Project Catalina
Experiencing Catalina’s Environment
Introduction

Santa Catalina Island is a destination for thousands of people each year. Beyond the enchantment of Avalon where visitors arrive on the island, is a vast protected wilderness that is under the stewardship of the Catalina Island Conservancy. On a daily basis the Conservancy hears from a variety of groups that wish to explore more of the natural side of the island. Project Catalina provides information and activities for traveling into, through and beyond Santa Catalina Island’s environment. The Catalina Island Conservancy hopes to encourage children’s curiosity and to give them experiences from which they can understand the functioning of living and non-living systems and their interrelationship with these systems in the world. What they learn and how much they care will affect us all.

This packet includes:
- Proposed one-day itineraries for Avalon and Two Harbors
- Activities for Wrigley Memorial and Botanical Garden
- Activities for Two Harbors
- Lesson Plans
- Packing Your Bags
- Resources

One Day Itinerary, Avalon
Arrival at Avalon Boat Terminal

Walk to Wrigley Memorial and Botanical Garden (2 miles)(entry fee, see p.14) or ride the city trolley ($1.00)

Lesson in the Garden (1 hour) Sensing Catalina or Island Dispersal (see enclosed)

Walk back to town or take the city trolley ($1.00)

Visit shops, shoreline, and museum located at the bottom of the Casino

Return to Avalon Boat Terminal to return to mainland

One Day Itinerary, Two Harbors
Arrive at Two Harbors

Take Two Harbors Nature Walk from the Catalina Island Conservancy kiosk (1 hour)

and/or

Take a walk to Catalina Harbor and use the Scavenger Hunt activity to explore. (1.5 hours)

Enjoy the restaurant and shoreline at the Isthmus

Return to Avalon or the mainland
Project Catalina
Experiencing Catalina’s Environment
Wrigley Memorial and Botanical Garden Activity #1

Sensing Catalina’s Wildlife

Objectives:
• Experience plant and animal life by using five senses.
• Learn the terms native and endemic.
• Understand connectedness between plants and animals, and the needs for their healthy habitat.

Level: All ages

Skills: Comparing and contrasting, observing, drawing, listening, inferring, writing.


Logistics: Small group of students and instructors can do this on their own and visit each station together. A large group of students, instructors and chaperones could do this by setting up 5 stations and having groups of students rotate to each station facilitated by an instructor.

Introduction: Wrigley Memorial and Botanical Garden (WMBG) Education Center.
Welcome; introduce central theme; explain station rotation, and distribute handout.

Station #1: (WMBG) Education Center.
Read information from displays at Education Center / learn the terms native and endemic.

Station #2: Walk from Education Center along paths on right side of garden up to the bench and pine area (not over the bridge).
Look … scavenger hunt for native and/or endemic plants of Catalina.

Station #3: Evergreen pine and ironwood forest area before crossing the bridge.
Touch … tree bark rubbing of pines or ironwoods, edges of pine needles, smooth edges on cherry tree leaves, hairiness on leaves. Discuss importance of trees in a healthy habitat.

Station #4: Walk over the bridge on the left and up the walking path all the way to the top bridge.
Smell … “Smell” walk. Find, cedar, sage, bay…by rubbing fingers on the leaves of the plants, smell, describe, and draw a favorite specimen.

Station #5: Foot of the Memorial.
Listen … listen to surroundings (eyes closed), journal the sounds.

Closure: Web of Life
In a circle, all participants (students and adults) use the ball of string to toss gently from person to person, across the circle and back and forth, until all are holding the string, creating a big web. Discuss our interconnectedness with the environment.
Project Catalina
Experiencing Catalina's Environment
Wrigley Memorial and Botanical Garden Activity #2

Dispersal Walk

Objective: A close up encounter of our unique island plants and animals and their delicate interrelationships moves us to preserve and protect the native species and think about our own communities (people from the mainland) as islands that need the same consideration.

Level: All ages

Skills: Observing, comparing and contrasting, inferring.

Procedure: Begin at the Wrigley Memorial and Botanical Garden (WMBG) entry gate. Walk through the center of the garden to the Wrigley Memorial Trail that starts beyond the fence to the right of the Memorial. Walk to the ridge top where you have a view of San Clemente Island and return back on the same trail. The walk is about two miles round trip.

Stop 1: WMBG Education Center
Introductions and delivery of the objective of the walk.
Topic: What is Native, What is Introduced?
   Endemic and Island Endemic
   Use examples in displays and pass out pamphlets for identification

Stop 2: One third the way up the trail - large turn out curve areas
Introduction and game (see Dispersal lesson plan).

Stop 3: Two thirds the way up the trail
   Plant discussion. How and why were non-native and invasive weeds introduced to the island? What is the impact of fast growing, non-native weeds to Catalina’s ecosystems?

Stop 4: Top of trail
   Animal discussion. How and why were non-native animals introduced to the island? What is their impact on the natural habitats that you see here on the island?

Final stop: WMBG, base of memorial
   Review and closure. While in a circle, give each student time to share what they have learned or experienced. Ask how each one is connected to their environment both here on the island and at their homes.

Notes:
Native: origin is from Southern California coast areas—arrived here without being transported by recent human activities.
Endemic: found only in the one area.
Catalina endemic: found only on Catalina Island.
Island endemic: found only in the California Channel Island chain.
Introduced or nonnative: brought here by people since European contact.
Invasive: introduced, usually no natural predators or competitors to limit reproduction and spread.
Research:
Prior to your visit to Catalina please tour our web site at www.CatalinaConservancy.org
**Project Catalina**

**Experiencing Catalina’s Environment**

**Wrigley Memorial and Botanical Garden**

**#1 Sensing Catalina’s Wildlife**

List of Native Plants:

___________________________________

___________________________________

___________________________________

Catalina Endemic Plants: they grow naturally **only** on Catalina Island

___________________________________

___________________________________

___________________________________

**#2 Native and Endemic Plant Scavenger Hunt**

On the below lines write in names of plants you find along the trail

___________________________________

___________________________________

___________________________________

___________________________________

**#3 My Tree Rubbing (in space below)**

Name of tree: _____________________

**#4 Smells Sooooooooooo Good**

There are many plants that have strong smells. The odor sometimes attracts animals and other times it drives them away. People often like to use plants that smell good for cooking. With a partner find and smell: incense cedar, California bay and Black sage. Select one and draw it in this space.

Plant name: _____________________

It smells like: _____________________

**#5 Sounds of Nature in Catalina**

After moments of silence describe what you hear: ______________________________

___________________________________

___________________________________

___________________________________

___________________________________
Objective: Students will discover that human history and natural history of this place are interconnected.

1. **Kiosk** – Welcome and gathering spot to begin your walk. In the entire world, there is no place like Santa Catalina Island.

2. **Waters edge** – Formation of Catalina and sweepstakes dispersal (see dispersal lesson plan). Bird rock is an excellent teaching tool for this. How would life forms get from Catalina to Bird Rock?

3. **Midden** – Early peoples' history on island. The isthmus was a Pimuvit village site when Cabrillo came in 1542; the name of the village was Sona’ga-na. Why is a midden a valuable resource for anthropologists and archeologists to explore? What can we learn from its contents? What can we learn from our landfills?

4. **Down on beach** – Look at rocks if tide is low. Discuss the incredible resources available to the Pimuvits when they arrived. What did they eat? Discuss the steatite (soapstone) trade. How do you think our human history has changed the face of this island?

5. **Malva rosa-Fennel/Midden site** – Explore two plants – native: Malva Rosa vs. invasive: fennel. People have been living on the island for thousands of years. We have changed its landscape. In 1863 the Union Army sent a division out to the island; when the captain arrived, he reported that there were only 100 people living on the island (1/2 of them were miners), and there were 15,000 sheep and 8,000 goats! Malva Rosa – once, the only specimen was found on Bird Rock. Why? No grazers or browsers! On the other hand, fennel, a very invasive plant, is overtaking space and soil from the native plants. What conservation action would you plan to assist the island’s natural wildlife?

6. **Walk through town** – As we look around, we notice that the hillsides on this part of the island are relatively bare as a result of years of overgrazing. Also, when the Union army came to the island, the captain documented that thousands of cords of firewood had been cut and sold to mainland purchasers. He gave directions forbidding the cutting of any more trees for ANY purpose while they were here!

7. **Two Harbors School (Little Red Schoolhouse)** – About 200 residents currently live year-round in the town of Two Harbors. Until 1987, any school-age students who lived here were bussed 1 ½ hours each way, across the island to Avalon for classes! In 1987, this schoolhouse was built for the K-5 students in the town and the surrounding area. A long-time yachtsman paid for the cost of the building. The Schoolhouse Foundation will pay for the operating costs and purchases of classroom supplies if the student numbers go below 10. This is the only one-room schoolhouse in LA County and the only one of 40 in the state of California. These students receive incredible instruction. Nature’s classroom is just outside the door!

8. **Isthmus Yacht Club/ old army barracks** – A veil of mystery still shrouds why the 4th Union Calvary and Infantry Division was sent to Santa Catalina Island in 1864. There are two theories; maybe the real truth is a mixture of both. Theory 1: There had been documented “Indian difficulties” in Humboldt County and the government’s Bureau of Indian Affairs wanted to relocate them. A possible reservation site on Santa Catalina Island? Some officers surveyed the isthmus area and found, while it had a great climate, the nearest good source of fresh water was over six miles away. Nothing ever materialized. Theory #2: The
army was sent to forestall a confederate attempt to seize the island and establish a privateer base. The Confederate States Navy was operating on the high seas and was reported attacking and destroying fishing fleets off both Atlantic and Pacific coasts. The Channel Islands were suspected as sites where the confederate soldiers might seek refuge/asylum while raiding the west coast. Sentiment in California was split during the Civil War and perhaps the government did not want to take any chances. The Union war efforted was funded in large degree by the wealth of gold and other resources coming from the west coast. When the Army arrived, they told all of the people who inhabited the island to pack up and leave within two months. Yet, some ranchers and miners had been living at the isthmus or surrounding coves for over 10 years at that point. The removal of inhabitants was reconsidered and they were allowed to stay, provided they were not engaged in any unlawful business.

9. Conclusion – There are islands being formed on the mainland of Southern California. As cities and roads close in on our wilderness areas these open spaces become isolated, disconnected from each other, surrounded by urban development. These areas need our support and protection too. We urge you to learn more about the natural areas closer to your home and support any local conservancies in your area.

Two Harbors Nature Walk
Scavenger Hunt

Objective: Students will observe the diversity in nature and through this observation discover the interrelatedness between themselves, plants and animals.

Level: All ages

Skills: Observing, comparing and contrasting, inferring

Suggested Route: From the Little School House walk west toward Catalina Harbor. Make observations as you walk along the east (left) side of the harbor out to Ballast Point and beyond to Look Out Point. No need to collect, just use your senses to discover! This is known as the Tide Pool Trail.

- Find 5 living creatures.
- Find a leaf that looks like a heart.
- What is the most beautiful thing you see?
- Find 5 different types of insects.
- What is the weirdest thing you have found?
- Try to find every color in the rainbow.
- Find at least 3 plants that have a strong smell.
- Count as many different shades of green as you can.
- Find 3 plants that have hair!
- Look for the plant that has leaves like a taco shell.
- Find 3 plants that have shiny leaves.
- Find something that looks happy.
- Find something that looks tired.
- Find something that looks wise.
- Stop for a minute and count how many different sounds you hear.

★
**Project Catalina**  
**Experiencing Catalina’s Environment  
Lesson Plans**

**Dispersal/Catalina Island**

Level: Grade 2 through 6 (Appropriate for English language learners)

Subjects: Science, language arts, math

Skills: Observing, organizing, communicating, sequencing, comparing, recording and graphing

Materials: Large rock (represents island), Santa Catalina Island cut-out (or make shape of island with rope), beanbag animals, log (to demonstrate debris floating), variety of California coastal native seeds (easily distributed if in taped petri dishes), and pictures of animals (these can be found on our web site).

Objectives:
- Students will be introduced to the theory of island biogeography as it relates to the arrival of living organisms on the island (Wind, Water, Wings).
- Students will compare and contrast the number of organisms that arrived on the island to the number of organisms that survived once they arrived.
- Students will understand that a healthy habitat is necessary for survival.

Background: Santa Catalina Island began emerging above sea level about 5 million years ago. It has always been isolated from the mainland, never attached by a land bridge. With the subduction of the Pacific plate and tectonic forces associated with the San Andreas Fault, igneous, sedimentary and metamorphic rocks were pushed to the surface. Lava flows also overlaid Santa Catalina Island. How then did plants and animals get to the island and survive? The theory of island biogeography analyzes dispersal of living organisms (plants and animals) through processes of wind, water and wings (birds, bats and insects). Although the theory is complex it is clear that life reached this island through these processes. Wind (storms, Santa Anas) can blow seeds and even insects to new island destinations. Water can carry floating debris that may hold seeds, plants, lichen, fungi, small animals, larvae and eggs. Wing is a reference to animals such as birds, bats and insects that are great natural dispersers of seeds. Once the seeds, insects, birds and other living organisms arrived, what was to guarantee their survival? They need a healthy habitat (food, water, shelter and space) and they need to be able to reproduce in order to create a population and a healthy interactive community.

Procedure: (about 45-50 minutes)
Introductory questions: How do you think Catalina got to be an island? Do you think there were always plants and animals on the island? How do you think they got here?
1. Show large barren rock and explain that Catalina started out this way. No plants or animals. Lead questions to help students think of ways that plants and animals arrive on the island over the course of millions of years. As students start sharing ideas that go along with Wind, Water and Wing jot the words down on large white board or blank overhead master.
2. Distribute seeds in petri dishes and ask about the method that was used to help the organism get to the island. (Your California coastal native seeds will work). Also show pictures of animals and continue discussion.
To reinforce WWW play the sweepstakes dispersal game. (Discovered it is best to play game inside the classroom). At a distance away from the students, set out the cutout of Santa Catalina Island. Have students stand at a distance away from the island behind an outstretched rope. The rope represents boarders of the mainland. Give students beanbag animals, plastic insects and/or handfuls of acorns. Start telling a story of an upcoming storm from the mainland. As the story progresses and the storm gets stronger, the students are instructed to toss their organisms in the direction of the island.

A student will record on small white board the data of how many plants and animals arrived on the island.

Ask students one by one to pick up their animal that didn’t make it to the island and hand it to you. They can then sit down somewhere around the island. Then students who had animals fall on the shores or onto the island approach the island and sit down along with fellow students around the island. Now, discuss the importance of a healthy habitat in order for these plants and animals to survive (food, water, shelter and space and reproduction). If they do survive will they find a mate to increase the size of their family or be able to pollinate to make more plants? During the discussion slowly remove some of the plants and animals that do not survive.

One student will record additional data of the number of plants and animals that did survive.

With the “Arrived” and “Survived” data the students will first create a bar graph of the number of plants and animals that “arrived” to the island. (Demonstrate on overhead while all other students copy onto their papers). Teach them that all graphs need labels and proper numbering starting with “0”. Secondly, have the students graph the numbers of organisms that “survived.” If time provides, ask students to retell the story using the bar graphs as aids to compare the organisms that arrived to the ones that survived after they made it to the island.

Demonstrate and teach them Wind, Water, Wings hand/body motions with chanted words. (Your index, middle and ring finger form a W. Wind: sweep your arms and hands like being blown by the wind, Water: wave hands up and down like the ocean waves, and Wings: spread out your arms like an eagle and fly) Repetition helps retention. So have fun and repeat these movements at a normal pace, then in slow motion and again at a fast speed.

Tell students about the upcoming trip to Catalina. You will visit different habitats and see the different plants and animals that made it safely to Catalina and survived.

A time for reflection, a chance to gain perspective, and put things into its larger picture. “A trip to beautiful Catalina is a time to look ahead and plan for the future.”
Habitat is Home

Levels: Grades first through fourth.

Subjects: Science, language arts.

Skills: Communicating, comparing, analysis, concept development.

Materials: Three “circles” made of rope, saltines, non-edible food (rock), and one jar of “polluted” water, two jars of fresh water, spray bottle, umbrella, and animal and plant pictures from Conservancy’s web site.

Objectives:
- Recognize that all animals need a habitat to survive.
- Understand the four components of habitat.
- Describe various habitats available to animals on Catalina.

Background: All plants and animals need food, water, shelter, and space in which to live. These components of habitat must also be of a suitable quality and quantity for the organism to survive. Every animal needs a place to find food and water. They also need enough space in which to live and find the food, water, and shelter they need. Therefore, a habitat is like a neighborhood that has everything in it that an animal needs for survival. If any component of that habitat is missing or is affected significantly so that the arrangement for animal is no longer suitable, there will be an impact.

Procedure:
1. Introduce the word HABITAT. A habitat is composed of everything an animal needs to live. Ask: What do all living things need in order to survive? Brainstorm! Demonstrate animals’ need for quality space: Place three circles on the floor. Ask for a volunteer to stand in each circle. Ask: Are they comfortable there? Do they have enough space to sit? Nap? Eat? Do jumping jacks? Next, add five more students to one of the circles. Ask the students to do the same things. Ask: How does it feel? Next, add ten more people to the third circle. Ask: how does it feel now? Can they perform the same tasks? Ask the bystanders: Which habitat is healthy?
2. Have all of the students sit around the circles. Space is an important component of habitat because animals spend their whole lives in their habitat. Ask: What kind of animal could live in one of the circles its whole life? Show pictures: How much space do they think a spider needs? How much space does a Catalina Fox need? So, habitats can vary in size and appearance.
3. Demonstrate animals’ need for quality and quantity of food. Ask: Did any of you have breakfast? Where did it come from? Where does an animal find its food? In the space where it lives! Ask for a volunteer to sit in one circle and give them a saltine. Ask: How does it taste? Did you have enough to eat? Next, put 5 people in the second circle. Give that group one cracker and tell them that they each have to eat to survive. What will they do? Next, ask another student to sit on the third circle and give them a rock. What are they going to do?
4. Have all of the students sit around the circles. **Ask:** Did your habitat provide you with enough food? Did your habitat provide you with the right kind of food? Ask the students to brainstorm: Where could a spider live? What does a spider need to eat? Where could a spider NOT live? (Ex: a land spider could not live in the ocean) Why?

5. Demonstrate animals’ need for quantity and quality of water. Ask for a volunteer to sit inside of each circle. One student gets a jar of fresh water, one student gets a jar of polluted water, and the last student gets a jar of fresh water. **Ask** students: Which animals would survive? They will point to the students with the fresh, clean water. Next, give one saltine to one student with fresh water and one student with polluted water. Out of the three habitats, which one is healthy? (One has clean water, food, and space, another has polluted water, food, and space, the last has clean water, space, but no food).

6. Demonstrate animals’ need for quality shelter. **Ask:** What is the fourth thing that animals need to survive? Ask for three volunteers, one to stand inside of each circle. Give one student an umbrella, another a small rock, and nothing to the last student. Spray each student with water. **Ask:** What is the fourth thing animal need to survive? Why do they need shelter? For protection from the elements, to protect their babies, to hide from predators, to stay warm, etc.

7. Show pictures of different animals: a spider, a frog, a fish, and a fox. **Ask:** What kind of shelter does Catalina provide for each of these animals?

8. Invite students to Santa Catalina Island and the Wrigley Memorial and Botanical Garden where they can go in search of habitats. As a review, ask the students to name the four components of habitat.
What to wear:

Catalina’s weather is very similar to the rest of Southern California. However, we are a 76 square mile island located 22 miles off the coast; therefore, our weather is quite influenced by the ocean. Catalina often has some cloud cover in the fall, winter, and spring. Don’t forget that ocean breezes definitely cool our landscape.

We recommend dressing in what we call “Catalina Layering”, which essentially means wearing things like sweatshirts, jackets, and hats that can be taken off or quickly put back on depending on the weather. If rain is in the forecast, make sure to bring rain gear. Remember it is better to be too warm than too cold!

Since you will be exploring the island by foot, we also recommend that you wear sturdy tennis shoes. Sandals and open-toed shoes do not perform well nor give proper support while walking on trails and along the shorelines.

What to bring:

Visitors find it most comfortable to bring a daypack or a book bag in which they can easily store their extra “Catalina Layering” clothes, along with a camera, sun block, and water bottle. A pencil will be handy so you can participate in some activities or write or draw in a nature journal. If you are interested in birds, then bring along your binoculars and field guides.

When thinking of snacks, please keep in mind our natural spaces and bring items that incur less trash. As with all natural environments we visit we want to affect a minimum impact on the land by taking only memories and photos and leaving only our footprints.
Transportation:
There are a few options for transportation to the island. Please call the Catalina Island Visitors Bureau for current information. (310) 510-1520.

The city trolley runs approximately every ½ hour from the Avalon Boat Terminal to Wrigley Memorial and Botanical Garden.

Island Contacts:

Catalina Island Conservancy
Visitor Services (310) 510-2595
Education Department (310) 510-0954

Wrigley Memorial and Botanical Garden (310) 510-2288
Open every day of the week 8 a.m. to 5 p.m.
Reservations are not necessary
Adults are $3.00
Children 12 and under are free

Catalina Island Visitors Bureau (310) 510-1520
Descanso Beach Ocean Sports (310) 510-1588
Catalina Island Museum (310) 510-2414

Camping:

Avalon - Hermit Gulch Campground (310) 510-8368
Two Harbors - The Isthmus of Catalina (310) 510-0303