

2009

## Discover Mojave Forever Earth Curriculum

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Discover Mojave: Forever Earth

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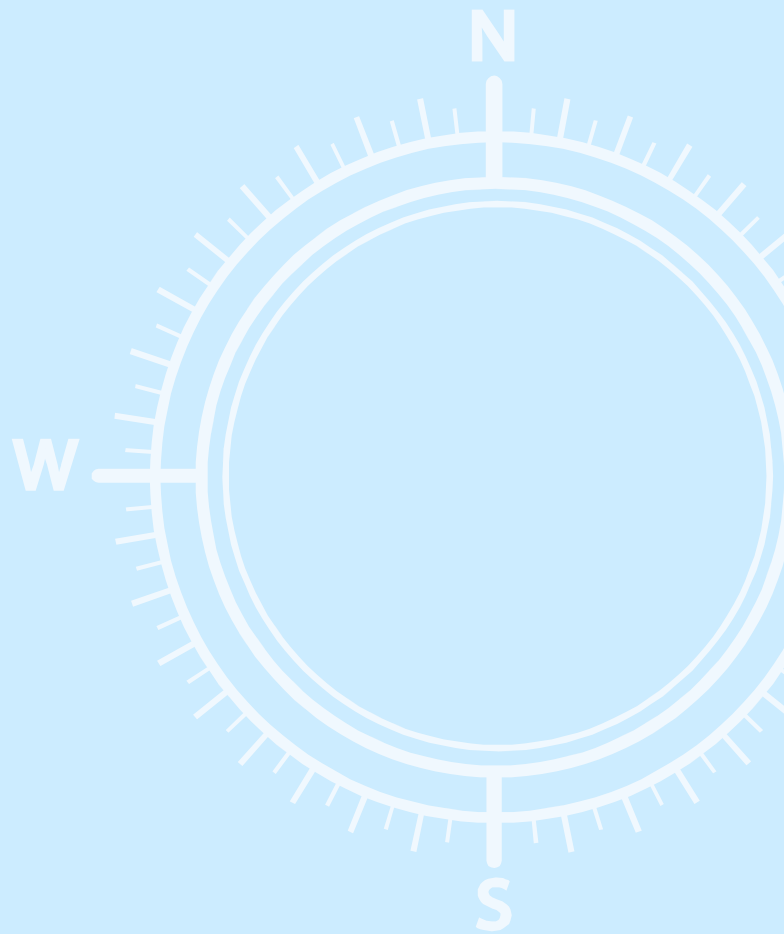
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# DISCOVER MOJAVE FOREVER EARTH CURRICULUM

2008 / 2009 Edition



DISCOVER  
**Mojave**  
FOREVER EARTH

# PREFACE

The Discover Mojave Forever Earth Curriculum Manual is a living document, of which this is its first printed edition. This document outlines and provides resources for on-site programming, pre-visit lessons, and post-visit lessons for programs that are currently being field tested and assessed by the Public Lands Institute and Lake Mead National Recreation Area. Each lesson is aligned with Clark County School District and Nevada State Academic Standards. In addition, each lesson is correlated with the themes identified initially by the Southern Nevada Agency Partnership Conservation Education and Interpretation Team.

These programs will develop further and undergo additional refinement. This document is updated regularly. The layout and organization will also change as lessons and activities are finalized, and the graphical “look” of the handouts (i.e., activity materials, demonstrations, reference sheets, and worksheets for students, facilitators, and teachers) will also undergo modification. Please contact the Project Manager for the most up-to-date version of the programming described herein.



*The Discover Mojave Forever Earth program is funded by the Southern Nevada Public Land Management Act and delivered by the Public Lands Institute, University of Nevada, Las Vegas on behalf of the National Park Service.*

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# ACKNOWLEDGEMENTS

The Forever Earth Curriculum Manual is a living document originally developed by: **Daphne Sewing**; **Allison Brody, D.A.**; and **Jennell M. Miller, Ph.D.**, Public Lands Institute, University of Nevada, Las Vegas.

The content and subsequent activities are the work of many individuals representing the various agencies and organizations that make the Forever Earth program possible. Activities were created for delivery both aboard the Forever Earth vessel and on shore at Lake Mead National Recreation Area. The team focused on not only creating engaging activities but also ensured that the mission and vision of the National Park Service and Lake Mead National Recreation Area were accurately represented. Additionally, pre-visit and post-visit lessons were created to tie the field trip experience to classroom learning objectives. The team expertly guided major theme selection and key-question development for each grade level, ensuring that grade-appropriate science standards were met and that the Clark County educator's perspective was carefully considered.

Members of the Forever Earth Curriculum Team include:

- **Daphne Sewing**, Discover Mojave Forever Earth Project Manager, Public Lands Institute, University of Nevada, Las Vegas (Team Lead)
- **Ellen Anderson**, Environmental Education Specialist, National Park Service, Lake Mead National Recreation Area
- **Allison Brody, D.A.**, Conservation Education and Interpretation Strategy Project Manager, Public Lands Institute, University of Nevada, Las Vegas
- **Jennell M. Miller, Ph.D.**, Public Lands Institute, University of Nevada, Las Vegas
- **Amanda Rowland**, Environmental Education Specialist, National Park Service, Lake Mead National Recreation Area
- **Cheryl Wagner**, Project Facilitator, K-12 Science Curriculum, Clark County School District, Nevada
- **Michelle Weibel**, Graduate Research Assistant, Public Lands Institute, University of Nevada, Las Vegas
- **Mary Weisenmiller**, Project Facilitator, K-5 Science Curriculum, Clark County School District, Nevada

**Mary Sowder**, Educator, Clark County School District and a UNLV doctoral student, developed the fourth grade pre- and post-activities. Also acknowledged are **Mary Banbury, PhD.**, Assistant Professor, University of Nevada, Las Vegas; **Kay Rohde**, former Chief of Interpretation, Lake Mead National Recreation Area and SNAP Conservation Education and Interpretation Team Lead; **Loretta D. Asay**, Clark County School District; **Ellen Ebert**, K-12 Project Facilitator, Clark County School District; and **Jeanne Klockow, Ph.D.**, former Education Curriculum Coordinator, Public Lands Institute, University of Nevada, Las Vegas for providing valuable insight and suggestions for the development of this programming.

# INTRODUCTION

The Discover Mojave Forever Earth program is more than a field trip to Lake Mead National Recreation Area (NRA). The program takes place aboard the Forever Earth, a floating environmental learning center. It is designed to give students the rare opportunity to study different facets of water in the desert—such as its characteristics and quality, the species that rely on it, its ability to change a landscape, and much more. This educational experience complements traditional classroom studies with engaging, participatory, on-site activities and support lessons based upon a solid framework for inquiry and discovery. On-site activities and the supporting lessons described herein align with Clark County School District curriculum and are correlated to Nevada State Science Standards and Clark County School District Curriculum Essentials Framework and Science Objectives. Pre-visit lessons prepare students for their trip, introducing important background concepts, key questions, and themes. Post-visit lessons follow up on and reinforce the on-site learning, and more importantly, encourage “big-picture” synthesis and options for stewardship.

On-site programming takes place both on land and traveling aboard the Forever Earth vessel, a 70-foot houseboat built and donated by Forever Resorts, LLC and berthed at Forever Resorts, Callville Bay Marina on Lake Mead. The vessel is operated through a public/private agreement between Forever Resorts and the University of Nevada, Las Vegas. Forever Resorts envisioned the vessel as a means to support and encourage education, scientific study, and environmental monitoring of Lake Mead by student groups, researchers, and other organizations with the goals of improving and protecting environmental conditions.

Discover Mojave Forever Earth is one of several conservation education programs under development for selected sites throughout Clark County. These programs are a joint effort of the Public Lands Institute, University of Nevada, Las Vegas, the Southern Nevada Agency Partnership, and others. This and other conservation education programs funded by the Southern Nevada Public Land Management Act are intended to help students develop their own understanding and appreciation for our desert environs and to motivate them to wisely manage its unique environmental, economic, and cultural resources.

## RATIONALE

Lake Mead, formed by the Hoover Dam, is part of the Colorado River system. It is the largest reservoir in the United States and is located about 30 miles southeast of Las Vegas, Nevada, between the states of Nevada and Arizona. Lake Mead is the primary water source for Southern Nevada communities and a major water source for California-based agriculture. Furthermore, three of America's four desert ecosystems—the Mojave, the Great Basin, and the Sonoran deserts—converge within Lake Mead NRA. As a result, this seemingly barren area contains a surprising diversity of plants and animals, some of which are found nowhere else on earth. The significant water and other natural resources found within Lake Mead NRA provide extraordinary material for learning about science and the environment, *in the environment*.

# CURRICULUM DESIGN FOUNDATIONS

The primary objective in developing curriculum for the Discover Mojave Forever Earth Project is to create interdisciplinary, interactive, and inquiry-based programs for students within the unique learning environment of Forever Earth, a floating environmental education center and research laboratory. Forever Earth is part of a larger area-wide, multi-partner, and interagency environmental education strategy, for which the Public Lands Institute, in cooperation with Southern Nevada Agency Partnership, are creating various curricula.

To ensure consistent curriculum development across projects, programs, lessons, and grade levels, the Public Lands Institute utilizes a curricular framework (a template), developed by Jeanne Klockow, Ph.D. It is important to note that while this framework ensures consistency, it also allows for the autonomous creativity critical for innovation. Built into Dr. Klockow's framework are means to address the standards or thematic statements of individual project stakeholders.

Additionally, in the development of this curriculum, we have kept sight of the organizational visions and missions of key stakeholder groups. The members of the development team represent many of the stakeholder groups, thus the product inevitably reflects the key visions of these members and their organizations. The work will be available for review by all stakeholders. The following table demonstrates how the Discover Mojave Forever Earth program is aligned to address the missions and goals of the individual partners and cooperators.

PARTNER/COOPERATOR	MISSION OR GOALS	FOREVER EARTH PROGRAM ALIGNMENT
Clark County School District	The district's mission states that students will have the knowledge, skills, attitudes, and ethics necessary to succeed academically and will practice responsible citizenship.	Forever Earth activities correlate with national, state, and school district science standards as well as other appropriate subject standards. Students are provided opportunities to practice problem-solving and higher level thinking skills through experiential science activities. Activities aboard Forever Earth complement traditional classroom studies by giving students real world learning experiences.
Forever Resorts	Corporate philosophy promotes the protection of the precious natural environments in which it operates as a high priority. Every Forever Resort property has earned the International Organization for Standards (ISO) 14001:2004 certification.	The Forever Earth vessel has the latest "green" technology on board. Program participants are asked to recycle, conserve water and other materials, and exhibit other environmentally friendly behaviors. Programs highlight water conservation and protection of water quality and Lake Mead.



Lake Mead National Recreation Area, National Park Service	The National Park Service is dedicated to conserving, unimpaired, the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations (National Park Service Mission, 1997 Strategic Plan, Washington, D.C.).	Participants learn about the importance of the lake and public land to the desert's flora and fauna as well as to its human inhabitants.
Outside Las Vegas Foundation	The mission of the Outside Las Vegas Foundation is to connect people to the public lands surrounding Las Vegas.	Through the diversity of activities associated with the Forever Earth program, participants (adults as well as youth) are connected to the recreational, scenic, historic, scientific, and other important features of the Lake Mead area.
Partners for Education about the Environment	The vision for this collaborative group of informal educators states that "every resident and visitor will understand, appreciate, and take care of Southern Nevada's environment."	Participants in Forever Earth programs explore the Lake Mead aquatic environment and its interrelationships with the surrounding desert. Water conservation and protection of water quality and Lake Mead are also highlighted in experiential programs.
Public Lands Institute	The Public Lands Institute is committed to facilitating and conducting high quality research, education, and outreach that promotes greater stewardship of public lands.	Experiential programs for students promote increased knowledge about ecological principles, positive attitudes about science, and stewardship behaviors in regard to public lands. Forever Earth is also utilized by researchers and agencies that are responsible for Lake Mead's water quality.
Southern Nevada Agency Partnership (SNAP)	SNAP works with each other, our communities, and our partners to conserve and enhance the federal lands of Southern Nevada for current and future generations.	By their experiential nature, Forever Earth programs promote conservation and stewardship of public lands. The vessel is also available to researchers and agencies that are responsible for Lake Mead's water quality and management.
University of Nevada, Las Vegas (UNLV)	UNLV's mission is to assist students in meeting the intellectual and ethical challenges of responsible citizenship and a full and productive life through opportunities to acquire the knowledge and common experiences that enhance critical thinking.	UNLV faculty, staff, and students are involved in the Forever Earth program on many levels. Forever Earth is utilized for field trip purposes as well as for research and other educational uses.