

Mojave Desert Discovery

An Educator's Guide to the Cultural and Natural History of



DEATH VALLEY
NATIONAL PARK

MOJAVE
NATIONAL
PRESERVE

JOSHUA TREE
NATIONAL PARK

LAKE MEAD
NATIONAL
RECREATION
AREA

RED ROCK
CANYON
NATIONAL
CONSERVATION
AREA

This manuscript, the lesson plans, and other activity sheets may be reproduced in whole or in part for nonprofit educational use.

Revised 1998, 2004

This educator's guide was funded with grants from the National Park Service and the National Park Foundation. Parks as Classrooms is the educational program of the National Park Service in partnership with the National Park Foundation.

Published 1994.



CONTENTS

Foreword	vi
Acknowledgments	vii
Introduction to Using This Guide	viii
Overview of Units	ix

Unit I: The Parks

NATIONAL PARK SERVICE	
Death Valley National Park	2
Joshua Tree National Park	3
Lake Mead National Recreation Area	4
Mojave National Preserve	5
BUREAU OF LAND MANAGEMENT	
Red Rock Canyon National Conservation Area	6

Unit II: Deserts

Background Information	1
Glossary	3
Fun Facts — Desert Quotes	6,7
Activities:	
Desert Puzzler	4
Sun and Water	4
Where and What Are Deserts?	5
Roadrunners and Lizards	6
Discovery Activity Pages:	
#1 Rain Shadow Deserts	
#2 Average Daily High Temperature	
#3 Average Monthly Rainfall	
#4 Deserts of the World (list)	
#5 Deserts of the World (map)	

Unit III: Safety

Background Information	1
Fun Facts — Quick First Aid Reference	5
Activities:	
Is This Hiker Ready?	4
A Hike in the Desert	4
Animals People Love to Hate	5
Discovery Activity Pages:	
#1 Is This Hiker Ready?	

CONTENTS

Unit IV: Water

Background Information	1
Glossary	3
Fun Facts — Water Wonders	5
Activities:	
Creature Feature	6
Water, Water Everywhere	7
Water Words	8
Discovery Activity Pages:	
#1 Water Word Search	
#2 The Water Cycle	

Unit V: Geology

Background Information	1
Glossary	3
Fun Facts — The Geologic Calendar	7
Activities:	
Deep Time	4
Dunes and Hoodoos	4
Mystery Minerals	6
Oxidation	6

Unit VI: Plants

Background Information	1
Glossary	3
Fun Facts — Some Plants of the Mojave Desert	6
Activities:	
Join the Club	3
My Favorite Plant	5
Be a Botanist	5
Discovery Activity Pages:	
#1 Desert Plants	

Unit VII: Animals

Background Information	1
Glossary	3
Fun Facts — Some Animals of the Mojave Desert	5
Activities:	
Camouflaged Critters	2
The Comforts of Home	4
Desert Homes Bingo	4
Night Sounds	4
Birds and Lizards	5
Keeping Cool	6
Discovery Activity Pages:	
#1 Desert Homes Bingo	

CONTENTS

Unit VIII: Endangered Species

Background Information	1
Glossary	3
Fun Facts — Some Threatened and Endangered Species of the Mojave Desert	6
Activities:	
Living on the Edge	2
And Then There Were None	3
What Endangered or Threatened Species Am I?	4
Who Lives Here?	5
Discovery Activity Pages:	
#1 Desert Dynamics	

Unit IX: Desert People

Background Information	1
Glossary	3
Activities:	
Communication	4
A Desert Pharmacy	5
Native American Pottery	6
Discovery Activity Pages:	
#1 A Desert Pharmacy	
#2 Native American Pottery	

Unit X: Westward Expansion

Background Information	1
Fun Facts — A Miner's Vocabulary	5
Activities:	
Water Conflicts	4
Pulling Up Stakes	5
To Tell the Truth	6
Way Back Then	6
Discovery Activity Pages:	
#1 Way Back Then	

Unit XI: Making a Difference

Unit XII: Resources

FOREWORD

The Mojave Desert is an excellent example of the diversity of many desert environments. Originally, many scientists placed what is now called the Mojave Desert into a more transitional environment, between the Great Basin Desert to the north and the Sonoran Desert to the south. Because of the many distinctive species of plants that live in the Mojave Desert, it is now considered a separate desert.

Although this unique desert can give the impression of being indestructible, it is actually quite fragile. Because of its fragility, it is very susceptible to impact from people. Many of the threats facing the Mojave Desert today are related to how people choose to use the resources of this land. Everyone who travels through or lives in this environment makes decisions every day affecting the desert around them. In many cases, these choices are made without people even realizing that they are making a decision about their environment. Every time a lawn is watered, an archeological site is disturbed, or an exotic species is introduced, a decision is made about management of the desert. And these are just a few of the many threats facing this environment today.

The future of the Mojave Desert revolves around the education of its users. This guide has been designed to assist educators in developing a stewardship ethic toward the Mojave Desert in today's youth. Educating children about the area will provide them with the information they need to make good decisions about managing the resources of the desert in the future.

This guide has been developed from a wide variety of educational activities that have been used by educators in this and many other desert areas. Each unit has been designed to stand alone as an educational device or to be used in conjunction with other units. The information contained in this guide is invaluable in developing a respect for the Mojave Desert, and it has been designed to be as easy to use as possible while still challenging students.

The Mojave Desert is a unique and magnificent environment. It is an area that, if treated with respect and care, will be a source of inspiration for many generations. This respect and care can only come from educating the area's future managers and users.

ACKNOWLEDGMENTS

Coordinator

CAROL PETERSON, Joshua Tree National Park (NP)

Graphic Design

STACY J. KRIKORIAN, Krikorian Design, Palm Desert, California

Illustrator

ROBERTA MOORE, Volunteer, Joshua Tree NP

Editors/Primary Authors

GLENN GOSSARD, Death Valley NP

CAROL PETERSON, Joshua Tree NP

DEBORAH SAVAGE, Lake Mead National Recreation Area (NRA)

Editor

CANDACE TINKLER, Grand Canyon National Park

Contributors

KATHY AUGUST, Red Rock Canyon National Conservation Area (NCA)

CATHY COOK, Lake Mead NRA

LYNDA DOUCETTE, Lake Mead NRA

SUSAN FRANZ, Joshua Tree NP

ELSIE HARDENBROOK, Red Rock Canyon NCA

SANDRA KAYE, Joshua Tree NP

HALLIE LARSEN, Lake Mead NRA

JODY LYLE, Joshua Tree NP

LINNEA MADSEN, Mojave National Preserve (NPRES)

CHRIS MILLER, Red Rock Canyon NCA

LESLIE PETERSON, Lake Mead NRA

KAY ROHDE, Lake Mead NRA

NANCY SHADE, Joshua Tree NP

RUTH THOM, Joshua Tree NP

JUDI WEASER, Mojave NP

Reviewers

BECKY BELL, Martha King Elementary School, Boulder City, Nevada

JESSICA COATES, Oran Gragson Elementary School, Las Vegas, Nevada

ESTELLE DAHL, Peter Pendleton Elementary School, Coachella, California

MICHAEL DUSZYNSKI, Death Valley Elementary School, Death Valley, California

GORDON FISKE, Diamondback Elementary School, Bullhead City, Arizona

DIANE GRIEMAN, Death Valley NP

SHIRLEY HOFSETH, Twentynine Palms Elementary School, Twentynine Palms, California

ELIZABETH HENRY, Oasis Elementary School, Twentynine Palms, California

CONNIE HOLCOMB, Vista Colorado Elementary School, Needles, California

KATHLEEN MAGEE, Andrew Mitchell Elementary School, Boulder City, Nevada

BOB MOON, Joshua Tree NP

Anne Murdy, Oasis Elementary School, Twentynine Palms, California

ROSIE PEPITO, Joshua Tree NP

CINDY PORTERFIELD, Death Valley Elementary School, Bullhead City, Arizona

JAMES RATHBUN, retired, Las Vegas, Nevada

KATIE RIDGEWAY, Needles Middle School, Needles, California

BILL TRUESDELL, Joshua Tree NP

INTRODUCTION TO USING THIS GUIDE

This activity guide is designed for use by teachers and other educators who live in the desert, as well as by those who may have never seen a desert area. Some activities are designed for the classroom; some are more effective if they are conducted outside. Many of them can be done on the school playground. These activities can be used in environments other than the desert, although a few would require adaptation.

The activities are written for upper elementary grades, but many can be modified for other grade levels. The background information provided in each unit is primarily for use by teachers in order to help with the activities.

We encourage you to use these activities with your students and to visit a wild desert region with them if at all possible. We also welcome any comments you have about this guide.

THE OBJECTIVES OF THIS GUIDE ARE TO:

- 1.** Provide teachers and other educators with a resource guide about the Mojave Desert ecosystem.
- 2.** Acquaint students with the desert environment through hands-on activities.
- 3.** Develop within the students an understanding of the value of the Mojave Desert.
- 4.** Develop within the students an appreciation for the total environment.
- 5.** Direct students toward actions they can take in order to protect desert ecosystems.

An interdisciplinary approach was taken when creating the materials for this guide, so that activities can easily be integrated into varied subject and skill areas. The three-ring binder enables you to add and remove materials in order to make it more useful.

OVERVIEW OF UNITS

This guide is organized into twelve units, each about a specific subject area. Many units are easily integrated into other categories and teachers are encouraged to be flexible when using the materials.

Most units open with background introductory material for teacher use. Following are ideas for hands-on activities with students. Reproducible pages, called Discovery Activity Pages, are at the end of most units. Most units include Fun Facts boxes and glossaries. Glossary words appear in *italics*. Other entries in italics include scientific names and foreign words.

UNIT I — **The Parks** gives specific information about each park highlighted in this guide.

UNIT II — **Deserts** contains activities that introduce students to desert ecosystems. Students become familiar with what a desert is and where deserts are located around the world. Activities explore the natural forces creating deserts and what makes the Mojave Desert a unique environment.

UNIT III — Activities in **Safety** teach students about desert survival and safety issues to consider before visiting a desert region. Students also learn about poisonous plants and animals and what precautions to take when hiking in the desert.

UNIT IV — In **Water** students will explore where this resource comes from and how to use it wisely. Students learn about competing uses for water and how its consumption affects plants and animals living in the desert.

UNIT V — **Geology** contains activities exploring some basic geological processes, such as dune formation and erosion. Students create a relative time line to compare modern events with the beginning of the Earth.

UNIT VI — **Plants** identifies some common Mojave desert plants and discusses several ways plants survive in the desert environment.

UNIT VII — **Animals** contains activities that explore basic survival needs animals have and ways they have adapted to the desert, both physically and behaviorally.

UNIT VIII — **Endangered Species** focuses on the endangered plants and animals of the Mojave Desert and reasons for their decline. Students learn about the importance of preserving all species, as well as those living in desert habitats.

UNIT IX — **Desert People** discusses Native American inhabitants of the Mojave Desert and how their lifestyle compared with our modern lifestyle. Information about ways they used plants and animals is also included.

UNIT X — **Westward Expansion** includes information and activities on early explorers, miners, cattlemen, and homesteaders.

UNIT XI — **Making a Difference** contains some simple actions that students can take to protect desert ecosystems, both in the classroom and outdoors.

UNIT XII — **Resources** offers a bibliographic listing of sources for more information, including children's books.

Organization of Individual Activities

Each activity begins with a section providing the objective(s) of the activity, the materials needed, the subjects the activity covers, and the skills it involves. A method section contains step-by-step directions to conduct the lesson. As a facilitator, you are encouraged to maximize student critical thinking and creativity in each activity. An Extending the Experience section is included at the end of each activity to encourage students to investigate the information in greater detail.