

WELCOME TO THE CATALINA ISLAND ECOLOGY SAFARI PROGRAM

"In all things of nature there is something of the marvelous."

Aristotle

Thank you for choosing the Catalina Island Ecology Safari as your field trip! This program is an educational adventure offering participants an opportunity to explore the ecology of Catalina Island, both on land and in the surrounding waters. Students will develop a unique perspective and gain in-depth knowledge of this popular Channel Island.

Whether hiking through the coastal sage, finding an ancient lava dome, snorkeling in the calm waters of Little Fisherman's Cove, witnessing a sea lion chasing a flying fish, or attempting to define the physical parameters of the island itself, your students experience science and nature in ways they will not forget.

In order to help you prepare yourself, your class, and your parent chaperones for the upcoming journey, we have provided a teacher materials package. In this package you will find:

- Program description
- Administrative checklist
- Administrative preparation materials
- Links to California Science Content Standards
- Background materials
- Classroom activities
- Teacher Information Packet with forms [separate, available on-line](#)
- Chaperone Information Packet with forms [separate, available on-line](#)
- Parent Information Packet with forms [separate, available on-line](#)

If you have any questions, please contact Serena Neff, the Island Ecology Safari Program Coordinator at (949) 496-2274, extension 331.

We appreciate all of the time and effort spent in preparing your class and look forward to your arrival!



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Additional packets not included (available separately at www.ocean-institute.org):

TEACHER FORMS

- Adult Clothing and Supply List
- Acknowledgement of Risk and Waiver for All Participants
- Adult Medical Form
- ***R/V Sea Explorer / Fury*** Manifest
- Tent Assignments for Island Ecology Safari in the ***R/V Sea Explorer***
- Snorkeling Groups for Island Ecology Safari
- Special Information Form
- Catalina Island Ecology Safari T-shirt Information

CHAPERONE INFORMATION PACKET AND FORMS

- Introduction / Role of Chaperone
- Student Guidelines
- Adult Clothing and Supply List
- Acknowledgement of Risk and Waiver for All Participants
- Adult Medical Form

PARENT INFORMATION PACKET AND STUDENT FORMS

- Welcome Letter
- Student Guidelines
- Student Clothing and Supply List
- Acknowledgement of Risk and Waiver for All Participants
- Student Medical Form
- Administration of Medication Form
- Snorkeling Information Form

A. DESCRIPTION OF ISLAND ECOLOGY SAFARI PROGRAM

The Catalina Island Ecology Safari overnight program takes students from mainland California to the well-known island of Catalina. This educational adventure offers participants various opportunities and the scientific tools to explore the ecology of Catalina Island, both on land and in the surrounding waters.

Through observation and analysis of marine and terrestrial plant and animal adaptations and island geology, students begin to understand what makes Catalina island unique—and sometimes, similar to—mainland California. An introductory course in snorkeling allows students to explore subtidal and kelp forest communities in a shallow protected cove. The night program includes observation of the nocturnal food chain under a squid light and hands-on lab stations focusing on plankton and bioluminescence. Biogeographic distribution of fish is studied on the second day during catch-and-release fishing.

****Catalina Island Ecology Safari programs are offered in the fall and spring aboard the Coast Guard certified oceangoing vessels, *Fury* or *R/V Sea Explorer*. All of our instructors have degrees in marine science or a related field, are first aid and CPR certified and are senior educators at the Ocean Institute.**

SAMPLE SCHEDULE (Itinerary is subject to change)

Day One

6:45 AM	Students arrive at the Ocean Institute
7:00 AM	Load gear aboard vessel
7:30 AM	Depart from Dana Point <i>Mapping: Introduction to GPS, Mapping, and Bathymetry</i>
11:30 AM	ETA to Wrigley Marine Science Center or Isthmus <i>Geology Scavenger Hunt</i> <i>Plant Adaptation Hike/Physical Factor Analysis</i>
2:30 PM	Snack & Snorkeling
4:30 PM	<i>Animal Scavenger Hunt / Mud Flat Activity</i>
5:30 PM	Board vessel at Isthmus dock/Snack
6:30 PM	Dinner
7:30 PM	Night Program <i>Food chain dynamics</i> <i>Bioluminescence</i> <i>Plankton Lab</i>
9:00 PM	Lights Out

Day Two

6:00 AM	Wake up, Breakfast
7:00 AM	<i>Catch and Release Fishing</i> at Long Point
8:30 AM	Depart Catalina <i>Mackerel and Squid Dissections</i>
11:00 AM	Lunch
12:30 PM	ETA at Dana Point

B. ADMINISTRATIVE CHECKLIST FOR ISLAND ECOLOGY SAFARI

Immediately upon receiving this package...

- Carefully review the **Teacher Preparation Package**
- Mail information letter to parents to arrange a parent orientation
- Arrange for parent chaperones—one adult for every 12 students
(**the *Fury* can hold **no more than 40 program participants**)
- Arrange your transportation
- Distribute T-shirt information to students and adults

Two months prior to your trip...

- Confirm student and adult numbers with the Ocean Institute
- Fax your T-shirt order **6 weeks before** your program to guarantee the requested sizes and a complete order

One month prior to your trip...

- Begin student preparation
- Collect fees
- Distribute **Chaperone Information Packet** to each chaperone and **Parent Information Packet** to each student
- Complete the **Program Information Form** and mail to the Ocean Institute

Two weeks prior to your trip...

- Mail program payment to the Ocean Institute—full payment must be received a minimum of 10 days before your program
- Contact parents to remind them to sign and return the Acknowledgement of Risk and Waiver, medical forms, and Snorkel Information Form
- Collect **Acknowledgement of Risk and Waiver, Medical Forms, and Snorkel Information form**

One week prior to your trip...

- Review behavioral expectations with students
- Comprise a list of students that will be snorkeling
- Distribute Student Clothing and Supply List
- Contact the Ocean Institute with any last minute questions or changes

24 hours to go!!!...

- If inclement weather is expected, contact the Ocean Institute for status of the program
- Prepare nametags for students and adults
- Complete ship manifest listing ALL students and adults

When you arrive for the ISLAND ECOLOGY SAFARI...

- Unload the bus in front of the Ocean Institute
- Give a final head count and **ship manifest** to Ocean Institute staff
- Separate all lunches and snacks into a single box—**NO FOOD IS ALLOWED IN BUNKROOMS!**
- Seasickness remedies should be taken at least 30 minutes prior to departure

C. ADMINISTRATIVE INFORMATION AND PREPARATION

ADMINISTRATIVE CONTACT

For questions regarding the Catalina Island Ecology Safari Program, please contact:

Serena Neff, Island Ecology Safari Program Coordinator, Assistant Director of At Sea Programs
Telephone Number: (949) 496-2274, extension 331
E-mail: sneff@ocean-institute.org

Rick Baker, Vice-President of Education
Telephone Number: (949) 496-2274, extension 311
E-mail: rbaker@ocean-institute.org

INTRODUCTION

Thank you for choosing the Ocean Institute as your field trip destination. We appreciate the time and effort it takes to prepare your students for their program, and we will do everything we can to make their experience as rewarding as possible.

Please make sure that all of the participating teachers have a copy of these teacher materials. The information contained here can help you find answers to your questions, develop your preparation timeline, and prepare both your students and chaperones. This packet also contains directions to the Ocean Institute as well as contact phone numbers—please call us at any time with any questions you may have about your field trip.

TEACHER INFORMATION: BEFORE YOUR PROGRAM

You can do several things before you arrive to help make your program run as smoothly as possible:

- Review the program goals, station activities, and expected student behaviors with the students before you arrive. Complete the classroom activities with your students, and make sure they have a clear understanding of the educational concepts they will explore during the program
- Provide each student with a copy of the **Parent Information Packet**. This packet includes a Welcome Letter, the Things to Bring List, the Acknowledgement of Risk and Waiver, the Student Medical Form, the Administration of Medication forms, and the Snorkeling Information Form
- Spend some time choosing and preparing your parent chaperones. Review the program goals, station activities, and expected student behaviors with them before you arrive. Please provide each chaperone with a copy of the **Chaperone Information Packet**. This packet includes the Acknowledgement of Risk and Waiver and Adult Medical form
- Have a signed **Acknowledgement of Risk and Waiver** for each student and chaperone before boarding the bus
- Have a completed **Manifest** with the names of all students and adults
- Notify the Ocean Institute staff of students with any special health, behavioral, or dietary considerations at least one week before the program
- Send program payment to the Ocean Institute at least 10 days before the scheduled date of your field trip

TEACHER INFORMATION: DURING YOUR PROGRAM

Ocean Institute instructors are all well trained to work with students of different ages and abilities. Both you and the adult chaperones can help the instructors monitor student behavior and safety. There are several things that you can do to help facilitate the smooth running of your educational program:

- Work cooperatively with Ocean Institute instructors and your parent chaperones to manage students during the program
- Work cooperatively with Ocean Institute instructors and your parent chaperones to solve student and chaperone management problems
- Report any problems (including facilities and management) to the Ocean Institute staff as soon as possible

CHAPERONE RECRUITMENT

Your recruitment of chaperones is very important. Their support and enthusiasm are vital to a successful adventure. We require one adult chaperone for every twelve students. If you will be spending the night in tents, please bring enough chaperones to have one adult in each tent. Chaperones may be teachers, parents, grandparents, college students, or older brothers or sisters of students. They should be at least 18 years old, in good physical condition, and supportive of the Island Ecology Safari program goals. Please meet with your chaperones before your trip to make sure that they have a complete understanding of their responsibilities, and distribute the Chaperone Introduction information that is included in this preparation package.

Please remember that the Island Ecology Safari program experience is designed for the students. While parent participation is important, too many parent chaperones shift the focus of the information away from the students.

PAYMENT

Payment must be received 10 days before your program date. Please mail a single check for the total amount of the program minus the deposit you have already paid. Please make checks payable to Ocean Institute.

FINAL COUNT

Call the Ocean Institute **two days before** your program if the number of students or adults changes. When you arrive at the Ocean Institute for your program, you must have an accurate count of total students and adults participating in the program. If the number of participants listed on your Confirmation Form is not accurate, call the Ocean Institute immediately. The **Fury** can hold a total of **40 participants**, including chaperones and teachers.

STUDENT AID

The Ocean Institute maintains a student aid fund for students who are unable to obtain sufficient funding to attend the program. Please call (949) 496-2274, extension 0 for more information and to receive the necessary forms for student aid.

TRANSPORTATION

Student transportation should be arranged well in advance. It is important that you arrive on time. Please schedule yourself to arrive at least 15 minutes before your scheduled program start time. If you arrive late, your program time may need to be shortened. Buses can unload in front of the Student Services building.

Student transportation should be arranged well in advance. The transportation schedule is as follows:

7:00 am departure	Day 1:	Arrive at the Ocean Institute by 6:45 AM
	Day 2:	Pick up at Ocean Institute at 12:30 PM

SNORKELING GROUPS AND WETSUITS

Once you have a final roster of participating students, divide them into **three** snorkeling groups. Use the snorkeling group form to help organize your groups. The Ocean Institute staff will try to supply each student and

chaperone with a wetsuit, mask, snorkel, and fins. If a student or adult has their own snorkeling gear, they should bring it with them.

INFORMATION PACKETS

We have included packets with information and forms for the teachers, chaperones, and parents. They contain copies of information and forms that must be completed by parents, chaperones, and teachers before arriving for the program. **IT IS IMPORTANT THAT YOU ARE FAMILIAR WITH ALL THE INFORMATION AND FORMS FOUND IN EACH PACKET.** These packets are ready to be copied and distributed to the appropriate participants. Information on each of the forms is in the next section.

****Please make sure that you provide chaperones with copies of the Chaperone Information Packet and the Parent Information Packet.**

FORMS

The following forms are included in the information packets found at the back of this booklet. Please make sure that all of the forms are completed before you arrive for the Island Ecology Safari. Make sure that you use the forms from this packet—they are the most updated forms.

Acknowledgement of Risk and Waiver

Each student must have this form signed by a parent or guardian to participate in the Island Ecology Safari program. Please make sure that you have one signed form for each student and adult chaperone when you check in with the Ocean Institute staff.

Medical Forms

You will find **three different medical forms** in the Appendix. You must have a completed and signed medical form for each student and adult participating in the Island Ecology Safari program. In order for a child to receive any prescription or non-prescription medication during the Island Ecology Safari program, the Administration of Medication form must be completed and signed by the parent or guardian and the child's physician.

Manifest for the *R/V Sea Explorer or Fury*

A Manifest for the *R/V Sea Explorer or Fury* must be completed before you arrive for the Island Ecology Safari program. The Coast Guard requires us to have a completed Manifest in order to account for all passengers before we leave the dock. Please have it completed **before** you arrive at the Ocean Institute. It is important that the Manifest is accurate and includes the first and last names of ALL students, teachers, and chaperones. Your Ocean Institute Lead Instructor will take a head count before boarding the vessel and the number of this count must match the number on the Manifest.

Tent Assignment Form

If your program is taking place on the *R/V Sea Explorer* and is overnight, you will be spending the night in tents on Catalina Island. Once you have a final roster of participating students, divide them into tent groups. Each tent should have 5 students and 1 chaperone.

Snorkeling Group Form and Snorkeling Information Form

Use the snorkeling group form to list each student that will snorkel. Please have a parent/guardian complete and sign the swimming ability form. This form will help you and the instructors place each student in the appropriate snorkeling group.

Program Information Form

The program information form should be completed and mailed to the Ocean Institute at least one month before your program. This information will help us prepare for your program and accommodate any special needs your group may have, including allergies and other food needs.

MEDICAL ISSUES

The medical forms included in this package must be completed for each student attending the Island Ecology Safari program. Please carefully review the completed forms to ensure that they have been properly filled out and signed. The teacher-in-charge will be responsible for storing and distributing routine student

medications (both prescription and non-prescription). He or she will also keep all of the medical release forms. Please notify the Ocean Institute in advance of any students with special dietary needs or physical limitations. Please be aware that there is no medical doctor or nurse on site. In addition, there is no housing for ill students. Parents of ill or injured students will be notified immediately, and if necessary, arrangements will be made for their transportation to the hospital in Avalon on Catalina Island or home.

STUDENT PREPARATION

We have found that the more familiar the students are with program concepts and content before they arrive, the more they will benefit from and enjoy their experience. We have included background information and classroom activities to introduce important concepts to your students before they arrive for their program.

STUDENT BEHAVIORAL EXPECTATIONS

Please take time to discuss the academic nature of their field experience with your students before arriving at the Ocean Institute. During the program, we expect that your students will follow the same behavioral rules you have in your classroom. In addition, the *Fury* vessel offers a unique teaching environment that most students are not used to; please let your students know they will learn a special set of rules for living on a boat!

STUDENT SAFETY RULES

All teachers, chaperones, parents, and students must understand these safety rules before the start of the program. Please review these rules with the students before the program begins:

- Remain within visual sight of an adult at all times.
- Never go anywhere alone...always stay with your hiking/snorkeling group.
- Always walk—no running on designated trails; follow behind the instructor(s).
- Never pick leaves, flowers, or stems from any plant unless otherwise told.
- Do not skip or throw rocks.
- No gum allowed.

While onboard the vessel...

- Wear shoes on board the vessel at all times.
- Do not enter any bunk other than your own.
- Always walk—no running on deck, keep both feet on the deck at all times, do not sit on the rails.
- Do not operate or touch any onboard equipment unless otherwise told.
- Report any illness or injury to an instructor or chaperone immediately.

While Snorkeling, Chaperones Should...

- Assist students with fitting of masks, fins, and wetsuits
- Supervise students not participating in the snorkeling activity
- Assist instructors with snorkeling groups in the water
- Assist instructors in helping students that need to return to the beach
- Assist instructors with the enforcement of all safety rules during the snorkeling activity

In the event of a student injury, a chaperone may be asked to supervise a hiking group, or to accompany a student back to either Wrigley Marine Science Center or Isthmus Cove for help.

CHAMBERS GIFT AND BOOK STORE

The *Chambers Gallery* Book and Gift Store is a fun and unique non-profit museum store open daily from 9:00 AM to 5:00 PM and definitely worth the visit. Additionally, the revenue is directed toward lowering tuition for schools that participate in Ocean Institute programs.

To help accommodate all of the schools that would like to shop each day, please have one teacher from your school check-in with a store staff member before your students begin shopping.

There will be a limit on the number of students allowed to shop at one time and we encourage you to organize them so that they all have time to enjoy the shop. Please have one or two adults in the store to help supervise your students. We ask that all food, drink, and backpacks be left outside while they are shopping. Teachers receive a 15% discount in the shop if members of the teachers club and 10% normally.

Please remind your students that sales tax will be added to their items.

In order to ensure a positive experience, we recommend the following:

1. Plan sufficient time before or after your program to shop.
2. All purchases should be stowed safely away and out of sight for the program.
3. Please allow only 10-12 students in the *Chambers Gallery* at a time. Remaining students should remain outside in a manner that does not interfere with traffic in and out of the building.

DIRECTIONS TO THE OCEAN INSTITUTE

The address of Ocean Institute:
24200 Dana Point Harbor Drive
Dana Point, CA 92629
(949) 496-2274

Directions from Los Angeles:

- Travel south on Interstate 5
- Exit on the Pacific Coast Highway Exit
- Stay in the right lane of the exit ramp and go north on P.C.H.
- Turn left onto Dana Point Harbor Drive
- The road ends in the Ocean Institute parking lot

Directions from San Diego:

- Travel north on Interstate 5
- Exit on the Beach Cities Exit
- Stay in the left lane of the ramp and go north on P.C.H.
- Turn left onto Dana Point Harbor Drive
- The road ends in the Ocean Institute parking lot

D. LINKS TO CALIFORNIA SCIENCE CONTENT STANDARDS

Grade Four

Life Sciences

- 2.a. Students know plants are the primary source of matter and energy entering most food chains.
- 2.b. Students know producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.
- 2.c. Students know decomposers recycle matter from dead plants and animals.
- 3.a. Students know ecosystems can be characterized by their living and nonliving components.
- 3.b. Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.
- 3.c. Students know many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.

Earth Sciences

- 4.a. Students know how to differentiate among igneous, sedimentary, and metamorphic rocks by referring to their properties and method of formation (the rock cycle).
- 4.b. Student know how to identify common rock-forming minerals (including quartz, calcite, feldspar, mica, and hornblende) and ore minerals by using a table of diagnostic properties.
- 5.a. Students know some changes in the Earth are due to slow processes, such as erosion, and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.
- 5.b. Students know natural processes, including freezing and thawing and the growth of roots, cause rocks to break down into smaller pieces.
- 5.c. Students know moving water erodes landforms, reshaping the land by taking it away from some places and depositing it as pebbles, sand, silt, and mud in other places (weathering, transport, and deposition).

Investigation and Experimentation

- 6.a. Students will differentiate observation from inference (interpretation) and know scientists' explanations come partly from what they observe and partly from how they interpret their observations.
- 6.c. Students will formulate and justify predictions based on cause-and-effect relationships.
- 6.d. Students will conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results.
- 6.e. Students will construct and interpret graphs from measurements.
- 6.f. Students will follow a set of written instructions for a scientific investigation.

Grade Five

Life Sciences

- 2.a. Students know many multicellular organisms have specialized structures to support the transport of materials.
- 2.c. Students know the sequential steps of digestion and the roles of teeth and the mouth, esophagus, stomach, small intestine, large intestine, and colon in the function of the digestive system.
- 2.f. Students know plants use carbon dioxide and energy from sunlight to build molecules of sugar and release oxygen.
- 2.g. Students know plant and animal cells break down sugar to obtain energy, a process resulting in carbon dioxide and water.

Earth Sciences

- 4.a. Students know uneven heating of Earth causes air movements.
- 4.b. Students know the influence that the ocean has on the weather and the roles that the water cycle plays in weather patterns.
- 4.c. Students know the causes and effects of different types of severe weather.
- 4.d. Students know how to use weather maps and data to predict local weather and know that weather forecasts depend on many variables.

Investigation and Experimentation

- 6.a. Students will classify objects in accordance with appropriate criteria.
- 6.f. Students will select appropriate tools and make quantitative observations.
- 6.g. Students will record data by using appropriate graphic representations and make inferences based on those data.
- 6.h. Students will draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion

Grade Six**Plate Tectonics and Earth's Structure**

- 1.a. Students know evidence of plate tectonics is derived from the fit of the continents; the location of earthquakes, volcanoes, and midocean ridges; the distribution of fossils, rock types, and ancient climate zones.
- 1.c. Students know lithospheric plates the size of continents and oceans move at rates of centimeters per year in response to movements in the mantle.
- 1.d. Students know that earthquakes are sudden motions along breaks in the crust called faults and that volcanoes and fissures are locations where magma reaches the surface.
- 1.e. Students know major geologic events, such as earthquakes, volcanic eruptions, and mountain building, result from plate motions.
 - 1.f. Students know how to explain major features of California geology (including mountains, faults, volcanoes) in terms of plate tectonics.

Shaping Earth's Surface

- 2.a. Students know water running downhill is the dominant process in shaping the landscape, including California's landscape.
- 2.c. Students know beaches are dynamic systems in which the sand is supplied by rivers and moved long the coast by the action of waves.
- 2.d. Students know earthquakes, volcanic eruptions, landslides, and floods change human and wildlife habitats.

Ecology (Life Sciences)

- 5.a. Student know energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs.
- 5.b. Students know matter is transferred over time from one organism to others in the food web and between organisms and the physical environment.
- 5.c. Students know populations of organisms can be characterized by the functions they serve in an ecosystem.
- 5.d. Students know different kinds of organisms may play similar ecological roles in similar biomes.
- 5.e. Students know the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.

Investigation and Experimentation

- 7.a. Students will develop a hypothesis.
- 7.b. Students will select and use appropriate tools and technology to perform tests, collect data, and display data.
- 7.c. Students will construct appropriate graphs from data and develop qualitative statements about the relationships between variables.
- 7.e. Students will recognize whether evidence is consistent with a proposed explanation.
- 7.f. Students will read a topographic map and a geologic map for evidence provided on maps and construct and interpret a simple scale map.
- 7.g. Students will interpret events by sequence and time from natural phenomena.
- 7.h. Students will identify changes in natural phenomena over time without manipulating the phenomena.

**Grade Seven
Evolution**

- 3.a. Students know both genetic variation and environmental factors are causes of evolution and diversity of organisms.
- 3.e. Students know that extinction of a species occurs when the environment changes and that the adaptive characteristics of a species are insufficient for its survival.

Earth and Life History (Earth Science)

- 4.a. Students know Earth processes today are similar to those that occurred in the past and slow geologic processes have large cumulative effects over long periods of time.
- 4.b. Students know the history of life on Earth has been disrupted by major catastrophic events, such as major volcanic eruptions or the impacts of asteroids.
- 4.c. Students know that the rock cycle includes the formation of new sediment and rocks and that rocks are often found in layers, with the oldest generally on the bottom.
- 4.e. Students know fossils provide evidence of how life and environmental conditions have changed.
- 4.f. Students know how movements of Earth's continental and oceanic plates through time, with associated changes in climate and geographic connections, have affected the past and present distribution of organisms.

Investigation and Experimentation

- 7.a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
- 7.c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.

Grade Eight**Investigation and Experimentation**

- 9.a. Plan and conduct a scientific investigation to test a hypothesis.

E. RESOURCE MATERIALS FOR THE ISLAND ECOLOGY SAFARI

Catalina Island Ecology

Catalina Island has an ecosystem similar to the coastal sage/chaparral ecosystem on the mainland. Many of the plants in the field guide are found both on the island and on the mainland. Some of the plants and animals on the island are non-native; meaning humans brought them to the island. When animals and plants colonize an island by natural means, seed dispersal, or rafting, they are considered **native**. When a native species adapts to the island environment and forms a new species, occurring only on the island, it is called **endemic**.

The Island Ecosystem

The plants and animals of Catalina Island are unique from mainland species because of the geographic isolation of the island itself. Millions of years ago, the island was born through volcanic activity on the ocean floor. Over the millennia, uplifting and subsidence, sedimentation and erosion created the island of today.

Many of the plants and animals on Catalina are **native**, or arrived by natural means (not through human activity.) A few very special species have evolved specifically to Catalina Island and are found nowhere else on Earth and are called **endemic**. Recently, human activity has brought new species to the island, with terrible results. These **non-native** species out-compete native and endemic species and even introduce diseases that are detrimental to the ecosystem. The removal of non-native species from Catalina Island is a top priority.

Native Animals

bald eagle
Southern pacific rattlesnake
Beechey's ground squirrel

Non-Native Animals

mule deer
bison
cats and dogs

Endemic Animals

Catalina island fox

Native Plants

coastal sage
Lemonadeberry
Prickly pear cactus
toyon

Non-Native Plants

sweet fennel
wild mustard
palm trees

Endemic Plants

Catalina liveforever
St. Catherine's lace

The Intertidal Ecosystem

The intertidal ecosystem is found along the seashore between the high and low tides. Plants and animals living in this region must survive waves, exposure to air and heat during low tides, and competition for space.

Plants of the intertidal are different from terrestrial plants. Most intertidal plants (for example sea palms, feather boa kelp, and codium or "sea fingers") have a rubbery texture that is well suited to moving with the waves. Plants in the intertidal have no roots. Instead, nutrients are absorbed throughout the entire plant. Many plants in this ecosystem remain extremely small and may appear as "fur" on the rocks.

Animals, like barnacles and mussels, actually glue themselves to rocks to survive large waves. These animals, while attached, filter the seawater for microscopic organisms. Crabs are scavengers and eat anything they can find. They avoid waves by hiding in the cracks in rocks. Many clams burrow deep into the sand to avoid being washed away. Like plants, most intertidal animals remain small.

Common Animals

limpet
sea urchin
bat star
chiton
mussel
knobby sea star

Common Plants

feather boa kelp
codium
sea palm
rock weed
coralline algae
sea grass

The Kelp Forest Ecosystem

Without Catalina Island, would kelp grow this far out in the ocean? The kelp forest provides habitat for many different animal species. Kelp grows up to a hundred feet from the bottom of the ocean, where a root-like structure called a **holdfast** anchors it to rocks. The holdfast is a refuge for a diverse community of brittle stars, worms, crabs, and other invertebrates. Up among the blades of the kelp, brightly colored and camouflaged fish and invertebrates hide, hunt, and seek mates. Kelp influences everything that lives among it, helping feed its entire community and breaking the force of the rolling waves.

Common Animals

garibaldi
sea urchin
blacksmith
kelp bass
senorita fish
knobby sea star

Common Plants

feather boa kelp
giant kelp
sea palm
elk kelp
sea grass

The Pelagic Ecosystem

The pelagic ecosystem describes the plants and animals that live in the open ocean. The most outstanding physical feature of this environment is the water itself. Plants and animals that live in this environment must adapt to strong currents, sunlight penetration of less than 300 meters, and vast amounts of space.

Most plants in this pelagic ecosystem are microscopic and drift freely with the ocean currents. These plants, called phytoplankton, float near the surface of the water where sunlight is plentiful.

There is a variety of animals found in the pelagic ecosystem. Microscopic animals called zooplankton float in large numbers with the currents. Some animals, like crabs, and barnacles, spend a part of their lives as zooplankton. Jellies drift around the ocean capturing food in their tentacles. Whales, sea lions, fish, and squid have streamlined bodies to swim against the ocean currents.

Common Animals

copepods
jellies
common dolphin
sea lion
mackerel
squid
flying fish

Common Plants

diatoms
dinoflagellates

Island Ecology Safari Equipment

Plant Adaptation Hike/Physical Factor Analysis



Thermometer

A thermometer is an instrument that measures heat. A small amount of colored liquid is contained within the thermometer, and as the temperature rises, the liquid will expand and fill more of the tube.

Celsius vs. Fahrenheit

In the United States, we usually use the Fahrenheit scale to measure temperature. Many other countries use the metric system, which incorporates the Celsius scale. Here is a formula to help you convert temperatures from one scale to the other:

- ❑ To change the temperature from Fahrenheit to Celsius, take your number, subtract 32 degrees, and divide the remaining number by 1.8
- ❑ To change the temperature from Celsius to Fahrenheit, multiply your number by 1.8 and add 32 degrees



Wind Meter

A wind meter is used to determine the approximate speed of the wind. A compass can then be used to find the wind direction (wind direction is always expressed as the direction the wind is coming from). Hold the wind meter up into the wind, and watch the small white ball rise. Record the highest number the ball reaches and this will tell you how many miles per hour the wind is currently blowing.



Soil Moisture / Solar Radiation Meter

A soil moisture meter is used to determine how much water is in the soil of an area. This can give scientists information about the amount of rainfall, average daily sunlight, types of plants found in the area, and how much water and sunlight these plants need.

How a Plant Drinks Water:

Many plants have special adaptations to help them survive and maximize water use. Plants absorb water through their roots, and often these root systems are very elaborate and far-reaching.

A solar radiation meter is used to determine how much direct sunlight an area gets. The amount of sunlight has an effect on the area plant distribution and the type of ecosystem.

Sunlight and Plants

All plants require sunlight to make their food through photosynthesis, and many plants have special adaptations to help them get the ideal amount of sun exposure. Plants in woodland areas have large, dark colored leaves to help them absorb sun and many are vines or climbing plants. A plant in a dark area will grow towards the sunlight as far as possible.



GPS (Global Positioning System)

GPS is a radio-navigation system used around the world to locate your exact location on the planet Earth. GPS uses 24 satellites orbiting Earth, and 5 ground stations to send signals back and forth and determine your exact position on the planet. This is a useful navigational tool, and is also used by scientists to record locations for study.

GPS at Sea

Imagine you are in the middle of the ocean, and your boat breaks down. You need to notify the Coast Guard, and give them your coordinates so they can find you! Most boats have a GPS system on the bridge that is constantly transmitting updated location information. You can simply read the coordinates off the GPS unit, and soon the Coast Guard will be on its way to rescue you!



Microscope

A microscope is an instrument consisting of a combination of lenses for making small organisms look larger.

Magnification: Dark sand sample under increasing levels of magnification



Snorkeling Gear

Wetsuit

When snorkeling offshore of California and Catalina Island, it is usually a good idea to wear a wetsuit, since the water can be anywhere from 50-70 degrees Fahrenheit! A wetsuit helps to keep you warmer in the water because it conserves body heat. When the suit first gets wet, it is very cold. Then your body starts to warm up the water trapped in the suit and within five minutes, you will be warm and comfortable. The wetsuit will also make you buoyant, so you will float very easily in the water!

Mask and Snorkel

After putting on your wetsuit, you need to choose a mask and snorkel. To ensure that the mask fits your face, press it against your face (but do not put the strap on), breathe in, and look down. If the mask stays sealed to your face when you look down, you know it's a good fit! The snorkel fits in your mouth, and the tube will allow you to continue breathing air from the surface. If you do dive underwater, it's a good idea to blow out hard through the snorkel when you surface to make sure you clear any remaining water from the snorkel before taking a breath!

Fins

Don't put your fins on until you have entered the water, and always walk backwards or sideways while wearing fins so you don't trip and fall! Your fins will help you to swim faster and use less energy when you move in the water.

ACTIVITY #1: Science Processes

Introduction

Students locate and describe in their field notes an object in the classroom. They exchange field notes to identify the unknown objects. This will help them practice the science processes of observing, comparing, and communicating.

Materials

- Paper and pencils

Background

Observing: The scientific thinking process from which fundamental patterns of the world are constructed.

Communicating: The scientific thinking process that conveys ideas through social interchanges.

Comparing: The scientific thinking process that deals with concepts of similarities and differences.

Student Challenge

You are scientists who have observed an unidentified organism during your field research. If you carefully describe it, other scientists will be able to identify the organism based on your field notes.

Procedure

1. Choose an object in your classroom, and describe it in your field notes. Be as descriptive as you can without actually identifying it. You may also wish to sketch it.
2. When you have completed your field notes, swap your description with that of another scientist. Try to identify the unknown object based on their observations!
3. Were you able to identify the object that was described by another scientist? Were you surprised at the details you noticed about the object? Have you ever used these skills before in your science classes?

ACTIVITY #2: *Where on Earth?!*

Introduction

Students identify locations on a map using latitude and longitude coordinates.

Materials

- (1) copy of the worksheet
- Pencil
- Globe or map (optional)

Background

We can find a place on a large map or chart by using a grid of imaginary lines called **latitude** and **longitude**. Lines of longitude, or **meridians**, run up and down the map or chart. They are measured in degrees east or west on a line drawn through Greenwich, England (an agreement was reached by most nations to come up with that point). Lines of latitude, or parallels, are measured in degrees north or south of the Equator, and imaginary lines that circles the middle of the Earth.

A GPS (Global Positioning System) is used to help navigate. GPS uses satellite signals to determine location. It displays two numbers—these are measurements of longitude and latitude.

Student Challenge

List the coordinates of each city identified on the map. Label the longitude with a W or an E and latitude with an N or an S.

Procedure

1. Point to a position in the middle of an ocean on a map or globe. Ask the students how they would give directions to get to this point. How would they identify the location? Define latitude and longitude.
2. Hand the students the worksheet and have them identify the latitude and longitude of New York, Sydney, and Cabo San Lucas.
3. Why is it important to know both the longitude and the latitude? What would happen if one of the coordinates were missing?
4. Use a local map to have the students find the latitude and longitude of their city, of Dana Point, and of Catalina.

Where on Earth?! Worksheet

INTRODUCTION

We identify locations on maps and charts by using a grid of imaginary lines called **latitude** and **longitude**. Lines of longitude, or meridians, run up and down the map or chart. They are measured in degrees east or west of a line drawn through Greenwich, England. Lines of latitude, or parallels, are measured in degrees north or south of the Equator, an imaginary line that circles the middle of the Earth. We use lines of latitude and longitude to give the position of a city in the same way that we use a grid reference.

A **GPS** (global positioning system) unit can be used to navigate around the globe. A GPS uses satellite signals to determine location. If you are looking at a GPS display, you will see two numbers. These are measurements of longitude and latitude.

THE CHALLENGE

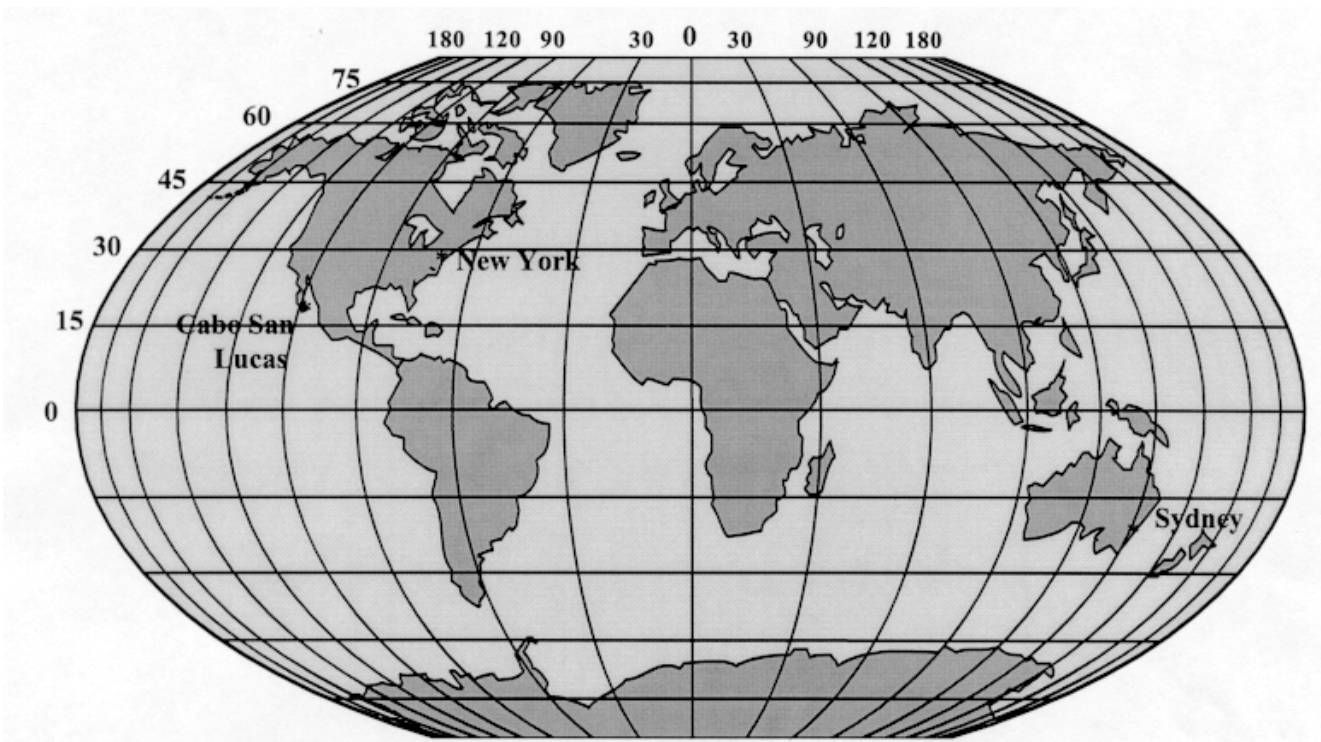
Label all the longitude lines west of Greenwich, England (0° longitude) with a **W** and all the longitude lines east of Greenwich, England with an **E**. Label all the latitude lines north of the Equator (0°) with an **N** and all the latitude lines south of the Equator with an **S**.

Give the coordinates of the cities listed below. Remember that longitude lines run up and down while the latitude lines run left and right.

New York, USA: _____ Latitude; _____ Longitude

Sydney, Australia: _____ Latitude; _____ Longitude

Cabo San Lucas, Mexico: _____ Latitude; _____ Longitude



ACTIVITY #3: *Life in the Chaparral*

INTRODUCTION

What is life in the Chaparral ecosystem like? Read the **abiotic** (non-living) factors listed below, and circle the words that describe the Chaparral ecosystem.

Hot air	Dry	Rocky soil	Sunny	Strong currents
Cool air	Moist	Sandy soil	Shady	Waves

THE CHALLENGE

Design an imaginary plant that is adapted to survive in the Chaparral ecosystem. Use the abiotic factors you circled to help you. Create adaptations for the following features of the plant: leaf size, leaf shape, color, texture, overall size, and root system. When you have finished drawing and labeling your plant, write a description.

Drawing

Description

ACTIVITY #4: *Predicting the Weather*

Introduction

Students use the weather page from a newspaper to predict the ocean conditions for their field trip to the Ocean Institute.

Materials

- Internet or daily newspaper with weather and sea conditions from three days before your trip
- Predicting the Weather** data sheets

Background

Data on wind, weather, waves, and water temperature are important for ocean researchers as well as recreational travelers. Scientists use this data to predict both short- and long-term weather patterns. Note the following information found on the weather page:

Air Pressure

Air pressure refers to the downward force exerted by the weight of air. Air molecules are squeezed together by the weight of the air above. This makes the air denser near the bottom of the atmosphere than it is at higher altitudes. Air density and pressure are greatest at sea level. Heat also makes air less dense (and thus less heavy) by moving its molecules. The warmer the air, the lower the pressure. Check the newspaper for the following information on air pressure.

- Changes in the position of high and low pressure ridges (change seasonally)
- Movement of the Jet Stream—a band of extremely strong, generally westerly winds in the upper atmosphere
- Pressure gradients—a very low-pressure system anywhere in the Pacific Ocean might send us weather or waves. If there is a low-pressure system over Dana Point, we might have clouds, wind, or rain.

Surface Water Temperature

The water temperature at the surface changes seasonally. The sunlight is more intense during the summer and less intense during the winter. Winter storms mix the warm surface water with the colder bottom water causing the temperature at the surface to decrease. Surface water temperature increases during the summer because there is little storm activity and, consequently, less mixing with the colder bottom water.

Wind Direction and Speed

Wind direction is noted in the direction from which it is coming. Winds can cause cold deep bottom water to rise to the surface, which causes the surface temperature to cool. This is called **upwelling**. Strong local winds can create wave “chop” on the ocean surface. These “seas” are different from wave swell.

Waves

Waves and swell are created by wind. When the wind blows over the ocean, it creates small ripples on the surface. As these ripples grow, the wind gets better friction on the ocean surface. After a time, these ripples grow into small waves or chop on the water. As the wind increases and continues to blow, the chop transforms into small waves, then into larger waves and then, if all goes well, into huge waves. Long period wave swells (12 – 17 seconds) are created by winds generated from storm cells far off in the Pacific Ocean.

Student Challenge

Record the water temperature, wave swell, wind speed, and wind direction for three days before your field trip. Use this information to predict the weather on the day of your field trip. How accurate were your predictions?

Procedure

1. Check the weather section of the newspaper three days before your field trip, and fill in the **Predicting the Weather** data sheet.
2. Record the same information on the data sheet two days before your trip and again one day before your trip. Use this information to predict the weather conditions on the day of your trip. Fill in the **Prediction** column on your data sheet.
3. Bring your data sheet with you on your field trip, and complete the **Actual** column. Compare your predicted data to the actual condition recorded during your program.

Predicting the Weather Data Sheet

Instructions: Use the daily weather data from your local newspaper to complete the graphs below. You will need to begin recording the weather data at least three days before your program. Use your weather skills to fill in the **Prediction Column** the day of your program. Bring this data sheet with you when you come on your field trip and complete the actual column.

	Day 3	Day 2	Day 1	Prediction	Actual
Water Temp (°F) 75 73 71 69 67 65 63 61 59 57 55 53					
Wave Swell (in feet) 12 11 10 9 8 7 6 5 4 3 2 1					
Wave Period					
Swell Direction (draw direction with an arrow)	N ○ S	N ○ S	N ○ S	N ○ S	N ○ S
Wind Speed (in knots) 48 - 55 41 - 47 34 - 40 28 - 33 22 - 27 17 - 21 11 - 16 7 - 10 4 - 6 1 - 3 0 - .9					
Wind Direction (draw direction with an arrow)	N ○ S	N ○ S	N ○ S	N ○ S	N ○ S

CIRCLE ONE

Which of the following activities can best be done under the prevailing weather conditions on the day of your program?

Surfing

Wave swell: minimum of 3-4 ft
Wave period: greater than 7 sec
Water temperature: N/A
Wetsuit?: Yes No
Wind speed: <10 knots
Wind direction: prefer NE offshore

Sailing

Wave swell: N/A
Wave period: N/A
Water temperature: N/A
Wetsuit?: Yes No
Wind speed: minimum 7-10 knots
maximum 22-27 knots
Wind direction: N/A

Marine Science

Wave swell: N/A
Wave period: N/A
Water temperature: N/A
Wetsuit?: Yes No
Wind speed: maximum 22-27 knots
Wind direction: N/A

Snorkeling

Wave swell: maximum of 2 ft
Wave period: N/A
Water temperature: prefer 68
Wetsuit?: Yes No
Wind speed: maximum of 6 knots
Wind direction: prefer NE offshore

ACTIVITY #5: *Where Crustal Plates Collide*

Introduction

Students identify different faulting zones, subduction zones, and spreading centers on a map of the Pacific Ocean.

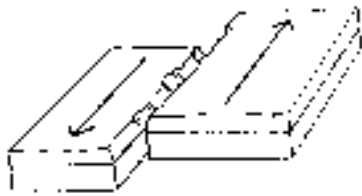
Materials

- (1) copy of the tectonic map for each student or group
- crayons

Background

The Earth's crust is actually divided into many individual plates. These crustal plates float on top of a liquid layer called ***mantle*** and carry the continents with them. When these plates collide, the rocks along the edge of the plates are either melted back into the mantle, changed to a different kind of rock, or squeezed up from the mantle to create new crust. The type of plate interaction determines the kind of rock that is formed.

The area where two plates touch is called a ***plate boundary***. There are three types of plate boundaries:



TRANSFORM / FAULTING ZONE (Color: Red)

This is where two plates move along side of each other producing a fault zone. California sits at the juncture of two such massive plates called the Pacific Plate and the North American Plate. The San Andreas Fault accounts for many of the ***earthquakes*** occurring in Southern California. The part of California to the west of the fault (including Dana Point and Catalina) is part of the Pacific Plate and is moving northward. The part of California to the east of the fault (including Lancaster) is on the North American Plate.



CONVERGENT / SUBDUCTION ZONE (Color: Blue)

This is where two plates collide with each other head to head. Usually the crust of the ocean floor collides with the crust of a continent. When this happens, the ocean floor and the sediments on them bend downward under the continent and form a deep ***trench***. These trenches are some of the deepest spots in the ocean. The ocean rocks, when deep under the continent, melt under the heat and pressure of the mantle. This molten rock finds its way to the Earth's surface and forms ***volcanoes***. Volcanoes near a continent tell geologists that there is a subduction zone offshore. This figure shows island arcs and a trench at the boundary between the continent and ocean basin.



DIVERGENT / SPREADING CENTER (Color: Yellow)

This is where two crustal plates move away from each other. As the gap between them widens, new ocean crust emerges from deep in the earth. These crust-producers are actually mammoth ***mountain ranges***. If you could remove all the water from the oceans and look at the earth from outer space, these would be the largest mountain ranges on earth. At the crest of each mountain is a small rift valley that runs the length of the range. At the bottom of the small valley, magma flows to the surface along the entire length of the rift. The volcanic action pushes the two crustal plates away from each other. This force moves all the crustal plates on the planet.

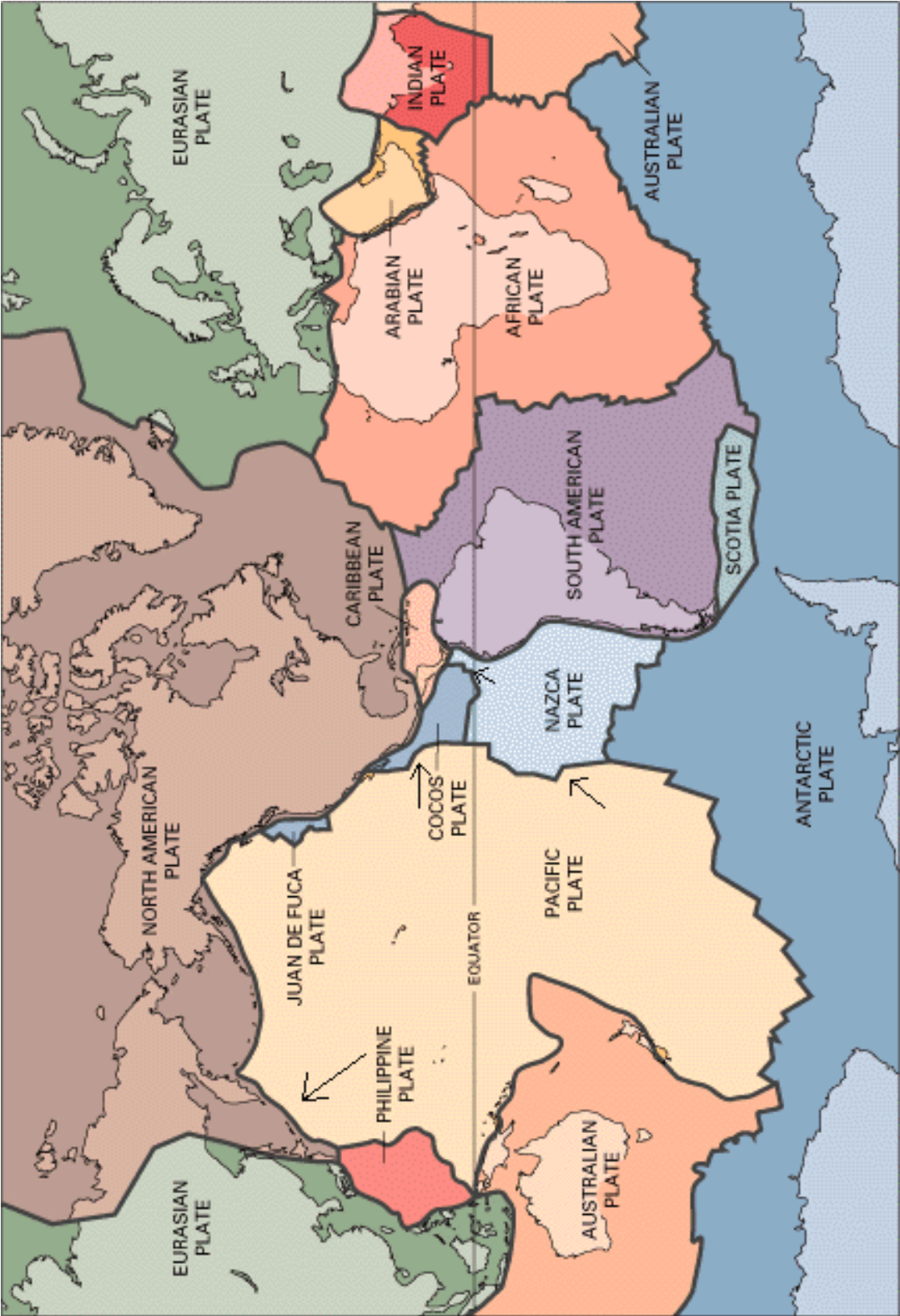
Student Challenge

Use a crayon to color each plate boundary around the Pacific Ocean. Color the transform or faulting zones red, the convergent or subduction zones blue, and the divergent or spreading centers yellow. Remember that as a plate moves, it will run into and under another plate (convergent or subduction), along side another plate (transform or faulting), or move away from another plate (divergent or spreading).

Procedure

1. Describe the types of plate boundaries to the students.
2. Hand out the tectonic maps and have the students color the plate boundaries.
3. Have the students note the locations of **volcanoes**. How does the location relate to the type of plate boundary? Where do we find **mountain ranges**? Where do **earthquakes** occur? How do these geologic events relate to plate boundaries?
4. Use the map to discuss where California may be in 10 million years.

Where Crustal Plates Collide: Tectonic Map



ACKNOWLEDGEMENT OF RISK AND WAIVER FOR ALL PARTICIPANTS

Welcome to the Ocean Institute! We want you and everyone to have a memorable and safe experience.

The Ocean Institute's environment, vessels, facilities, and activities are unique and different from your usual surroundings and activities. There are many inherent risks, dangers, and hazards and everyone must exercise caution at all times in order to avoid or minimize the risk of damage, injury, and death.

Examples of these risks, dangers, and hazards include, without limitation: (a) walking and standing surfaces that may be wet, slippery, moving, irregular, unstable, and rough; (b) open areas such as hatches into which someone could fall; (c) low or irregular lighting, or no lighting at all; (d) objects and equipment that could fall on someone; (e) low ceilings; (f) ropes, chains, and other items that could strike or entangle someone; (g) extreme and variable physical, weather, and ocean conditions, including darkness, sun glare, storms, and hot and cold temperatures; (h) vessels, docks, buildings, ladders, and stairs from which someone could fall; (i) vessels and docks that could pitch, roll, capsize, flood, collide, and sink; (j) gaps between a vessel and a dock that could open or close suddenly and unpredictably; (k) possible encounters with wildlife and plants; and (l) unavailability of medical attention and treatment.

If you attend and Ocean Institute activities, then you must exercise caution at all times to protect yourself and others from these risks, dangers, and hazards. If children or other persons under your care attend any Ocean Institute activities, then discuss these risks, dangers, and hazards with them as they too must exercise caution at all times.

Program Name: _____ Program Date: _____

Participant Information

Last Name: _____ First Name: _____

Birthdate: _____

Guardian Information

Last Name: _____ First Name: _____

Home Phone: _____ Cell Phone: _____ Work Phone: _____

Address: _____

City: _____ State: _____ Zip: _____

E-Mail Address: _____

If you attend any Ocean Institute activities, and/or if others under your care attend any Ocean Institute activities, then by checking the box below you, on behalf of yourself and such other persons, shall be deemed to have read and understood this document and to have irrevocably waived any and all claims against the Ocean Institute and its directors, officers, employees, contractors, volunteers, agents, and insurers for damage, injury, accident, illness, or death occurring during or by reason of such activities.

Additionally, I authorize the use of photos taken of me and others under my care by the Ocean Institute for its promotional purposes.

As the Parent/Guardian, I have read and agree to the statements made on this document.

Signature

Date

ADULT MEDICAL FORM

Name _____

Address _____ City _____ State _____ Zip _____

Home Telephone Number (____) _____ - _____

Age _____ Date of Birth ____ / ____ / ____

Social Security Number _____ - _____ - _____

Closest Relative (to notify in the event of an emergency)

Name _____

Address _____ City _____ State _____ Zip _____

Home Telephone Number (____) _____ - _____

Work Telephone Number (____) _____ - _____

Additional Emergency Contact

Name _____

Address _____ City _____ State _____ Zip _____

Home Telephone Number (____) _____ - _____

Work Telephone Number (____) _____ - _____

Insurance Information

Medical Insurance Group Name and Number _____

Additional Information

Do you have any physical or medical conditions or restrictions?

If yes, please explain _____

Do you have any allergies? Please specify _____

Do you regularly take any prescription medications? Please specify _____

STUDENT MEDICAL FORM

PLEASE PRINT CLEARLY

I/We, the parent(s) or guardian(s) of the participant named below, wish to register my/our child in the Ocean Institute's Program.
Dates attending _____ to _____.

Participant's Name (Last) _____ (First) _____

Home Phone (____) _____ Cell Phone(____) _____ Birth date ____ / ____ / ____

Address _____ City _____ State ____ Zip _____

In case of emergency, please notify: Parent(s)/Guardian(s) Name _____

Address _____ City _____ State ____ Zip _____

Daytime Phone Number (____) _____ *Business Number (____) _____

*Employer _____ *Social Security Number _____

Alternate Person in case of emergency, please notify: _____ at (____) _____

Name/Phone number of Family Physician _____

Name/Number of family medical insurance carrier _____

* For Medical Insurance Claims only

PARTICIPANT HEALTH INFORMATION

1. Does the participant have any physical or medical conditions or restrictions? Yes ____ No ____

If so, please describe: _____

If your child has a special medical or physical condition, your physician should understand that the participant will be away from home for two full days. Please have your physician write a note indicating agreement that the participant is fit enough to fully participate in the program and to also include any special instructions.

2. Is your child subject to any of the following? Please circle:

Homesickness Sleepwalking Bed wetting (send extra bedding) Car/motion sickness

3. Does your child have any dietary requirements or restrictions? Yes ____ No ____

If so, please describe: _____

4. Does your child have any allergies that may be of concern? Yes ____ No ____

If so, please describe the severity: _____

5. Has the participant recently been ill or exposed to any communicable diseases? Yes ____ No ____

If so, please explain: _____

ADMINISTRATION OF MEDICATION, PAGE 1

Name of Participant _____

Dates Attending _____

The nature of the program requires that all children participate in a variety of learning and social activities involving vigorous walking and hiking. Standardized, well-balanced meals are provided.

It is understood that the Ocean Institute is not legally obligated to administer medication to my/our child, and therefore, I/we agree to hold the Ocean Institute and its personnel free from any and all responsibility for the results of such medication, or the manner in which it is administered and to indemnify each of them against the loss of reason of any civil judgment arising out of these arrangements which may be rendered against them.

INSTRUCTIONS

No one is to administer medication to any child without authorization of the parent(s) or guardian(s). If you wish your child to receive medication you must fill out Part I: Prescription Medication and/or Part II: Non-Prescription Medication. These forms will be kept with the medication. **A parent/ guardian and physician's signature is required for each of these sections.**

Part I: Prescription Medication

MEDICATION 1

Diagnosis _____ Date of Examination _____

Medication Prescribed _____ Dosage _____

Schedule and Method of Administration _____

Comments _____

Physician's Signature _____

Parent(s)/Guardian(s) Signature _____

MEDICATION 2

Diagnosis _____ Date of Examination _____

Medication Prescribed _____ Dosage _____

Schedule and Method of Administration _____

Comments _____

Physician's Signature _____

Parent(s)/Guardian(s) Signature _____

ADMINISTRATION OF MEDICATION, PAGE 2

Name of Participant _____

Dates Attending _____

Part II: Non-Prescription Medication

MEDICATION 1

Medication _____ Dosage _____

Reason for Administration on Medication _____

Schedule and Method of Administration _____

Comments _____

Physician's Signature _____

Parent(s)/Guardian(s) Signature _____

MEDICATION 2

Medication _____ Dosage _____

Reason for Administration on Medication _____

Schedule and Method of Administration _____

Comments _____

Physician's Signature _____

Parent(s)/Guardian(s) Signature _____

MEDICATION 3

Medication _____ Dosage _____

Reason for Administration on Medication _____

Schedule and Method of Administration _____

Comments _____

Physician's Signature _____

Parent(s)/Guardian(s) Signature _____

R/V SEA EXPLORER MANIFEST

Date ____/____/____

Name of School/Group _____

Ocean Institute Program _____

Number of Students _____ Number of Adults _____ Total _____

1. _____

26. _____

2. _____

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