



Science & Educational Activities
Mountain, Desert, Ocean & River Based Program

Proven Educational Excellence

A nationally recognized leader and California's leading provider, The Boojum Institute for Experiential Education has provided over 80,000 children and young adults outdoor education experiences since 1975. With a highly skilled staff and a commitment to safety, The Institute is one of only fourteen wilderness/adventure organizations in the nation to be accredited by the international Association for Experiential Education (AEE). We provide custom designed experiences designed to meet your educational goals.

California State Education Standards

Nationally accredited by the Association of Experiential Education (AEE), we make it a priority that our programs align with the State education standards so that we can support your curriculum goals. California recently adopted a K-12 environmental education curriculum as part of its Education and the Environment Initiative - the nation's first. Having focused our 36 year history on developing student environmental literacy, education and stewardship, Boojum's programs are aligned to accomplish these newly adopted curriculum standards.

Science Emphasis

Our science focused programs are designed to meet California State Education Standards, including the newly adopted Education and the Environment Initiative curriculum as well as aligning with the newly published Framework for K-12 Science Education. Experientially engaging each student, we encourage critical thinking and problem-solving skills challenging learners to grow into active citizens and conscious stewards of the land that nourishes humans and all living species. Boojum's staff team will work closely with you to determine specific goals for your program and to create a course that complements your mission, academic curriculum and goals for student development.

Educational Approach

Boojum Institute provides programs for people to explore a new outdoor environment, awaken their senses, create a heightened awareness of one's surroundings and provide an ideal opportunity for learning. Boojum instructors use activities, games, and inquiry-based learning methods to teach science concepts including eco-experiments, each-one teach-one, professor hikes, journaling activities and town hall debates to bring science alive.

Sample Program Ecosystems and Activities

The Boojum Institute offers programs in a wide variety of environments and locations. The following are some sample locations.

Desert

The wonder and majesty of the desert ecosystem is often misunderstood, although it is the perfect location for earth science education. The open night sky with vast views of the stars is also a prime location for astronomy. Our desert ecosystem programs provide students with the opportunity to learn about science outside of school, to experientially identify plants while hiking, study the endangered species native to the area, climb on rocks in different phases of the rock life cycle and also sleep under a blanket of our galaxy. Join us in Joshua Tree National Park, Pinnacles National Monument, Pipes Canyon Preserve, or Anza Borrego State Park.

- **Climate and Geology of the Desert** - While hiking the sands of the desert, students will investigate and explore the land around them. Groups will discuss how deserts are formed and scramble on rocks to discover the weathering process. The vast scenic views easily open the discussion of plate tectonics and the important features of the Earth's surface. While resting in the shade, groups can talk about rain shadows and how they affect the formation of deserts.
- **Survival of the Fittest** - Through the "Each One Teach One" activity, students will teach each other about the identity and characteristics of the local desert plants and animals. While using their five senses with the plants, students will learn about the native plant use, life cycle, survival adaptations, and how they are inner-connected with other plants and animals in the area.
- **Water Conservation** - In an area where rainfall is scarce, and in a campground where all water needs to be transported, this provides an excellent opportunity to participate in a Town Hall Debate about water conservation. Students will present and argue both sides regarding the importance of conservation, as well as the interests of small businesses, community development and the local wildlife native to the area.
- **Mi Casa es Su Casa** - Every animal in the desert needs a place to live and investigating that home is important to understanding how animals adapt to the extremes of the desert. Students will carefully conduct investigations to gain an understanding of how animals shelter themselves in the desert. **And More...**

Seashore, Rivers & Lakes

Water is our life resource and gaining a better understanding of its significant role is important to our survival. Although, most people don't think about where their water comes from or how it arrived, we provide students with the ability to gain a better understanding through experiential learning. While students may not yet understand how water moves between the oceans and the land through the water cycle, a canoeing or kayaking activity on the ocean or in an estuary is the ideal setting to learn about water, the cycle, and how to protect this resource that is significant for survival. Join us at the Colorado River, Channel Islands National Park, Point Reyes National Seashore, Big Sur, Pt. Lobos State Reserve, El Capitan State Park, or Sunset Beach State Park.

- **Where is the water?** - While role playing the life and times of a water molecule, students will pass through all stages of the water cycle. They will also gain an

understanding of the amount of fresh water versus salt water on earth and what we have available.

- **How water travels** - This activity allows the students to demonstrate how evaporation, liquefaction, percolation, and freezing within the water cycle functions in our natural system and our human communities. Students will first be taught and then present how plant and animal communities depend on the water cycle.
- **Water, the new gold** – At the conclusion of a day on the water and after experiencing the plant and animal dependency, the group will participate in a debate about the environmental impacts of water in their local environment and create an action plan to conserve and protect this viable resource.
- **Pollution Solution** - Creating water pollution in an activity is both filthy and fun. In this activity students will also gain an understanding of the impact humans have on water. This activity begins with students building a watershed and experiencing how water moves and shapes the land. After different pollutants are added and the group investigates how these pollutants entered the water, they create their own solutions to eliminate their harmful effects on the water. **And More...**

Mountains

The mountain environment is the perfect location to see plate tectonics in action. It is also a great setting for students to see and discover the life cycle of abundant amounts of plants and animals. Students can backpack and explore the trails of the Sierra's, stay in the comforts of indoor lodging of a residential camp, settle into an enchanting campground in tents, or enjoy day trips in the wilderness of the mountains ideal for developing the scientific process for these students. Join us in Yosemite National Park, Sequoia/Kings Canyon National Park, Big Bear/San Bernardino Mountains, San Jacinto Mountains, Santa Rosa and San Jacinto National Monument, Sierra Nevada Mountains, Santa Cruz, or Castle Rock State Park.

- **The Moving Puzzle Pieces of our Earth's Surface** - Students will assemble a puzzle of the earth's surface to gain an understanding of how the earth's surface is comprised of giant plates, or slabs of crust, that slowly move due to convection of the flowing magma in the mantle of the earth. Groups will also discuss how plate tectonics accounts for important features of the earth's surface and other major geological events.
- **Tree of Life** - Every plant and animal in the forested region of the mountains is an important contributor to the life cycle of the forest. While hiking and identifying plants and animal tracks, students will discover different phases of the life cycle with both plants and animals and discuss how they are interrelated and dependant on one another.
- **Natural Resources, Human Consumption, and Global Warming Oh MY!** - California's mountains are brimming with natural resources! During this activity students will learn what these resources are and how humans are both using and abusing these resources. Students will also discuss the theory of global warming and what contributes to this effect.
- **Adaptation Auction** - This fun activity allows the students to create their own species of animal by purchasing adaptations and animal characteristics. Students present the

creature they designed and share with the group how the creature they created best adapts to survive in a mountainous environment. **And more...**