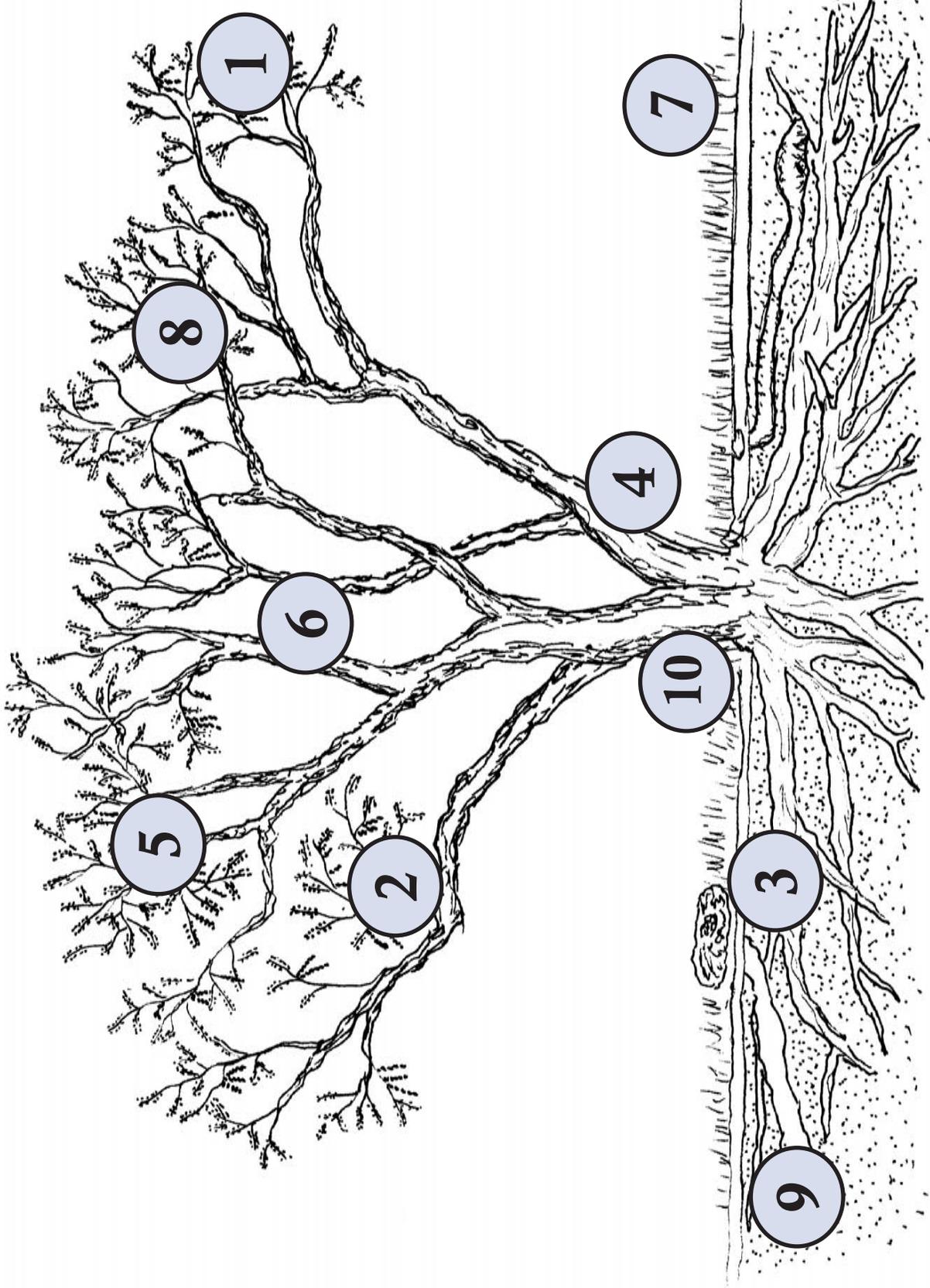
7. Have students arrange each circled animal to correspond with the proper placement on their individual copies of the mesquite tree from **Master Page 4.11**. For example, the gopher would be located in number 9 below the ground, whereas birds would be perched on a branch. (Note that each species may have more than one placement.)



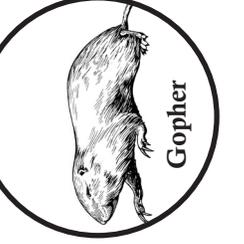
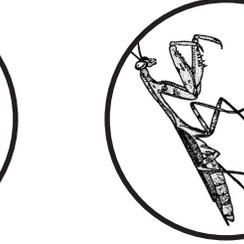
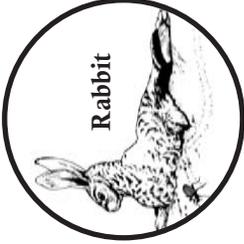
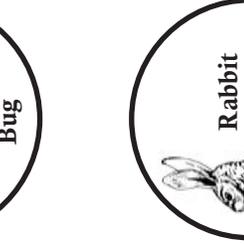
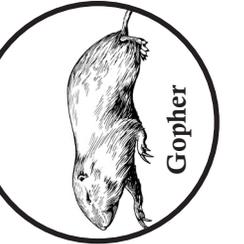
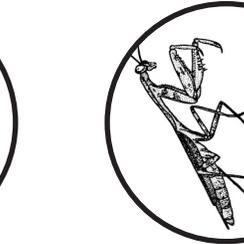
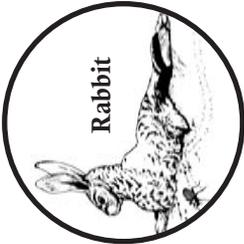
8. While reviewing each animal and its proper habitat, stick the pre-cut animals onto the displayed copy of **Master Page 4.11**. (Use the numbers in parentheses on **Master Pages 4.2 to 4.4** as a guide for proper placement. Repeat this for each of the ten animal species while students rearrange their own pictures with the correct animals.

9. Have students glue the animals onto their respective habitat around the tree.

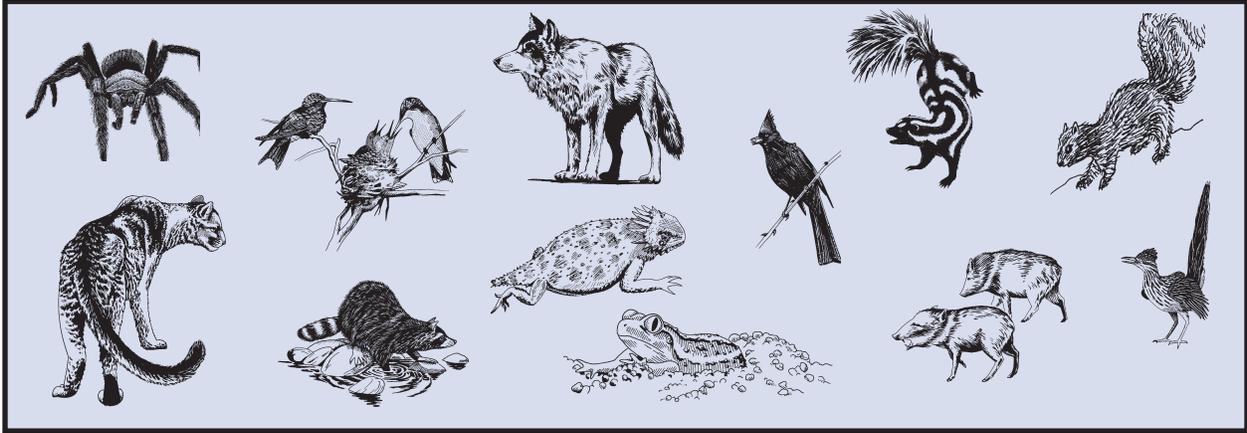
10. If time allows, complete the activity by reviewing the selected species and their relationship to the mesquite tree. Discuss other animals that might use the mesquite tree.



LESSON 8 - MESQUITE HOUSE - MASTER PAGE 4.12



RIVER CRITTERS



SANTA CRUZ RIVER CARDS

Students will learn to identify and/or review the general characteristics of various mammals, birds, insects, arachnids reptiles, and amphibians found along the Santa Cruz River.

PAGE 5.3



SANTA CRUZ RIVER BINGO

Through playing bingo, students will learn to recognize and identify various mammals, birds, insects, arachnids, reptiles, and amphibians found along the Santa Cruz River based on their general characteris-

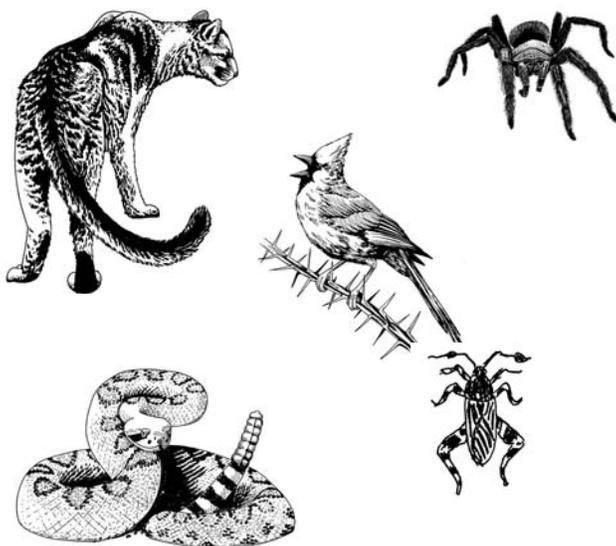
PAGE 5.17

A BRIEF HISTORY

The Santa Cruz River is a haven for local critters. Local wildlife rely on it for water. The river provides a habitat for a myriad of animals. Populations of white-tail and mule deer, javelina, mountain lion, bobcat, jackrabbit, desert cottontail, rock squirrel, valley pocket gopher, opossum, coyote, gray fox, raccoon, badger, three types of skunk (spotted, hog-nosed and striped), porcupine, white-throated woodrat, and gray shrew all utilize the river.

Picture what the river was like when Father Kino first arrived in 1691. After a long day of traveling he probably felt he had found heaven with the lush cottonwood and willow riparian area. The endangered or threatened species of today were common in the time of Father Kino, including monkey-springs pupfish, river otter, jaguar, Mexican gray wolf, ferruginous pigmy owl, barking frog, Sanborns long-nosed bat, Gila topminnow, willow fly-catcher and yellowbilled cuckoo.

It didn't take long for things to begin changing. The introduction of cattle and wheat soon began to take a toll as native habitats were



destroyed for agriculture, and ranching purposes. Despite these negative impacts, the environment of the Santa Cruz Valley was not dramatically affected until the late 1800s. Prior to this time, the human population was relatively small, partially due to Apache attacks, and technologies did not have a great impact. With the arrival of Europeans emigrating to the west and the industrial revolution, the environment took a turn for the worse.

In the 1800s, cattle operations, railroads and cotton farms took their

toll on the environment. Cowboys brought large herds of cattle into the area and ranchers attempted to raise as many animals as possible, without effectively managing the rangeland. The growing number of cattle ate and trampled native plant species which were unable to reseed. Other introduced or exotic species, such as Johnson Grass, competed for space.

For the most part, wildlife was thought of as something to be conquered. Smaller animals such as

beaver were removed for their pelts. Wolves, coyotes, large cats, raptors, and other animals, were considered threats and were often shot when seen. Bounty hunters were hired to track and kill what they considered to be predators.

The railroad and industrialization brought new technology and an increase in population to the area. Travel and movement of commerce improved and supplies were more readily available. Large companies and land owners often took everything they could from the land, destroying habitat and killing wildlife as they saw fit.

The Santa Cruz River, historically, has always been intermittent with surface water drying up in places, depending on topography and weather conditions. But by 1970 the effects of misuse of the riparian and adjacent areas had taken its toll on the river.

Most surface water dried up except during the rains and once towering cottonwoods became rare. Then in 1972, the environment changed with the building of

the Nogales International Sewage Treatment Plant in Rio Rico, which over time, has restored the surface water to beyond historical records.

Today, we might imagine that the Santa Cruz River looks, at least in certain parts, similar to what it did in the time of Father Kino. Although the source is artificial, the water from the treatment plant has restored habitat that was once doomed. The creation of the Juan Bautista de Anza National Historic Trail, along with other areas set aside by the many people and groups working for the rivers provide invaluable recreation activities.

Improvement also insures that we leave a legacy for our youth. But is it enough?

For this reason, education about the river and its wildlife are essential to insure a future citizenry that will support the river.



RIVER CARDS

The Santa Cruz River cards consist of a variety of pictures and description information for all types of critters commonly found along the Santa Cruz River. Included are pictures and descriptions of mammals, birds, reptiles, arachnids, insects, and amphibians.

The cards and pictures may be used in a variety of different ways to enhance student knowledge and appreciation of local wildlife. The activities suggest various ways in which you can use the cards. We recommend that you play the Santa Cruz River bingo game with your students and use the

pictures as flash cards for learning quick identification of the animals. In addition to these, other games can be played with the cards. Please be imaginative in your use of these cards.

The pictures and information provided may be used as is, although they are limited in size and description. We encourage you to make enlargements and display posters as appropriate.

Consider using the cards to:

- teach species identification, classification, physical characteristics, feeding and activity habits, and habitat.

- Reinforce what the students have learned and evaluate progress.

- Compare and contrast the animals represented by finding similarities and differences in their physical characteristics, (size, shape, coloring, skin and hair texture).

- Learn about the types of food that various animals eat and which animals eat the same types of food.

- Encourage students to learn and appreciate local wildlife and the areas that they inhabit.



LESSON OVERVIEW

Students will learn to identify and/or review the general characteristics of various mammals, birds, insects, arachnids reptiles, and amphibians found along the Santa Cruz River.

Subjects
Science

Science Standards
Science as Inquiry,
Life Science.

Objectives

- Students will:
1. Discern physical and behavioral features of local animal species.
 2. Formulate questions to identify local animal species.

Preparation

Teacher copy of Santa Cruz River Cards, **Master Pages 5.5 – 5.16.**

Time

15 - 30 minutes for each activity. Can also be used for quick questioning strategies.

Vocabulary

Amphibian, arachnid, bird, carnivore, habitat, herbivore, insect, mammal, omnivore, predator, prey, and reptile.

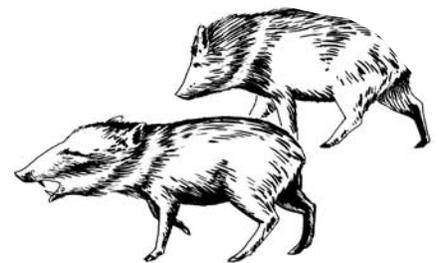
SANTA CRUZ RIVER CARDS

Activity 1

Animal Clue Game *

1. If students have not previously played the game, model and give clear instructions before starting.
2. Select one clue card from **Master Pages 5.5 - 5.8.**
3. Explain to students that you will be reading the clues about a certain type of animal and they are to try to guess its name. Ask students not to raise their hands or yell out if they guess the animal.

4. Read all the clues in sequence. When all the clues have been read, have them say or write down their guess.
5. Review and discuss the correctly guessed animal.
6. Repeat using other animal cards or create your own cards to use in the same manner.



* Activities are adapted from *Sharing Nature with Children*, with permission from the author, Joseph Cornell.

JAVELINA

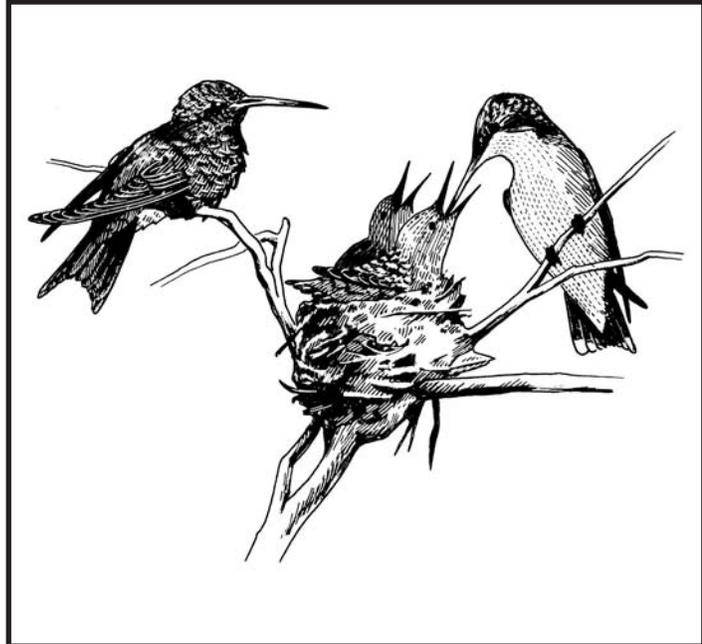
Dicotyles tajucu

1. I am busy both day and night.
2. I have 4 legs, a small tail, and my hair is very coarse and oily.
3. I cannot see well, but I have a good sense of smell.
4. I eat plants, shrubs and roots.
5. I do not like anything that gets too close and will attack if they do.
6. Although most of my teeth are flat, I have two big ones like tusks on an elephant.
7. I am considered to be a sloppy eater.

Activity 2

What Animal Am I?

1. Review selected animal species from **Master Pages 5.9 - 5.16**.
2. Choose one species without letting your students know your selection. The students can then ask you questions about the species to which you will respond with "Yes," "No," "Maybe" or "Sometimes." For example a student may ask: Are you as big as a breadbox?, Are you a mammal?, Do you eat meat?, etc. Students must ask at least five questions before they can begin guessing the animal.
3. Repeat the activity selecting other animals.
4. Once students have learned the routine of the activity and have studied enough about the animals' characteristics, they can take turns selecting animals with their classmates and asking the questions.



BLACK-CHINNED HUMMINGBIRD

Archilochus alexandri

Description: About 3" long, a small metallic-green bird with a black throat and white collar below it. With the sun shining just right, a purple patch will flash below his very long beak.

Habitat: These tiny birds winter in Mexico and then will travel as far north as Montana. Along the way they feed on nectar from brightly colored flowers.

Notes: The nest of the hummingbird is found in the fork of a branch and is only 1" high and 1-1/2" across. They can fly forward and backward, up and down. Their wings move so fast they make a humming sound, giving them their name.

Enrichment

- Make and laminate copies of cards for students to use as flash cards to play games such as go fish, concentration, matching or other games.

MOUNTAIN LION

Felix concolor

1. I am grayish-brown in color with lighter areas under my belly.
2. I look for food only at night.
3. Deer is my favorite food but I eat any animal I can catch.
4. I can weigh from 100 to 200 pounds and am 5 feet long not including my tail.
5. I have short round ears and yellow-green cat's eyes.
6. I am also known as a Cougar or Puma.
7. I am the largest cat native to the USA.
8. My cousin, after whom I am named, is known as king of the jungle in Africa.

JAVELINA

Dicotyles tajacu

1. I am busy both day and night.
2. I have 4 legs, a small tail, and my hair is very coarse and oily.
3. I cannot see well, but I have a good sense of smell.
4. I eat plants, shrubs and roots.
5. I do not like anything that gets too close and will attack if they do.
6. Although most of my teeth are flat, I have two big ones like tusks on an elephant.
7. I am considered to be a sloppy eater.
8. I look like and am often called a pig.

WHITE-TAILED DEER

Odocoileus virginianus couesi

1. I have large ears with white on the inside and gray-brown on the outside.
2. My teeth are not sharp and pointed, but flat.
3. I am small for my family and have a white tail.
4. I eat leaves, grass and twigs.
5. After my babies are born, they are left with only their color and spots to hide them.
6. I can run very fast and jump very high, even over fences.
7. Some of my kind have antlers.
8. Bambi is a relative of mine.

RACCOON

Procyon lotor mexicanus

1. I am warm blooded with four legs.
2. I eat about anything I can get my hands on.
3. I am very nimble and can pick up just about anything with my hands.
4. I hunt and look for food mostly at night. I am about the size of a small dog.
5. I am often found near water where I hunt for and clean my food.
6. I travel in small groups with two or more brothers and sisters.
7. I have a large bushy tail with rings. Some people mistake me for a bandit.

MEXICAN GREY WOLF

Canus lupis

1. I have four legs and I am big.
2. I weigh 60 to 100 pounds.
3. I hunt for my food at night.
4. I prefer meat of larger animals such as deer.
5. I am 5 feet long, have a long nose, and short ears.
6. I can talk with howls, growls and yips.
7. My relatives were once found all over the United States.
8. My species was recently returned to remote parts of Arizona.
9. I look like a dog and some call me Lobo.

COTTONTAIL RABBIT

Sylbilagus audubonii

1. I can run and jump very fast.
2. I do not have a stationary home, but sleep under bushes.
3. My paws are very furry.
4. I am about the size of a small cat.
5. I have flat teeth with two bigger ones in the front.
6. People hunt me for my soft warm fur.
7. People consider me to be cute and imitate me at Easter.
8. Part of my name comes from my tail that looks like a ball of cotton.

STRIPED SKUNK

Mephitis mephitis

1. My ears are small and rounded.
2. I eat almost anything, but prefer insects.
3. I am about the size of a small cat and have a long bushy tail.
4. I am usually a very gentle animal but lots of other animals and people are afraid of me.
5. My body color is black with two white stripes down my back.
6. I have a big tail that helps me if I am being attacked.
7. Some people say I smell bad.
8. When I get mad, I lift my tail and spray.

SPOTTED SKUNK

Spilogale gracilis

1. My ears are small and rounded.
2. I eat almost anything, but prefer insects.
3. I am about the size of a kitten and have a long bushy tail.
4. My body color is black with various white spots on my face and body.
5. I am usually a very gentle animal, but lots of other animals and people are afraid of me.
6. I have a big tail that helps me if I am being attacked.
7. Some people say I smell bad.
8. When I get mad, I lift my tail and spray.

BEAVER

Castor canadensis

1. I am about the size of a small dog.
2. I am known as a great swimmer.
3. My feet are webbed like those of a duck.
4. I have a large, paddle-like tail.
5. I have large front teeth to chew wood.
6. If I don't chew wood, my teeth will grow too big and I will die.
7. Many years ago, people blamed me for starting a disease called malaria and kicked us all out of the southwestern rivers.
8. I was re-introduced to the San Pedro River.
9. I have a flat tail and like to build dams.

GRAY ROCK SQUIRREL

Spermophilus variegatus

1. I am about 20 inches long and grey in color.
2. I spend much of my time in the ground.
3. At the first sign of danger, I will slip quietly into my house and stay there until I am safe.
4. I have sharp teeth and strong claws.
5. I eat seeds, nuts, fruits, berries, grass seeds, cactus fruits, acorns and pine nuts.
6. I am in the same family as rats and mice.
7. I am considered to be cute but sometimes I have diseases like rabies or plague.
8. I have a big bushy tail.

COYOTE

Canis latrans

1. I am a mammal found all over the United States.
2. I am a carnivore, but eat all sorts of things.
3. I like to run in groups.
4. I look pretty scroungy in the summer but have a beautiful coat in the winter.
5. I can talk with others of my kind by growls and yips.
6. I have a long dog-like nose.
7. I am often mistaken for my cousin who is the wolf, but he is much larger than I.
8. I am often seen howling at the moon.

BADGER

Taxidea taxus

1. I am short and very strong.
2. I have white markings on my face.
3. I eat mice, rats and squirrels, which I dig out of their homes in the ground.
4. I am a fighter and attack animals and people if cornered.
5. I am about 2 feet long and weigh 20 pounds.
6. I hunt for food only at night, and sleep in a different place every day.
7. I am mostly gray in color, and I have big claws about 1-1/2 inches long.
8. My babies are full grown in three months.

NORTHERN CARDINAL

Cardinalis cardinalis

1. If I am male, my face and throat are black.
2. When I choose my mate, we are together forever.
3. I love to sing and whistle all year long.
4. My bill is very strong and shaped like a cone.
5. I have wings and can fly.
6. Seeds are my favorite food.
7. I have a pointed crest on the top of my head.
8. If I am a boy, I look like a Christmas ornament sitting in a tree.
9. My body is bright red!

BLACK-CHINNED HUMMINGBIRD

Archilochus alexandri

1. I am always busy and rarely rest.
2. My home is lined with soft cobwebs.
3. I drink nectar from flowers and eat bugs.
4. Some of my species are about the size of a human's thumb.
5. I can fly forwards and backwards.
6. Sometimes people put food out for me in a glass jar, from which I drink with my long tongue.
7. I am one of the smallest birds and make a humming sound with my wings when I fly.

GILA WOODPECKER

Melanerpes uropygialis

1. My mate and I raise our young together.
2. I am very noisy.
3. As a boy, I have a red spot on my head.
4. I have a zebra striped cape.
5. I live in holes that I make in big trees.
6. I eat insects, cacti, berries, and eggs of other birds.
7. I am very commonly seen along the Santa Cruz River and at Tumacácori.
8. I drum on trees or on your house.
9. Some people call me "Woody."

TURKEY VULTURE

Cathartes aura

1. I am very quiet and rarely talk.
2. I live on cliffs or in trees with my friends.
3. In the morning, I sit stretched out and sun bathe to dry off.
4. You often see me from the highway circling in the sky.
5. I soar with "V" shaped wings and I hardly ever flap them.
6. I eat only dead animals.
7. I have no feathers on my head, which is bright red like a turkey.
8. I am also known as a buzzard.

RED-TAILED HAWK

Buteo jamaicensis

1. I have two legs.
2. I hunt rabbits, snakes and small mammals.
3. I am very large for my family.
4. My claws are big and sharp for grabbing my food.
5. My call is a high pitched whistle or screech (one falling note).
6. You may see me soaring above the highways, treetops or cliffs or on telephone poles.
7. Some people mistake me for an eagle.
8. My tail has red feathers.

GREATER ROADRUNNER

Geococcyx californianus

1. I eat all kinds of things, including lizards.
2. I live in desert bushes and grasses.
3. Sometimes you can hear my call which sounds like the clanking sound of coo coo-ah coo-ah.
4. I have a long body and tail.
5. I have two legs.
6. My feathers are dark brown with a little bit of green.
7. Although I have feathers, I don't usually fly.
8. I am known to run on roads.

GIANT DESERT HAIRY SCORPION

Hadrurus arizonensis

1. I am a southwestern desert arachnid.
2. My mother carries her young on her back.
3. I eat tiny insects.
4. I am found in desert washes, rocky areas, the open desert, and even in your house.
5. I am light brown with some yellow coloring.
6. I have two pincers with which I can hold and grab things.
7. I am poisonous, and you will be in pain if I sting you.
8. My tail curls and has a stinger at the end of it.

TARANTULA

Aphonopelma chalcodesa

1. I have black hair on my body and legs.
2. My coloring varies from different shades of brown to black.
3. I live under the ground.
4. The female in my species will live in the same tiny cave her entire life.
5. I am very large for my species.
6. Even though I don't usually bite, I scare people so I have been in some movies.
7. Although my venom is poisonous to animals, I rarely hurt humans.
8. I have eight legs.

**WESTERN DIAMONDBACK
RATTLESNAKE**

Crotalus atrox

1. I can be found in the western part of the United States.
2. I come out to hunt usually at night.
3. I mostly eat rats, mice and gophers.
4. I produce poison and can be dangerous.
5. I am cold blooded.
6. I have two fangs and no other teeth.
7. When I am frightened, I will curl up like a garden hose, raise my tail and rattle it to warn you not to come close to me.
8. I have diamond shaped patterns on my back.

HORNED LIZARD

Phrynosoma solare

1. I am found only in the western United States and Mexico.
2. I like to eat insects and love ants.
3. I like to bury myself in the sand.
4. I am cold blooded.
5. When frightened I squirt blood from my eyes.
6. I have very rough skin that looks like scales.
7. Although I am only 3-1/2 to 6-1/2 inches long, some say I look like a small dinosaur.
8. Some call me a toad, but I am really a lizard.

GIANT MESQUITE BEETLE

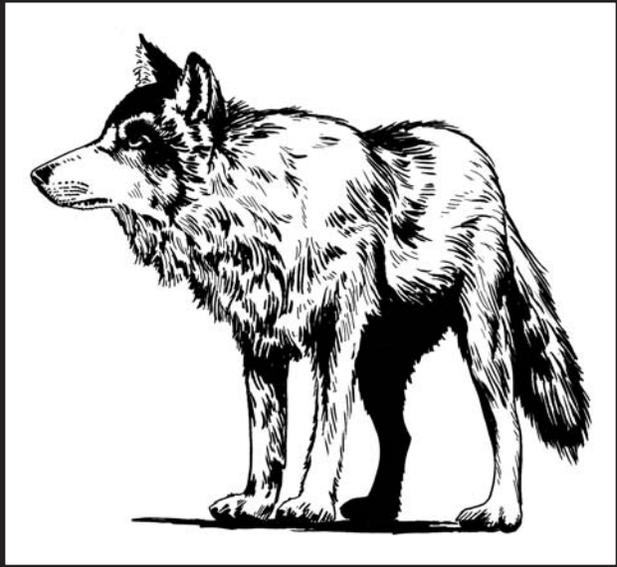
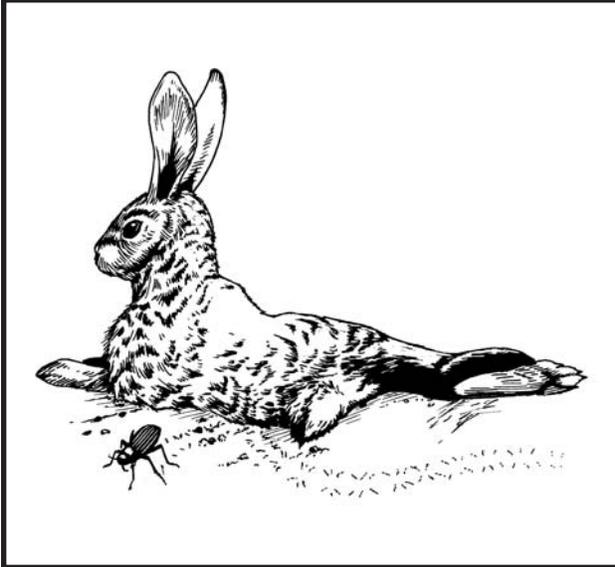
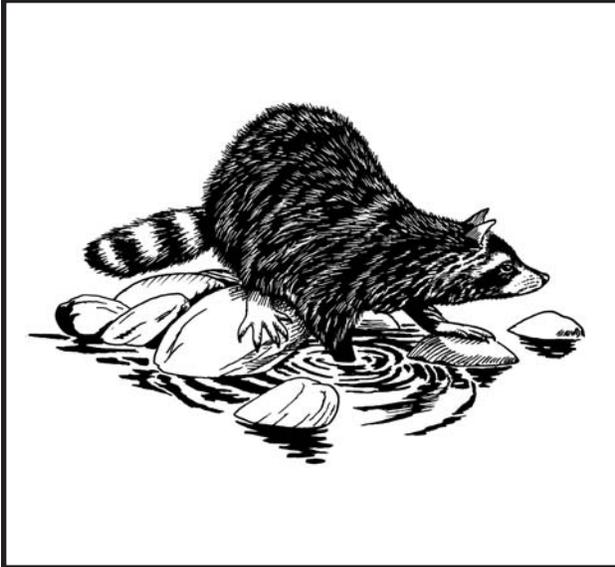
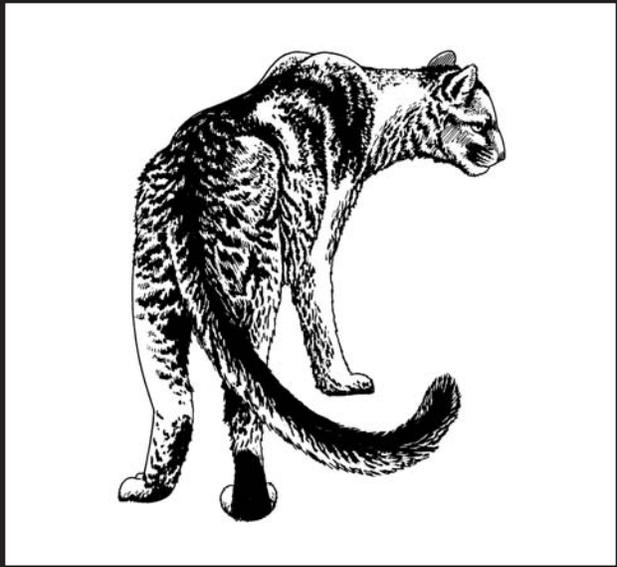
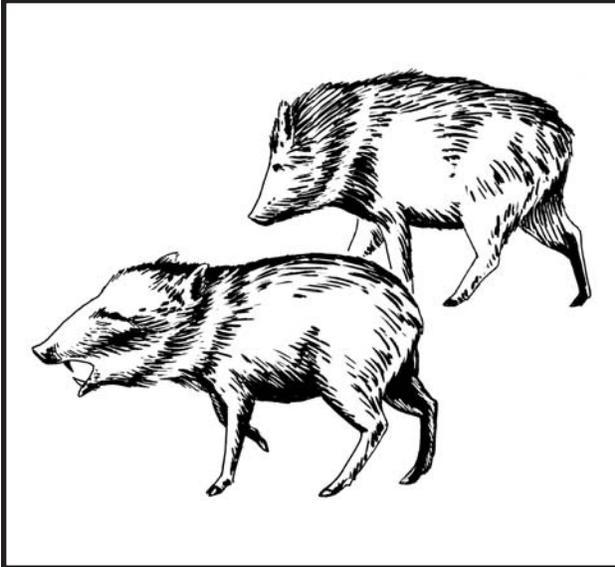
Thasus gigas

1. I am found in desert areas above the ground and in the mesquite trees.
2. I am very large for my type of creature.
3. I love sucking up plant juice.
4. I have two antennas and six legs.
5. I am red, white and black.
6. I can be found in bunches on mesquite branches.
7. I am a fussy eater and will only drink the juice of the mesquite tree.

SPADE-FOOTED TOAD

Scaphiopus couchi

1. I spend most of my time underground.
2. I love to eat insects.
3. My rear feet resemble a spade.
4. I am cold blooded.
5. I will come out when it rains during the summer months.
6. I will lay my eggs in the water.
7. Kids like to catch me.
8. My skin is a dull brown, green and slippery.
9. I get around by hopping.
10. There is a story about me turning into a prince.



MOUNTAIN LION

Felix concolor

Description: The largest cat in the United States - over five feet in length from the tip of his nose to the tip of his tail. It can weigh between 100 and 200 pounds. Lives mostly off deer and other smaller prey.

Habitat: Lives mostly in the mountains but also can be seen in the desert. In Arizona, prefers rugged, heavily vegetated areas such as the Chiricahua Mountains.

Notes: Also known as Puma or Cougar, they are very shy and try very hard to stay hidden from humans. The lack of understanding of the mountain lion's habits, along with folklore, has made most people very afraid of this animal.

JAVELINA

Dicotyles tajacu

Description: Weighs 35-50 lbs; very coarse salt and pepper colored hair. Looks and acts like a pig but is not. It belongs to the old world Peccary family.

Habitat: Found in Arizona, Texas, and New Mexico (also in South America) living in deserts and lower elevation mountains. Preferred foods are cactus, grass, shrubs, roots and tubers. Any place you find these types of plants and cactus you most likely will find javelina.

Notes: The javelina has very bad eyesight but a great sense of smell. Has a musk sack that lets out a very strong odor that other javelina can smell from great distances. This is how they can find their herd if they get lost.

WHITE-TAILED DEER

Odocoileus virginianus couesi

Description: Adult deer weigh 100 pounds or less. Their hair is tan-gray with white under parts. They are named for their white tail which can only be seen when it is up. The fawns are born with spots on their cinnamon-colored coats, which aid them in hiding from predators. They lose these spots in six months.

Habitat: High desert mountains, with rough wooded habitat. Food sources include grass, twigs, leaves, berries, and acorns.

Notes: Sometimes mule deer are mistaken for white-tailed deer. When the mule deer's tail is down it is white with a brown tip. On the white-tailed deer, you only see the white when the tail is up.

RACCOON

Procyon lotor mexicanus

Description: About the size of a small dog, it has gray fluffy hair with dark markings, a large bushy tail with rings and dark markings around the eyes making it look like a bandit. The raccoon has nimble human-shaped paws that are used to grab objects and clean food.

Habitat: Found in medium to high mountains, mostly in woods and forest environments. It is a very intelligent and curious animal and can be found going through trashcans and even inside houses looking for food.

Notes: The raccoon eats just about everything and is called an omnivore. Basically nocturnal but can also be seen in the day.

MEXICAN GREY WOLF

Canus lupis

Description: Often mistaken for a German Shepherd dog at first glance, but has longer legs, a shorter, straighter tail, bigger ears, and a longer snout. Has a light colored coat with a lot of gray, black, white and some tan.

Habitat: Wolves were hunted and trapped almost to extinction. The Mexican Grey Wolf lives in the high elevation desert, lower elevation or mountains. Its main source of food is white-tailed deer.

Notes: The wolf is a very intelligent animal and learned very quickly to prey on domestic animals - a cause of their demise. Mexican Grey Wolves were re-introduced into the White Mountains in 1999.

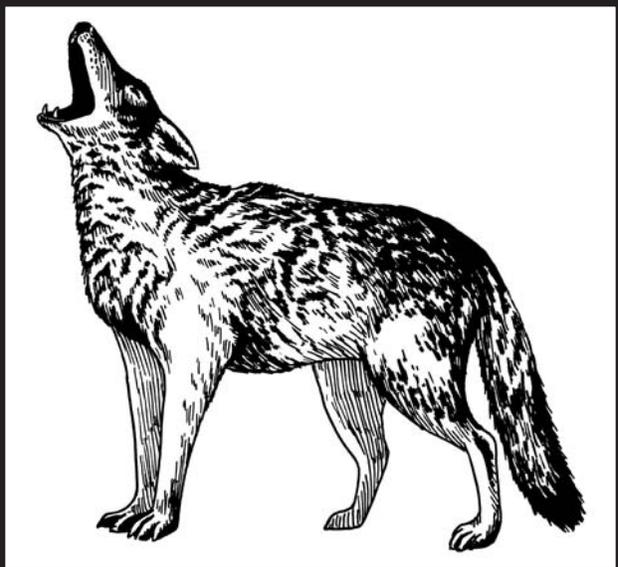
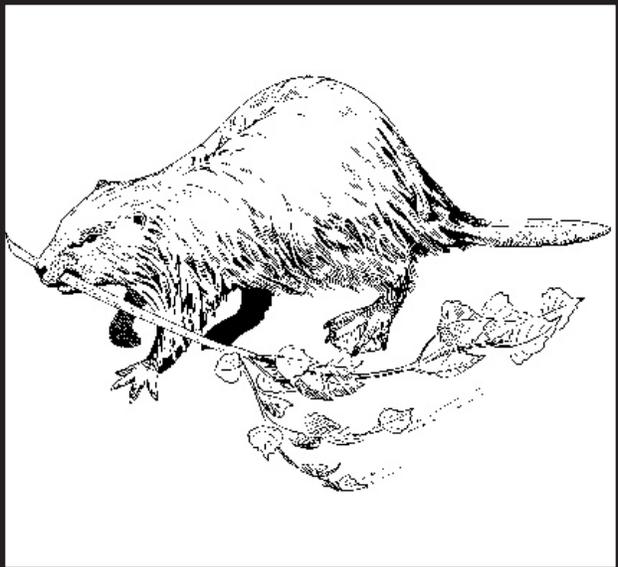
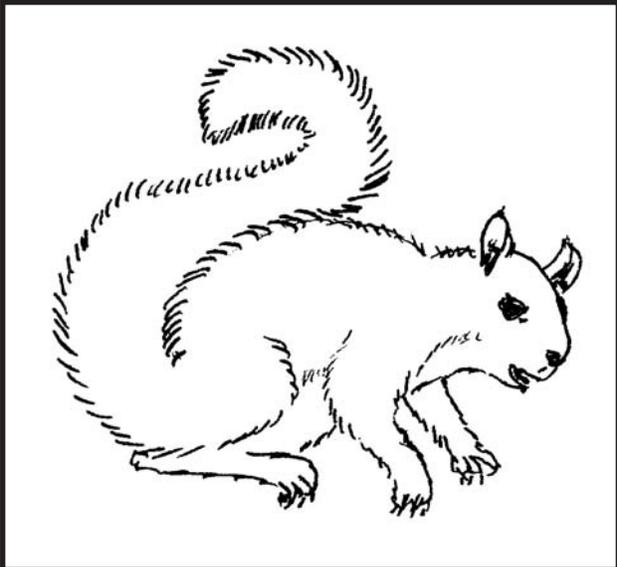
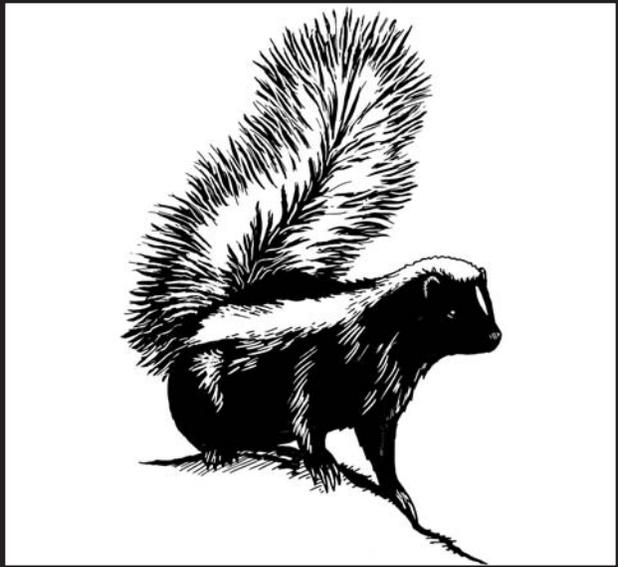
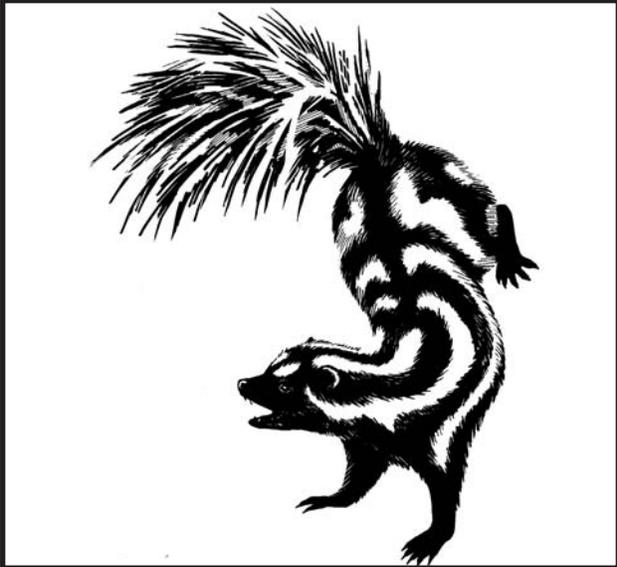
COTTONTAIL RABBIT

Sylbilagus audubonii

Description: Gets its name from its fluffy white tail that looks like a cotton ball. Smaller than many rabbits, its fur is light grayish-tan with some white. It has clear brown eyes and moderately long ears. It is the size of a cat.

Habitat: The cottontail lives in grassland, creosote brush, desert and mesquite forest. Although very common to the Arizona desert, they can be found in North Dakota, California, Montana, and Texas.

Notes: The cottontail defends itself from predators by running fast and darting in different directions. It will also lie very still and quiet so that predators and other threatening animals do not see it.



STRIPED SKUNK

Mephitis mephitis

Description: About the size of a cat. The striped skunk is distinguished by two white stripes down the back, a big bushy tail and a small head. Males are larger than females.

Habitat: The striped skunk can be found in most of the United States and Mexico in the desert, grassy plains and woodlands. The skunk moves slowly using ground cover as camouflage.

Notes: Although usually docile, when threatened, the skunk's defense is to spray a terrible odor up to 12 feet away. Four types of skunks are found in Arizona: striped, spotted, hooded and Hog-nosed. Skunks are primary carriers of rabies, dead or alive.

SPOTTED SKUNK

Spilogale gracilis

Description: This small nocturnal animal averages a total length of about 16 inches. The body color is black with various white spots on the face, four narrow white stripes along the front half of the back, a white blocked rump, and a tail that is half black and half white.

Habitat: They live in burrows or rock crevices in any location where there is lots of ground cover. Their diet consist of insects, lizards, rodents, birds' eggs and cactus fruits.

Notes: Their defense consists of stamping their front feet, turning around, hoisting their tail and emitting a repulsive odor. They can spray up to 12 feet away.

BEAVER

Castor Canadensis

Description: The size of a medium sized dog with webbed rear feet, a tail shaped like a paddle and large front teeth. The fur is brown and thick.

Habitat: Found in mountains and waterways in the western United States. At one time, beavers were found throughout the United States but were

depopulated by the fur trade. This species has been reintroduced to the San Pedro River.

Notes: In the southwestern riparian areas, the beaver was removed or extirpated both for furs and because they were an assumed agent of malaria (mosquitos breed in still water). Beavers must chew wood to dull their teeth. If not, the teeth will grow too big resulting in death.

GRAY ROCK SQUIRREL

Spermophilus variegatus

Description: These squirrels' coats are a mixture of dark grays and yellowish-browns with lighter gray on their front quarters, dirty white underneath, and bushy tails. They are large for ground squirrels, and can be up to 20 inches long.

Habitat: Their name comes from their favorite habitat of rock with good cover of trees and bushes into which they blend well. They live in dens of various types, which can vary from rock slopes to human dwellings.

Notes: They always have a lookout point near their dens on which they perch to survey the surroundings. If there is any danger they will let out a loud shrill whistle that warns everybody in the vicinity.

COYOTE

Canis latrans

Description: About the size of a medium sized dog, with longer legs and bigger ears, weighing 20 to 50 lbs. The fur is tan and yellow with some black and white. The winter fur is full and thicker and the summer coat is often thin and sick looking.

Habitat: Common throughout the United States. Adapts to open plains, forest, desert and brush areas. Prefers small game but will eat about anything.

Notes: Often at night, either a lone coyote or a pack can be heard howling. Coyotes are very adaptable and have survived many difficult times. In many native cultures, the coyote is known as the trickster.

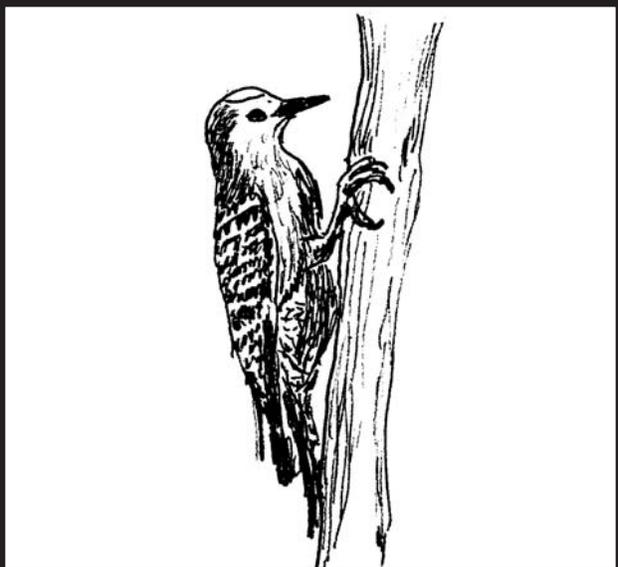
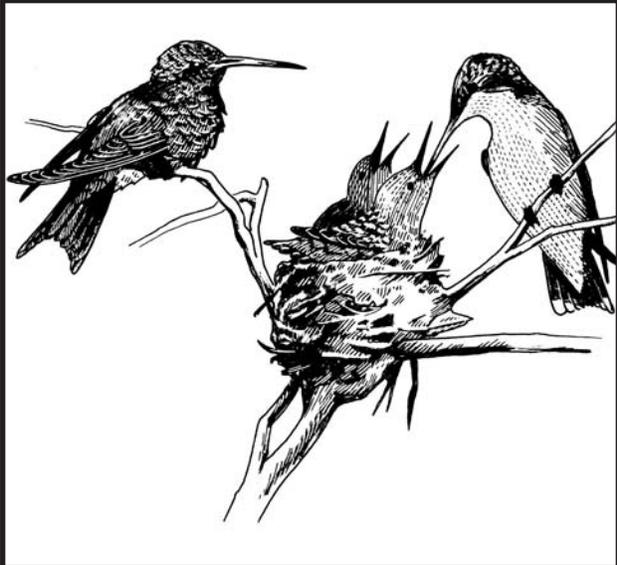
BADGER

Taxidea taxus

Description: A carnivore about two feet long, weighing 15 to 20 pounds. It is stocky shaped, with short legs, gray fur and distinct facial markings. Its legs are powerful, and it has long claws to dig and quickly unearth mice and squirrels.

Habitat: Found throughout the Sonoran Desert region. They live in underground burrows and move from den to den frequently, often every day.

Notes: Badgers are solitary and fierce, and most other animals avoid them because they are such good fighters. They eat only at night and roam over very large areas. Baby badgers stay with their mother for three months.



CARDINAL

Cardinali cardinalis

Description: Up to 7 1/2" long, the male is a bright Christmas red with a black face. Both male and female have distinct head crests and red beaks. The female is pinkish-peach colored.

Habitat: They are usually found in the mesquite-bosque and shrubs near the Santa Cruz River. They stay in southern Arizona year-round but are harder to spot in winter along the Santa Cruz.

Notes: They are ground feeders. The male is protective of his mate and surroundings and is known to attack his own reflection in windows because he thinks it is an intruder.

BLACK-CHINNED HUMMINGBIRD

Archilochus alexandri

Description: About 3" long, a small metallic-green bird with a black throat and white collar below it. With the sun shining just right, a purple patch will flash below a very long beak.

Habitat: These tiny birds winter in Mexico and then will travel as far north as Montana. Along the way they feed on nectar from brightly colored flowers.

Notes: The nest of the hummingbird is found in the fork of a branch and is only 1" high and 1-1/2" across. They can fly forward and backward, up and down. Their wings move so fast they make a humming sound, giving them their name.

GILA WOODPECKER

Melanerpes uropygialis

Description: This woodpecker has black and white zebra like stripes on the back and tail. Only the male has a bright red cap.

Habitat: They live year-round in the southwestern desert, woodland and cottonwood groves along the rivers. They eat insects, fruits of cactus, berries and the eggs of other birds.

Notes: The Gila Woodpecker is very common to the Santa Cruz River and can often be heard squawking.

TURKEY VULTURE

Cathartes aura

Description: Large black bird (25") with a bald, red head. When flying they have a wingspan of 6' and its wingtip feathers are spread apart, resembling fingers.

Habitat: They are found in open arid country, canyons and grasslands throughout the world. They are scavengers and feed on dead animals or carrion.

Notes: They soar high in the sky on thermal currents and can spot food from 2-1/2 miles away. Some Indian tribes thought the birds were messengers of the gods because of the way they soared higher and higher until they disappeared.

RED-TAILED HAWK

Buteo jamaicensis

Description: A large brown bird (18" long) with pale streaked breast, a dark belly band and a rusty red tail. They have a 4 foot wingspan, sharp claws or talons and a strong beak.

Habitat: Commonly found in open country, deserts and mountains. Often seen circling lazily in the air or perched on poles watching for their dinner which is usually mice, rabbits and other small animals.

Notes: They build a bulky platform nest of sticks that they defend by diving and screaming at intruders.

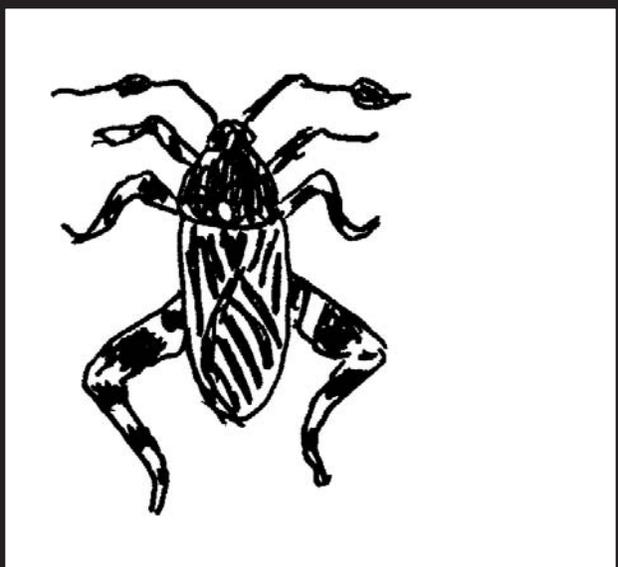
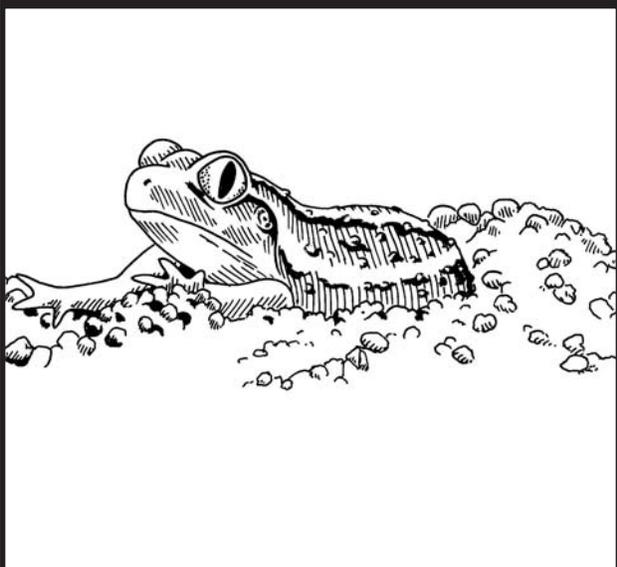
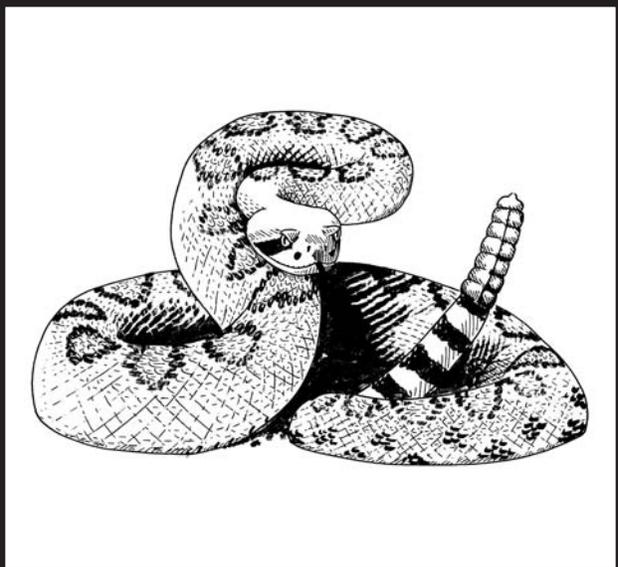
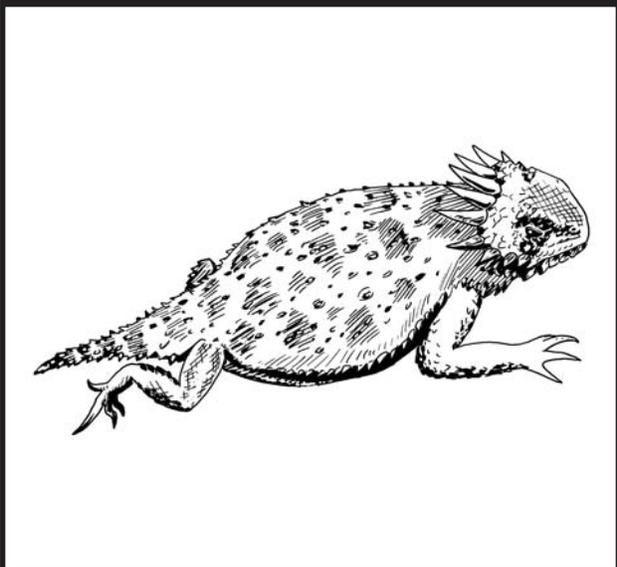
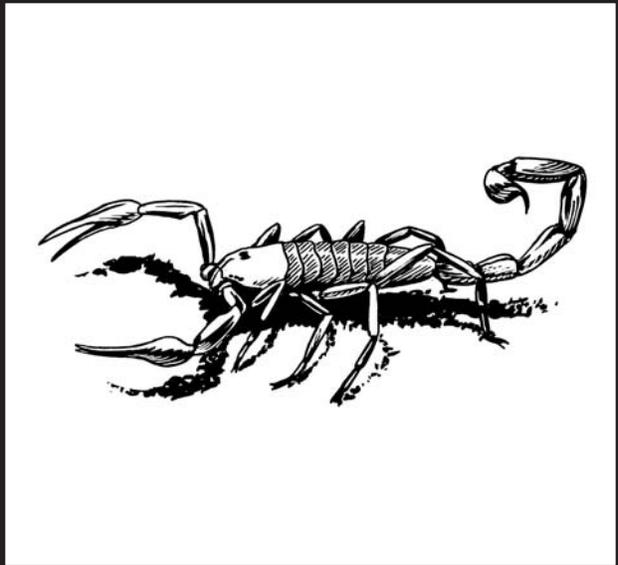
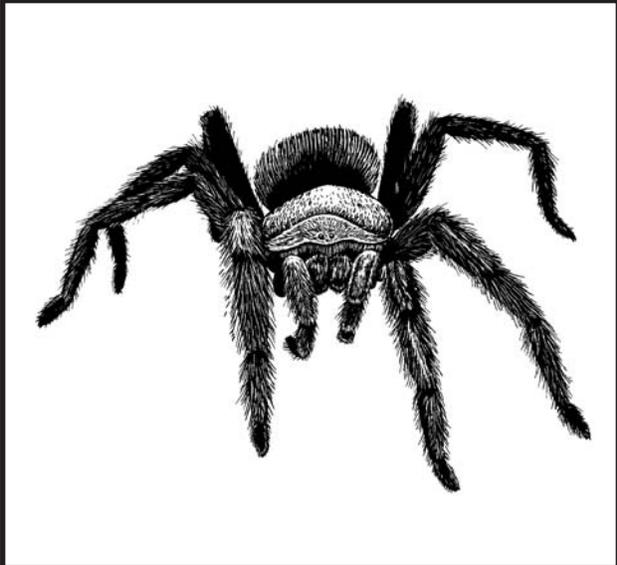
GREATER ROADRUNNER

Geococcyx californianus

Description: A large (22") ground bird with brown streaks, a shaggy crest, a very long tail, heavy beak and long blue legs.

Habitat: They live year-round in the Southwest deserts and mesquite shrub lands. Although they do fly, they prefer to run, hence, the name roadrunner. They are great hunters and eat the fruit of cactus, scorpions, tarantulas and snakes including rattlers.

Notes: We know them best from the Roadrunner cartoon with Wiley E. Coyote. Among Native Americans and Hispanics they were thought of as courageous and great hunters.



GIANT DESERT HAIRY SCORPION

Hadrurus arizonensis

Description: This arachnid is 5-1/2 inches long, with two pinchers and a stinger tipped "tail" that curves over its back when threatened. It is tan all over, with a yellowish back and brown hair on its legs and body.

Habitat: Found in the desert along dry river washes, rocky areas and in more familiar places like in desert gardens and work sheds. This scorpion inhabits areas where it can prey on small, soft-bodied insects.

Notes: The female will bear her young and carry them on her back for 10-15 days. The young will shed their skin several times before they reach maturity. Scorpions are venomous, and a person can become very sick if stung.

TARANTULA

Anphopelma chalcodesa

Description: These spiders are very hairy with long legs. Their color varies from dark brown to black with some grey. The female has hooks that look like large fangs and both male and female have a tight cluster of eight eyes.

Habitat: They are found in many parts of Arizona but mainly in the southwestern desert areas. They live in sandy washes and open desert areas where they find shelter in burrows. Their diet consists of insects and small rodents, such as mice, lizards and small snakes.

Notes: A tarantula's bite, although painful, is not life threatening. It will only bite if provoked. Females live 20 years and males live 8-10 years.

WESTERN DIAMONDBACK RATTLESNAKE

Crotalus atrox

Description: Up to six feet long. Its name comes from the dark diamond shaped blotches on its back. Skin color is tan, yellow and very light pink. Like all rattlesnakes, the head is shaped like an arrow.

Habitat: Southeastern California to Arizona, New Mexico to Arkansas and Northern Mexico. Lives in caves or underground. Lies on rocks, along trails, under bushes, and near washes.

Notes: Although very dangerous, the snake is just as afraid of you as you are of it. The rattle is a warning. If you leave the snake alone and are careful, it will leave you alone. The rattlesnake helps keep the rodent and rat population in balance by hunting them at night.

HORNED LIZARD

Phrynosoma solare

Description: This lizard has many scales and is crowned with sharp looking spines. Its color varies from tan to shades of dark brown and orange. The body is flat and close to the ground.

Habitat: These lizards can be found throughout Southern Arizona and into parts of Northern Mexico. They prefer rocky, sandy areas with shrub brush and succulents. They eat bugs and love ants and sometimes will eat very small snakes.

Notes: When threatened, they will squirt blood from their eyes. Their bodies will become very rigid when picked up.

GIANT MESQUITE BUG

Tassus gigas

Description: This bug is large and can be scary to look at. It has two long antennas and six legs. The color of this bug varies between black and red.

Habitat: The main area you find these bugs are any place where mesquite trees grow. Their diet consists mostly of the juice found in mesquite trees.

Notes: They can feed so much on the mesquite tree by sucking the juices that this beetle can actually kill part or sometimes the whole tree.

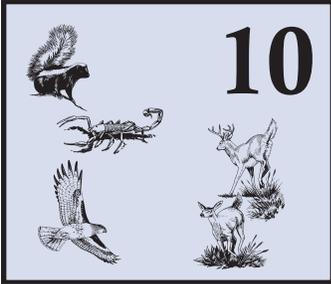
SPADE-FOOTED TOAD

Scaphiopus couchi

Description: Generally considered to be a small to medium sized toad with a white belly. The upper part of his body is yellowish green with different shades of marbling. The eardrum is clearly outside with no hump between the eyes. The body is plump and long.

Habitat: This toad can survive dry conditions so it is found in desert areas where mesquite and creosote grow. They live in other mammals' burrows and loose soil or sand. Their diet consists of insects and the larvae of insects.

Notes: Their voice is very loud like a bleating lamb and can be heard from a long way.



LESSON OVERVIEW

Through playing bingo, students will learn to recognize and identify various mammals, birds, insects, arachnids, reptiles, and amphibians found along the Santa Cruz River based on their general characteristics.

Subjects

Science

Science Standards

Science as Inquiry, Life Science

Objectives

Students will:

1. Compare, contrast, and classify animal species.
2. Identify animals by pictures and/or names.
3. Write the names and correctly spell at least five different species found along the Santa Cruz River.

Preparation

Cut out animal pictures on one copy of **Master Page 5.19** and place in a hat; make one copy of **Master Pages 5.19 and 5.20**, for each student; have beans (or other counting markers) glue and scissors available.

Time

One 50 minute session or less. **Vocabulary**

Different names of animal species listed on **Master Pages 5.9 - 5.16**.

SANTA CRUZ RIVER BINGO

How to Play River Bingo

1. Make photocopies of **Master Pages 5.19 and 5.20**, for yourself and each student.
2. Cut up the species picture (squares) on **Master Page 5.19** and place them in a hat or vessel from which to select.
3. Have students cut out the individual species squares on **Master Page 5.19** and paste them at random onto **Master Page 5.20**, making an individualized bingo card.
4. When ready to play, select a species card from the hat (see # 2) and show the picture or call out the animal's name.
5. Discuss the characteristics of the chosen species.
6. Instruct students to place a bean on the corresponding animal picture on their bingo board as they are called.
7. Continue playing until the first player calls out bingo.

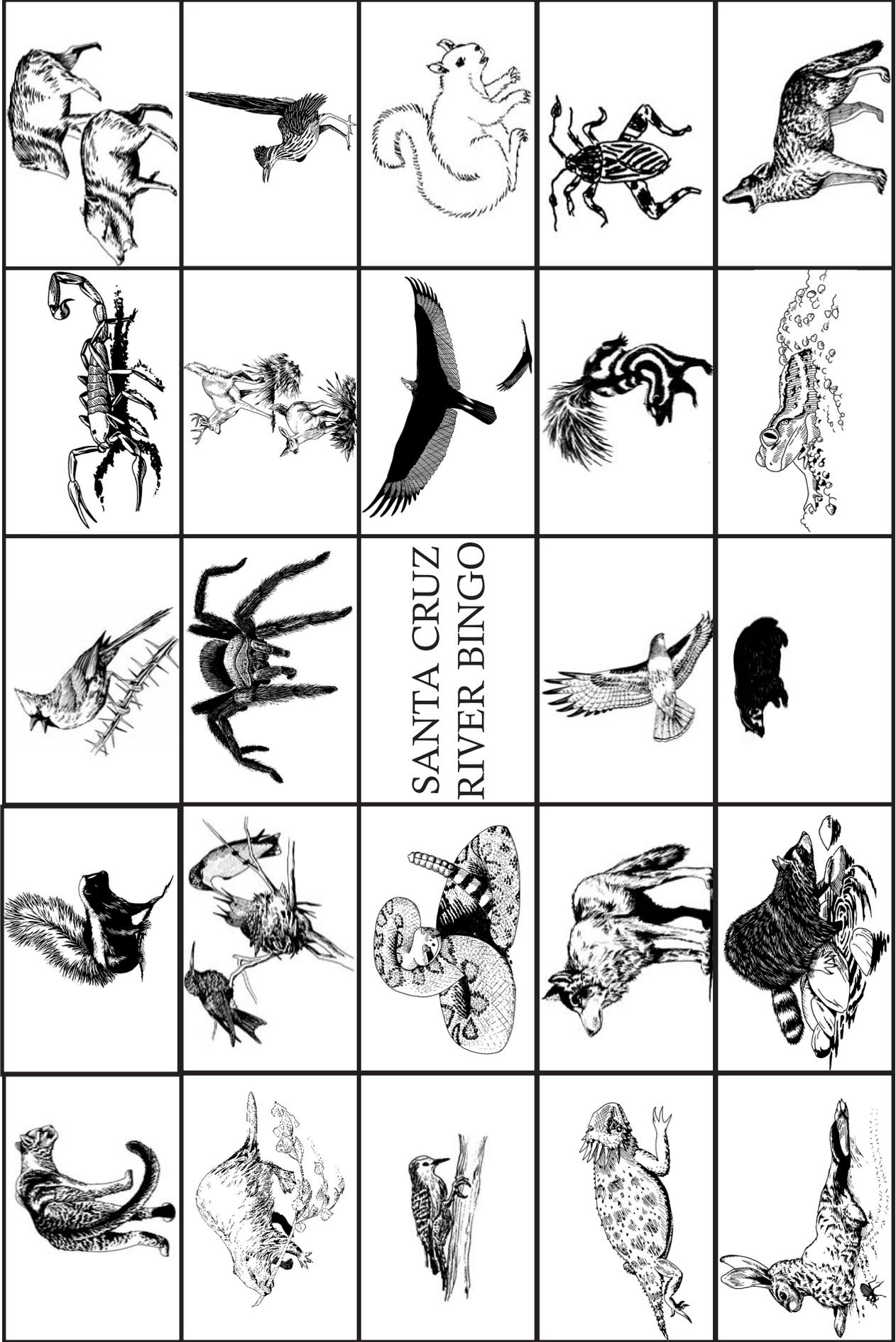
Alternative Play

Provide each student with a blank bingo card containing the appropriate number of squares. List the names of animals on the chalkboard at random. Have each student write the names of each species to be used on the squares. When ready, select pictures of each animal, and without verbally identifying the species, have the students match the name.



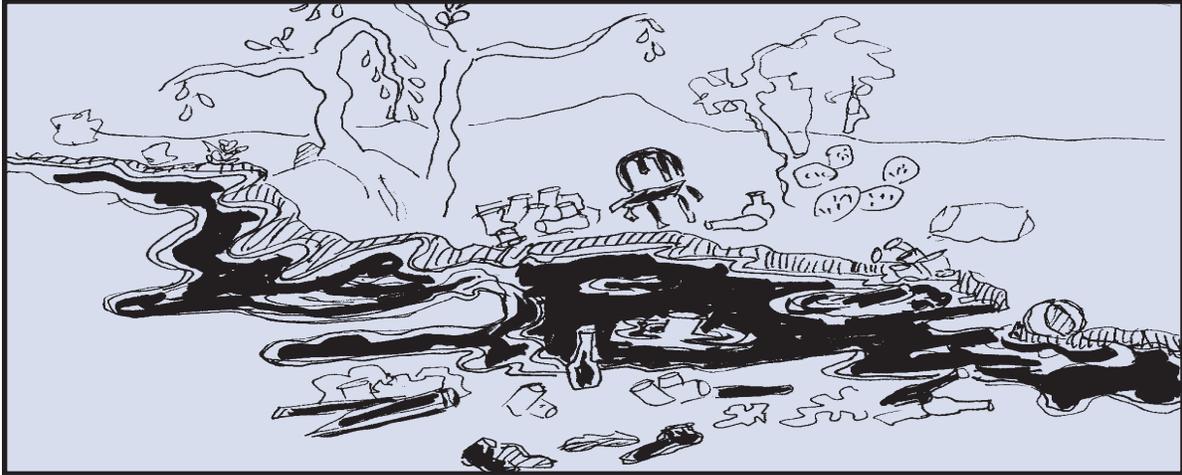
ENRICHMENT

- Refer to species cards and descriptions in Lesson 9, **Master Pages 5.9 - 5.16** for information and details. Cut up one or more copies to make a deck of cards for playing matching games, go fish, rummy, etc.



		SANTA CRUZ RIVER BINGO Free Space		

BASURA: ALIAS TRASH



TRASH: CAN WE LIVE WITH IT?

STUDENTS WILL PARTICIPATE IN A SIMULATION GAME THAT DEMONSTRATES THE EFFECT TRASH HAS ON PEOPLE AND THE ENVIRONMENT.

PAGE 6.3



HOW LONG DOES LITTER LAST

STUDENTS WILL BE MADE AWARE OF DIFFERENT TYPES OF POLLUTION PROBLEMS CAUSED BY LITTER AND HOW TO CORRECTLY DISPOSE OF IT.

PAGE 6.6

One of the most significant problems facing the Santa Cruz River watershed is pollution. The river runs through both Mexico and the United States, making it an international concern.

While litter is the most visible form of pollution, chemical leakage and spills as well as organisms and other documented health hazards and diseases such as cancer and lupus exist.

while plastic six-pack holders, string, and sharp objects pose hazards to wildlife. Looking through the trash deposits, one can find oil cans, cleaning supply containers, batteries and an assortment of other hazardous waste materials. Many of these hold harmful chemicals that could leak into the water table. Our landfills are also reaching maximum capacity while we continue to increase the



Every year, hundreds of bags of trash are cleaned out only to be brought back by summer rains. For the most part, the litter comes down from the Nogales wash (both sides of the border), and during the monsoon rains, tons of trash are transported north from both sides of the border.

In addition to its being aesthetically inappropriate, litter continues to be an unresolved problem. We need to help the next generation realize the impact trash has on our present-day and future lives. Habitat is destroyed or compromised,

use of disposable products that virtually may never decompose.

By participating in these activities, students will be made aware of the problems with trash, the environmental impacts caused by littering, and the implications of using disposable products.

Students will learn to make educated choices about what to throw away, the importance of reusing and recycling, and how to make a difference so that “Earth Day”, (April 22), can truly be celebrated.

JUST TRASH?

Aluminum Cans - not biodegradable; sharp edges may injure wildlife or people; small animals or insects may get trapped inside.

Paper - inks and bleaching chemicals contaminate soil and water.

Plastic six-pack rings - not biodegradable; may strangle wildlife.

Trash in water - may injure aquatic animals that get stuck in or try to eat it; chemicals leak into water.

Household cleaners, chemicals and batteries - harmful chemicals may leak into the soil, water, and air; potentially dangerous if touched.

Glass - broken glass may injure people or wildlife; small creatures may get trapped inside jars or bottles.

Styrofoam and plastic - not biodegradable; may injure animals that mistake bits of plastic for food.

Old tires - may release harmful chemicals into the soil, water, and air.

Candy and gum wrappers - many wrappings do not easily biodegrade.



LESSON OVERVIEW

Students will participate in a simulation game that demonstrates the effect trash has on people and the environment.

Subjects

Natural Science

Science Standards

Science as Inquiry,
Personal and Social
Perspectives,
Life Science

Objectives

Students will:
Recall the negative effects
litter has on humans and
the environment.

Preparation

Find and mark an area
approximately five to
ten feet square. A little
smaller space than your
class would be able to
squeeze into such as a
circle on a basketball

Time

About 20 minutes

Vocabulary

Disease, mosquito,
pollution.

CAN WE LIVE WITH TRASH?

Part 1

1. Find a place where your students can gather around a clearly delineated area. You can mark off an area or use something like the circles on a basketball court. It must be large enough so that most of the class can crowd inside the marked area, but not all.

2. Discuss the various problems associated with trash. Write down key words and concepts.

3. Divide the students equally into the following five groups: people, trash, pigs, mosquitoes, and disease.

4. Explain that an associated sound comes with each group as described in the box on the right.



Designate the sound for each and have each group practice their corresponding sounds.

Part 2

5. Place the group identified as “people” into the the delineated area and explain that the area represents their town. Their job is to enjoy themselves.

6. Locate the other four groups in specified areas not too far from “the town.”

7. Ask one representative from the “trash” group to join the people in a circle while chanting, “trash, trash, trash.”. Then add a representative from each other group, who will also chant, hassling the people in the “town.”

People - talk as normal

Trash - chant trash, trash,

Pigs - snort, snort, snort,

Mosquitoes - buzz, buzz

Disease - moans and cries

LESSON 11 - CAN WE LIVE WITH TRASH?

8. Calm the students down and ask them to determine what is happening to the town. Is their life as calm as it was before the others entered?, Why or why not?, Does trash and its pals have a positive or negative effect? Predict what will happen if more trash is added.

9. Give the OK for the trash and other groups inside the circle to start their sounds and ask a second representative from the group "Trash" to join the people in the circle, (everyone is chanting). Add representatives from other groups as explained in step seven.

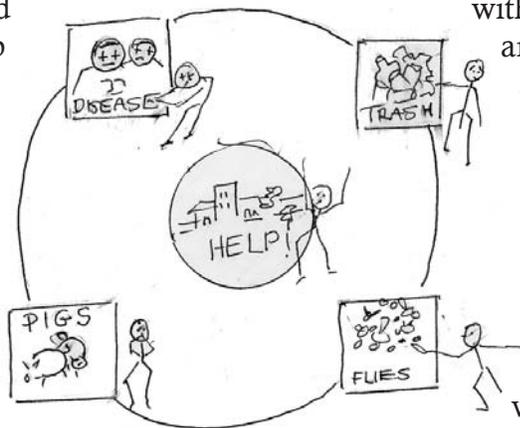
10. Once again quiet the students down and ask them to determine what is happening to the town. Is the town changing? Why or why not? Do they still want to live there. Predict what will happen if more trash is added.

11. Continue with steps 9 and 10 until all of the delineated "town" is full to capacity, overflowing and the students representing the people are being *litter*-ally squeezed out of town.

12. Hold a discussion about what happened in the simulation game. (Essentially, trash attracts animals such as flies, pigs, and mosquitoes, that can in turn, lead to problems. The environment then becomes polluted opening the door for diseases to enter. Eventually, if left uncontrolled, the town and people will suffer.)

13. Discuss local problems with trash. Is there trash around the school or at home? How about in the river, park, or other natural area? Where does the trash come from?

14. Complete the activity by brainstorming the way in which students can help with the trash problem.



Part 3

1. Plan and execute a community cleanup campaign with your class.

Note: This activity was pioneered by the people of Ecuador where problems with trash are very real. Acknowledging that pigs and other animals all have their place in nature, we must also note that their association with trash is a valid concern.

ENRICHMENT

- Teach other activities related to trash such as "Pollution Patrol" and "Trash Can Do" from *Pollution: Problems and Solutions*, Nature Rick's Nature Scope. See bibliography for other sources.
- Ask students to save their trash from lunch and place it all on a table or specified spot. Discuss the different types of trash and potential threat to the environment.



LESSON OVERVIEW

Students will be made aware of different types of pollution problems caused by litter and how to correctly dispose of it.

Subjects

Science

Science Standards

Science as Inquiry

Objectives

Students will:

1. Evaluate the environmental impact of common litter.
2. Recommend at least one solution to control litter.

Preparation Have available a teacher copy of **Master Page 6.6**; collect litter such as styrofoam cups, glass jars, orange peel, plastic six-pack holder, tin cans, etc.; label objects with a time scale as described on **Master Page 6.6**.

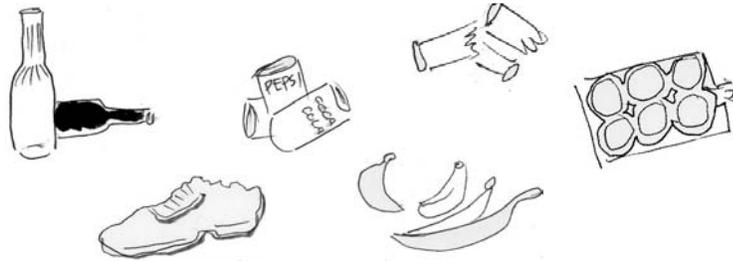
Time

20 - 30 minutes.

Vocabulary

Aluminum, pollution, styrofoam

HOW LONG DOES LITTER LAST?

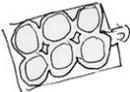


1. Gather six or more different litter objects from **Master Page 6.6** and label each item with the estimated time required to decompose.
2. Select six or more students and assign each student to the labeled litter objects. Ask them to read the label and then cover it in order to keep the answer a secret.
3. Choose one of the selected students to hold up their object and ask the rest of the class if they can guess how long it will take for the presented litter object to return to the earth. They get three guesses per object. Save plastic bottles or styrofoam for last.
4. As the students guess each object, write the object's name on the board and the corresponding answer.
5. Upon completion, hold a discussion about the implication of litter. What can they do to help? Explore various ways that students can help to alleviate the litter problem.

ENRICHMENT

- Ask students to bring a sack lunch to school and analyze the packaging.
- Have students collect litter to make a room collage or individual collage.
- Start a recycling program with cans and newspapers. Additional items can be added if desired.

How Long Will Litter Last?

	Orange / Banana Peels	<i>Up to 2 years</i>
	Wool Socks	<i>1-5 years</i>
	Cigarette Butts	<i>1-5 years</i>
	Plastic Coated Paper	<i>5 years</i>
	Plastic Bags	<i>10-20 years</i>
	Plastic Film Container	<i>20-30 years</i>
	Nylon Fabric	<i>30-40 years</i>
	Leather	<i>Up to 50 years</i>
	Tin Cans	<i>50 years</i>
	Aluminum Cans & Tabs	<i>80-100 years</i>
	Plastic Six Pack Holders	<i>100 years</i>
	Glass Bottles	<i>1,000,000 years</i>
	Plastic Bottles	<i>Indefinitely</i>
	Styrofoam	<i>Indefinitely</i>

CLASSROOM SLIDE SHOW PRESENTATION

LIFE ALONG THE SANTA CRUZ RIVER



Students will participate in an interactive ranger-led slide show. The presentation will take place in school classrooms and will emphasize various cultures and their interactions with the local environment.



LESSON OVERVIEW

Students will participate in an interactive ranger-led slide show. The presentation will take place in school classrooms and will emphasize various cultures and their interaction with the local environment.

Subjects

Science and Social Studies

Science Standards

Science as Inquiry, Personal and Social Perspectives, Life Science

Objectives

Students will:

1. Explain how historic cultures used natural resources.
2. Describe characteristics of at least three animals,
3. Identify at least three native birds by their calls.
4. Give at least one solution to better the litter problem at the river.

Preparation Use/teach lessons 1 - 6 in this guide to prepare students for the slide show; Select appropriate room for the presentation that has an available electrical outlet. A screen is helpful but not required. The presenter will come with all other necessary equipment.

Time

One and 1/2 hours.

LIFE ALONG THE SANTA CRUZ RIVER

When working in schools, I am often surprised when students are asked about the Santa Cruz River and many of them don't even know it exists. It is the closest natural wet area to their school. Not only is it a beautiful river, but it is critical to plant, animal and human survival.

A glimpse at history shows us that life in the state of Arizona revolved around water. Villages such as Tumacacori, Bac (now San Xavier del Bac), Guevavi and other early settlements, therefore, were dependent on the availability of permanent water sources and confined to sites with existing year-round water sources along the Santa Cruz River.

Much local wildlife relies on it for water, protection and habitat. Over two hundred species of birds use the area, (many of them migratory), passing through en route to other parts of the world. Humans often rely upon

ivers for survival. If there is no water, there will be no habitation!

By 1970, despite the importance of the river, a combination of drought and agricultural impacts resulted in the river's surface water drying up. This changed with the building of the Nogales International Wastewater Treatment Plant, which once again restored the flow with treated water.

Today, we once again are able to enjoy the river and its rich resources. The Juan Bautista de Anza National Historic Trail provides a haven for hikers and nature lovers. The trail, along with the Meadow Hills Cienega in Nogales, Sonoita Creek Nature Preserve in Patagonia, and many other sites, provide some of the best birding spots in the state. It is spectacular just to see the green cottonwood-willow riparian area in contrast to the stark desert surroundings.

CLASSROOM SLIDE SHOW PRESENTATION

The importance of the river cannot be denied. Despite some progress in protecting the river, its environment continues to be fragile and endangered. It is one of the few Southwest Cottonwood-Willow Riparian ecosystems left, (one of the most endangered ecosystems in the United States). Development along the Santa Cruz corridor flourishes as does the trucking industry between Nogales and other parts of the nation. We need to continually ask ourselves, "What does the future hold for both the river and future inhabitants?"

The slide show, along with attached lesson plans, are designed to give students a good introduction to the Santa Cruz River, its people, and the environment. It will touch upon various topics including culture, environment, mammals, birds, and the problem of littering. Emphasis will be placed on getting students to gain both appreciation and understanding of the river and its environment with the ultimate goal of stewardship.

The slide show will be presented in your classroom by a staff member or volunteer from the Tumacácori National Historical Park. It will be age appropriate with activities and songs woven into the program. All needed materials will be brought by the presenter.

The following is a brief outline of the slide show, to serve as a sequential guide for you to best prepare and introduce your students to the themes and contents.

- A brief introduction to historical cultures: the O'odham, Apache and Spanish, with emphasis on land utilization.
- Various slides of mammals may be introduced through interactive guessing and clue games.
- Insects and spiders may be introduced through pictures and discussion.
- Students will listen to various bird calls associated with authentic photographs.
- Present-day litter problems will be explored and solutions discussed.

