OMSI

SCIENCE CAMPS

HANCOCK FIELD STATION

INFORMATION PACKET

2003

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INFORMATION PACKET

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INTRODUCTION

HANCOCK FIELD STATION

Hancock Field Station is unique in its educational opportunities. Its proximity to the Clarno Unit of the world-renowned John Day Fossil Beds National Monument makes it an ideal place to study geology and paleontology. In the nearby volcanic and sedimentary rocks lies the story of life from the time the dinosaurs disappeared 60 million years ago to the beginning of the Ice Age 2 million years ago. This was the period of time when mammals, flowering plants, and grasses were rising to be the dominant life forms. The fossil record stored here can unlock for students the evolutionary paths of plants and animals, as well as the geologic history of Oregon.

Aside from geology and paleontology, Hancock offers an ideal setting in which to study many other fields of natural science. The juniper-sage grasslands provide a model location to study ecology. Groups driving over the Cascade Mountains can begin their study of ecology en route to Hancock. The Cascades form the rain shadow of Eastern Oregon, and students can watch the changes in plant and animal life during the trip. At the field station we enlarge on those observations and take an in-depth look at the ways the environment is different and how animals and plants have adapted to it. The nearby John Day River and its Pine Creek tributary offer the chance to study stream ecology and, on occasion, catch a glimpse of beaver, river otter or other local wildlife. Clear night skies offer a great opportunity to study astronomy without the interference of nearby city lights. The area is also rich in cultural history – Native American pictographs drawn thousands of years ago and old homesteads built by settlers in the late 1800s can be investigated on various hikes.

All of this is waiting for your class to discover and explore, and the staff at Hancock is looking forward to your visit.

HISTORY

Hancock Field Station was named for A.W. (Lon) Hancock, an amateur paleontologist who became nationally known in 1942 when he made the first discovery of a vertebrate fossil—a rhinoceros tooth—in the Eocene-age Clarno Formation near the site of the present field station. Up to that time, only plant fossils had been found in this region of the world. Buoyed by success, he went on to unearth many vertebrates in the area, ranging from alligators to tiny camels and three-toed horses.

With his wife Berrie, Lon Hancock spent many summers leading young students on fossil expeditions in the Clarno area. In 1951, the Hancocks took 14 boys and a volunteer staff for the first 12-day summer camp under OMSI sponsorship. Since that initial program, Hancock has grown from a tent camp into a modern, well-equipped field science education center available to students in the Northwest and across the nation. Hancock now serves more than 4,000 students from across the United States as well as Japan.

LOCATION

Hancock Field Station is located in Wheeler County within the Clarno Unit of the John Day Fossil Beds National Monument. It is two miles east of where Oregon Highway 218 crosses the John Day River, and is approximately a four-hour drive from Portland, a two-hour trip from Bend, four hours from Salem, and two hours from The Dalles.

WEATHER

The average spring and fall temperature is a very comfortable 60 degrees Fahrenheit. The average annual rainfall is about 10 inches. Early spring and late fall groups should be prepared for cold temperatures, rain, and even snow. Early spring days are in the 40s and 50s; in late spring, summer, and early September we have had temperatures reach 100 degrees Fahrenheit. Most days are sunny and warm, but groups should be prepared for both hot and cold weather. By dressing in layers and by carrying a daypack that contains sunscreen, raingear and extra water, you can be reasonably prepared for most weather conditions.

STAFF

OMSI science camp Instructors are professional educators dedicated to teaching hands-on field science. All have a degree in one of the natural sciences and teaching experience. Most of them have Wilderness First Responder and life guard certification. Instructors are selected for their ability to communicate with students, enthusiasm for teaching, and experience working with groups in the field. One instructor works with each group of approximately 15 students. In addition, schools provide at least one classroom teacher or parent chaperone to accompany each group in the field.

THE HANCOCK FACILITY

Hancock's facility is well equipped but rustic; a prime spot for outdoor education. Most of the buildings were built in the late 1960s and are wood with cedar shake roofs. They were designed for summer temperatures and are well ventilated.

Cabins
Five wooden A-frames have 14 bunks and mattresses, and one cabin has 16. Two cabins have 8 bunks and mattresses each. All of these cabins have cement floors, doors, electricity, and small heating units. Five small A-frames have carpet, heat, electricity, and storage areas. Each sleeps 3. In late spring, our two tipis are available, and each sleeps 7.

Dining Hall (Berrie Hall)
The dining hall is enclosed, has screened windows, and heat. Students assist with setting the tables before meals and the clean-up after. Meals are nutritious and homemade. The cooks at Hancock steer away from traditional camp fare and make an effort to address specific dietary needs, provided we know about them in advance (food allergies, vegetarians, etc.). Tell us if there is a birthday in the group, and we can make a special dessert.

Rest Rooms
Both the men's and women's rest rooms have hot and cold running water, showers, and electricity. In addition, there are two outhouses on site, which we encourage all visitors to use as a way to conserve water. (Each time an outhouse is used, 3 gallons of water are conserved.)

Laboratories
Hancock has several buildings used as classrooms for group discussions, special projects and pre-classes before students depart for the field. These labs house a variety of equipment from microscopes to videos, as well as accessible fossil, rock, plant and animal specimens.

Library
The Hancock library has many natural history texts and periodicals, a number of which focus on Central Oregon.

First Aid Cabin (Pill Hill)
Pill Hill is our first-aid cabin and is fully stocked for minor first-aid treatment. Please read the section on medical emergencies. To retain an area for students to sleep if they are ill, it is not considered a housing unit.

Lapidary Shop (Pete's Place)
Many groups take advantage of the lapidary (rock polishing) equipment to polish Eastern Oregon thundereggs they have brought to camp. We view it as a recreational activity and charge $.50 per thunderegg half for use of equipment. For safety reasons, rocks are not cut on site by groups; groups must purchase pre-cut rocks. If you wish to have some time for lapidary built into your program, advise the Program Coordinator well in advance. If you wish to buy thunderegg halves, they can be purchased from Richardson's Rock Ranch near Madras, OR (1-800-433-2680). The lapidary is available during instructional times, only. Also, because the machinery requires a constant stream of cold water for cooling and lubrication, and the health/safety hazards this poses in early spring or late fall, the activity is limited to programs that occur from April 15 through October 15.

Darkroom
The small darkroom is primarily used in the summer, but is available for spring and fall groups provided they bring their own supplies. Please advise the Program Coordinator in advance if you would like to use this resource.

SHARING CAMP

Because Hancock can serve 100 individuals at a time, more than one group might be scheduled to use the facility concurrently. This can be a great opportunity for students from different parts of the state or country to meet, form friendships, or become pen pals. The Program Coordinator can give you contact names and phone numbers of groups who will be sharing camp with you. Groups share the dining hall, rest rooms, and recreation areas, but not cabins or instructional groups. Sharing campfire programs is optional, but highly recommended for the OMSI staff-led campfire the last evening of programming.

TYPICAL DAILY SCHEDULE

6:15 a.m.	Wake-up for optional morning walk
6:30 a.m.	Optional morning walk
7:00 a.m.	General camp wake-up
7:30 a.m.	Breakfast
8:00 a.m.	Cabin cleanup, prepare field gear
8:30 a.m.	Pack sack lunches
9:00 a.m.	Field studies
2:00 p.m.	Snack
2:30 p.m.	Rest and relaxation
3:00 p.m.	Class meeting (led by teachers)
3:30 p.m.	Interest groups
5:00 p.m.	Free time and recreation
6:00 p.m.	Dinner
7:15 p.m.	Evening program
8:30 p.m.	Campfire/Observational Astronomy
9:15 p.m.	Return to cabins
9:30 p.m.	All quiet in camp

PROGRAM DESCRIPTION

Days at Hancock are usually very busy. Mornings might begin with an optional walk. After breakfast, students and staff prepare for the day in the field. Participants change into standard field gear and make lunches from the lunch buffet.

Before going into the field, instructors hold a short pre-class (usually about half an hour) to introduce students to the day's topic. During this meeting, adults meet with the Program Coordinator to discuss the day's plan. Typically, students study geology one day and ecology another. The geology day might include a visit to an ancient lake bed or mudflow to search for fossils. On ecology day, groups might hike up a nearby canyon to look for animal signs and study plants.

We schedule a short rest time after the field activities to give everyone a break. School groups then meet with their teachers for a half an hour. Students spend the rest of the afternoon in interest group activities. One group may dissect owl pellets, another may challenge themselves on the climbing wall, and a third group may learn some of the traditional games played by the aboriginal people. Your group leader and the Hancock Program Coordinator will work out a schedule for your group.

Free time follows interest group activities. Chaperones are responsible for supervising students during free time. Because students may not spend this time unsupervised in their cabins, the Library, the Natural History Shed and Lon's Lab are available, with adult supervision, for student investigation. We also have a volleyball court, a basketball court and a small playing field for physical activities.

After dinner comes the evening program. Programs include a presentation on birds of prey or astronomy, an environmental forum simulation, or ecological games. A campfire program closes the day. School groups are responsible for their own campfire programming, except for the last night when the Hancock staff will put on the closing campfire.

DESIGNING YOUR PROGRAM

Programs vary from an introduction to geology/paleontology and ecology for elementary age students, to a field course in evolutionary biology for college students, to a field methods course in riparian ecology for teachers. The abundance of natural resources in the area, coupled with the broad expertise of our instructors, allows us to design custom programs. Read the Curriculum section, review your current science topics, and work with the Program Coordinator to create a program that compliments what you are teaching in class.

PROGRAM OPTIONS

Residential Programs
Most programs are three to five days long. Instruction is usually interdisciplinary geology and ecology. Hancock provides instruction, facility use, meals, and lodging. Classroom teachers, parents or high school counselors accompany the group on activities and provide student supervision during non-instructional times, including supervision in cabins at night. Participants share the responsibility for setting tables, cleaning up after the meal, and general camp tasks.

Day Instruction Only
Day-long, instruction-only programs might be available if the schedule allows.

Extended Field Programs
Hancock offers extended field programs throughout Central and Eastern Oregon.

CURRICULUM

OREGON COMMON CURRICULUM GOALS

Our curriculum is concept-based and aligned with the Oregon Common Curriculum Goals in Science. If there is a specific concept you wish to cover with your classroom, please let us know in advance. The bulk of the day is spent in the field involved with the natural world through hands-on activities and hikes. Our intent is to use the natural world as a vehicle to study concepts. The OCCG concepts that apply best to our studies are as follows:

CYCLES	EVOLUTION	POPULATION	CHANGE
ORGANISM	ENERGY-MATTER	CAUSE-EFFECT	INTERACTION

FIELD STUDIES

The bulk of the day at Hancock Field Station (5 hours) is spent in the field, studying the natural sciences first-hand. Any of the following disciplines, or a combination of them, can become the focus of a 5-hour full-day field study. You may choose to select our standard interdisciplinary program. In this format students spend a day studying the rich geology /paleontology of the John Day Valley, and another day focusing on arid land ecology. If your program is a week long, we can also schedule an Exploration Day Activity, a Research Program, or a Service Project. (Please refer to those sections for more details.) Other field study topics include:

Archaeology / Cultural History (Cycles, Population, Interaction, Change, Cause-Effect)
Thousands of years of habitation is recorded in the archaeological sites in the Hancock area. Students learn about prehistoric and historic Native Americans, their lifestyles, and the changes that occurred after contact with the settlers. Hikes include a visit to local pictographs. An alternative focus is on the settlers in this area. Hikes could include a visit to several homesteads, or a tour of the Clarno Grange Hall and cemetery. Also offered is a drive to Fossil to visit settlers' sites along the way, the Fossil cemetery, and the old one-room schoolhouse. Field trips away from the Hancock area require vans and include an additional charge of $0.55/mile.

Arid Land Ecology (Cycles, Population, Interaction, Energy-Matter, Evolution, Change, Organism, Cause-Effect)
The goal is for students to be able to recognize different habitats, the interactions of many organisms in a community, and the unique adaptations of organisms living in a semiarid ecosystem. Field hikes include plant/flower identification, tracking, insect and spider observations, and birding.

Botany (Cycles, Population, Interaction, Evolution, Change, Organism)
Throughout the year, especially in mid- to late spring, desert wildflowers abound at Hancock. Students learn how plants function, and what characteristics make each plant unique. Students identify plants in the area, study their adaptations to a semiarid ecosystem, and discuss different plant communities found in the area.

Entomology / Arachneology (Cycles, Population, Interaction, Change, Organism)
Students spend the day learning about insects, spiders and scorpions, and viewing them through hand lenses. Physiology, behavior, development, and human interaction are topics of discussion. Using nets and sieves, students can compare aquatic organisms to terrestrial ones.

Geology / Paleontology (Cycles, Energy-Matter, Change, Cause-Effect)
Students explore the breathtaking hills surrounding Hancock, focusing on the processes that formed the area along with those that are now wearing it down. The different rock types are studied, as are the mineral veins deposited within them. The three formations found in the Hancock area represent 50 million years of climactic and environmental change. Students learn how fossils are made, how they would be excavated, and what can be learned from them. In the field, they compare fossils found in the different formations. Because our activities occur on National Park Service property, there is no collection of fossil material.

Life Zone Comparison (Cycles, Population, Interaction, Evolution, Change, Organism, Cause-Effect)
Different plant and animal communities are found throughout the semiarid desert. Students compare and contrast north vs. south facing slopes, valley bottoms vs. the hills surrounding them, or riparian regions vs. the juniper sage grassland. They determine what factors make each area unique, and they study the needs of the organisms in each area to determine what are their specific requirements.

Mammalogy (Cycles, Population, Interaction, Evolution, Change, Organism, Cause-Effect)
In the morning, students may study live animals caught in traps set by the instructor the night before. After releasing the animals, students continue to learn about mammal physiology, behavior, and identification. Field experiences include tracking, identification, and playing "eco games" to learn adaptations and abilities of different mammals.

Ornithology (Cycles, Population, Interaction, Evolution, Change, Organism, Cause-Effect)
The Hancock area is a stopping place for many migratory birds, as well as home for many birds year round. In the laboratory, students learn the physiology, habits, and identifying marks of birds. Field time is spent identifying birds, their habitats, and their roles in the ecosystem.

Stream / Riparian Ecology (Cycles, Population, Interaction, Energy-Matter, Change, Organism, Cause-Effect)
Students compare pond and stream systems in order to formulate a list of requirements for aquatic organisms to survive and prosper. This includes testing pH and dissolved oxygen components, identifying aquatic insects and plants, and measuring flow rates and visibility.

INTEREST GROUPS

Interest groups are short (1 - 2 hrs.) classes that focus on one topic. During the residential programs, interest groups are usually scheduled in the afternoon, after students return from the field. Visiting group leaders can choose those classes that interest them most, or the Program Coordinator can design an interest group schedule for the group. Have students sign up for the interest groups of their choice *before* they arrive at camp. Options include:

Aboriginal Skills (Interaction, Change)
Students investigate the survival skills and traditions of the native people of the high desert. The class will include an emphasis on cultural history as well as the evolution of various technologies. Through active participation, students will learn about and try their hands at a selection of the following: flint knapping, shelter building, the making of fire from natural materials, the making of cordage from plant fiber, and the use of traditional hunting tools including rabbit sticks and an atlatl (spear thrower).

Aquatic Study / Water Quality (Cycles, Population, Interaction, Energy-Matter, Change, Organism, Cause-Effect)
Students learn the necessary conditions for organisms to survive and flourish in an aquatic system. Students test pH, dissolved oxygen, sample invertebrates and plants, and assess the health of a local water system.

Archaeology Field Techniques (Cycles, Population, Interaction, Change, Cause-Effect)
Students practice archaeological field techniques by collecting data on a mock surface site. Students set up a grid over the site, make a diagram of all artifacts in the site, hypothesize about the use of the artifacts and the site itself, and learn of the importance of leaving sites undisturbed. An additional activity involves studying the creation, preservation, and symbolism of pictographs found in the Hancock area.

Birding (Cycles, Population, Interaction, Evolution, Change, Organism, Cause-Effect)
This activity is an introduction to ornithology. Working with Hancock's collection of study skins, bones, skulls, owl pellets, and feathers, students are introduced to characteristics common to all birds as well as specific adaptations to unique habitats. They continue in the field, binoculars and field guides in hand, to experience birding locally.

Climbing Wall (Energy-Matter, Cause-Effect)
A climbing wall is available and enables students to gain first hand experience with rock climbing and some of the safety equipment used, including ropes and knots, harnesses, helmets and carabiners. Students are encouraged to challenge themselves taking turns on the wall and to encourage and support their peers in a controlled, well-supervised setting.

Ethnobotany (Cycles, Organism, Energy-Matter, Change, Cause-Effect)
Students focus on traditional Native American uses of plants in the area. The class includes discussion and possibly creation of foods, basketry, cordage, weapons, and medicines made of local plants.

Fossil Study (Cycles, Organism, Change, Cause-Effect, Interaction)
This activity focuses on fossils, what they are, how they are formed and what stories they have to tell. After gaining insights into natural fossilization processes students have the opportunity to make a fossil of their own using clay, plaster of Paris, and natural material from the local area.

Insects and Spiders (Cycles, Population, Interaction, Change, Organism)
There is no shortage of live specimens for students to observe in this popular activity. Students learn about the special characteristics of insects and spiders, then search for them in the area and investigate closely those that they find. Identification keys are used to aid students as they present their finds to the class. A video microscope is usually available to view the specimens on a television screen.

Lapidary (Cycles, Energy-Matter, Change, Cause-Effect)
Students focus on the rock cycle. They then polish thundereggs (see p. 4), which they can take home with them. Thunderegg halves must be purchased by the group ahead of time (we can advise you where they are sold) and include a $0.50/half additional fee for use of equipment.

Orienteering/Map Reading (Energy-Matter, Cause-Effect)
Students gain insight into the important skill of understanding where they are and how to get where they want to be. Students learn about topographic maps and the use of orienteering compasses, and are challenged in the field to follow orienteering courses built by each other.

Paleontology Field Techniques (Change, Cause-Effect)
Students use a mock surface excavation activity to learn the various field methods used by paleontologists. After taking all necessary data from the site, students learn about preparing fossils in the lab using common tools of paleontologists.

Reptiles and Amphibians (Cycles, Population, Interaction, Change, Organism)
Students focus on the differences between reptile and amphibian physiology, behavior, and adaptations to a semiarid climate. Students then attempt capture/release specimens if available, as well as learn how to properly handle these animals to view their special adaptations. Finding organisms is more successful during the warm months (May-Sept.).

Rocks and Minerals (Cycles, Energy-Matter, Change, Cause-Effect)
Students delve into the processes under which different rock and mineral types form, as well as the characteristics used to identify them. Using a hands-on approach, students test a variety of mineral samples for such characteristics as color, hardness, streak, crystal structure, and luster. To impress the importance of rocks, minerals, and organic fuels in our culture, students take part in a scavenger hunt to find a list of geologic materials we use on a daily basis.

Skulls, Skins, and Bones (Cycles, Population, Interaction, Evolution, Change, Organism, Cause-Effect)
This activity enables students to touch, observe, and ask questions about the skulls, skins, and bones of animals. All of our study skins were obtained from natural or road kills and have been properly prepared and preserved. Students are encouraged to learn about the characteristics of vertebrates in the Hancock area. The concept of adaptation to the unique conditions of an arid environment is emphasized. This class usually involves a hands-on identification quiz to emphasize what the students have learned.

Team Challenge (Interaction)
This is an excellent activity for building trust, cooperation and group cohesion. Students work as a team and attempt to solve a series of mental and physical challenges. All of our challenge activities involve low elements and do not require the use of ropes or specialized equipment.

Tracking (Population, Interaction, Organism, Cause-Effect)
This activity begins inside, where students learn about the gait patterns of different animals and about many of the clues about the movement and habits of animals that can be found in their tracks and sign. Students then move into the field, often exploring the muds, creeks and/or ponds where they look for evidence of animal (and human) activity. This program can also include a game where some of the students lay down tracks and the others attempt to follow them.

Volcanoes (Cycles, Energy-Matter, Change, Cause-Effect)
In this exploration of volcanic activity, students learn about different types of volcanoes and about the forces at work in the earth's crust and mantle that are responsible for volcanism. Particular attention is paid to the volcanoes of the Cascade Range. Using dirt and a vinegar and baking soda mixture, students make and erupt their own model volcanoes!

Our teaching staff is continually developing new interest group activities. Contact the Program Coordinator for an up-to-date list of classes available.

EXPLORATION DAY ACTIVITIES

During week-long residential programs, an exploration day may be scheduled. These activities offer a wide variety of experiences and learning opportunities. (Refer to the sections on Research Programs and Service Projects for other options.) Students choose a trip from several offered. Unless group leaders have specific requests, we schedule Exploration Day programs according to weather conditions, transportation needs, and seasonal activities. Field trips away from the Hancock area require vans and include an additional charge of $0.55/mile. Exploration Days include:

Cove Creek: A relatively flat hike, this area is great for archaeology and ethnobotany (traditional uses of native plants). Class includes activities focusing upon the history of Native Americans traditionally found in the area, as well as pictographs left behind as their legacy.

Fossils in Fossil: Drive to the nearby town of Fossil and have the opportunity to collect paleobotanical fossils behind Wheeler High School. Fossils on Wheeler County land can be collected and taken home by students.

Indian Canyon: Pictographs and archaeology sites allow a focal point for discussion of early Northern Paiute living skills in the Clarno Basin. Boulder fields tell the story of massive flash floods that occur during some summer thunderstorms. Indian Canyon is a great place to explore geology and archaeology.

Pine Creek: This hike offers an opportunity to investigate stream and riparian zone ecology. Hikers sieve the stream bottom to observe the plants and animals that live there and contrast them with those living near a watering pond. Options include participation in a stream rehabilitation project, counting beaver dams, or testing water quality through a variety of tests and microscope observations.

Springs Basin Wilderness Study Area: This hike offers a chance to explore the natural and physical worlds of a secluded canyon. Hikers will visit a cold spring where they can fill their water bottles with fresh water, view beautiful basalt cliffs, and study a unique canyon ecosystem. The summit of Horse Mountain offers a challenging climb to the energetic hiker, and Hay Bottom canyon has a variety of geologic wonders.

RESEARCH PROGRAMS

The Research Programs at Hancock are designed to allow students to learn science by doing science. Students are introduced to the steps of the scientific process and are then immersed in an activity that requires them to use it. Students form their own hypotheses, collect and interpret data, draw their own conclusions, and present their findings to others as part of that night's evening program. Current programs include:

Beaver Dam Survey (Cycles, Population, Interaction, Evolution, Change, Organism, Cause-Effect)
Systematic survey of beaver dams along Pine Creek. Students will discuss the effects of beavers being trapped out of the ecosystem in the 1800s and the importance to the watershed of their being reintroduction in the semiarid ecosystem. [This activity is limited to students age 12 years and older, in group sizes of 10 or less.]

Ecosystem Survey (Cycles, Population, Interaction, Evolution, Change, Organism, Cause-Effect)
Systematic survey of plant and animal communities in arid ecosystems. Data from different areas are collected, compared, and interpreted. Examples include grassland vs. riparian, canyon vs. hill crest, high elevation vs. low, heavily disturbed vs. protected wilderness.

Fire Ecology Study (Cycles, Population, Interaction, Energy-Matter, Change, Organism, Cause-Effect)
Students survey, compare, and contrast burned areas from the 1994, 1995, and 2000 summer fires. Incorporated into this activity is an active investigation into fire behavior and relationship to different types of vegetation. Soil sampling may also be included in data collection.

Fossil Comparison (Cycles, Evolution, Change, Cause-Effect)
Comparison of different flora and fauna compositions found at the various fossil beds in the area. This may include a drive into the town of Fossil to the paleobotanical beds located behind Wheeler High School.

Pine Creek Stream Study (Cycles, Population, Interaction, Energy-Matter, Change, Organism, Cause-Effect)
Water quality and macro-invertebrate project on Pine Creek and our local livestock ponds. Data collected can be used to monitor future rehabilitation efforts.

SERVICE PROJECTS [**NOTE: New in 2002!]

Since many schools include a service component in their curricula, Hancock has been working with local, federal and tribal government agencies in order to offer this option. Volunteer hours are collected and provided to the agencies. Students learn the background of why the project is being done, the ownership of the property, and the anticipated short-term and long-term results of the project. Teachers selecting Service Projects have the option of the students participating in and presenting their findings to the entire group as part of that night's evening program. Project choices ill include, but are not limited to, topics such as:

Campfire Pit Redistribution	Fence Removal
Habitat/Native Plant Restoration	Noxious Weeds Removal
Trail Maintenance	Tree Plantings

EVENING PROGRAMS

After dinner, we offer a one-hour educational evening program for the whole group. Group leaders should feel free to make specific requests. Our current programs include:

Astronomy (Energy-Matter, Change, Cause-Effect)
Clear nights unhindered by city lights offer views of the stars, the moon, and deep space objects. Students are taught how to use star charts, and then go outside to view the constellations. Several telescopes are set up, in order to provide star tours. A slide show on astronomy is also available if the weather, moon or time of year prevents an opportunity to use the telescope for night sky observation. Viewing can occur during campfire in small groups, weather permitting.

Bats (Cycles, Population, Interaction, Change, Organism)
A slide show on the natural history of bats, including the bats of Oregon, discusses the importance of bats in the ecosystem. Several prepared specimens are available for display.

Birds of Prey (Cycles, Population, Interaction, Evolution, Change, Organism)
A presentation including our resident bird of prey. Emphasis is on the definition of a raptor, unique adaptations of these animals, a Q&A session, and (if possible) time for students to get a closer view of the bird. A slide show on the natural history of the birds of prey (hawks, eagles, falcons and owls) may be substituted upon request.

Eco-Games (Cycles, Population, Interaction, Change, Organism)
(Only during times of the year when there is daylight after dinner). Students play a variety of active field games designed to illustrate specific natural history concepts.

Environmental Forum or Archaeology Forum (Population, Interaction, Change)
Students separate into groups that represent a variety of stakeholders at a mock forum involving a land-use issue. The activity demonstrates the complexity of land-use issues and the importance of compromise.

Hancock Trivia (Cycles, Population, Interaction, Energy-Matter, Evolution, Change, Organism, Cause-Effect)
Students compete as teams in a game-show format science trivia game. Questions draw upon information covered during the week and thus offer a fun review of the week's activities.

Herpetology (Cycles, Population, Interaction, Evolution, Change, Organism)
A slide show on the natural history of reptiles and amphibians, including those found in the Hancock area, is available.

Mammals (Cycles, Population, Interaction, Evolution, Change, Organism)
Students learn the characteristics of mammals, what sets them apart from other organisms, and the different roles they play in the ecosystem. In small groups, they build/draw their own mammals and present them to the entire group.

Evening / Night Walk (Interaction, Change, Cause-Effect)
Students build their trust as a group on this hike. They might also do some sensory awareness activities.

Presentation Night (Cycles, Population, Interaction, Change, Organism, Cause-Effect)
For groups that choose Research Programs or Service Projects, the Presentation Night allows field groups to share their experiences with the whole class. Individual field groups spend time during the day developing a short presentation and present it during the evening program.

CAMPFIRE

A campfire ring is available for your use, and most groups close the day with a campfire program. Groups are responsible for their own campfire programming, though Hancock staff may be available upon request. The Staff lead the closing campfire the night before your group departs. There is no set time limit for campfires. It all depends on the group, and of course the stamina of the leaders in the waning hours of the day—30 to 40 minutes is a good length. Good activities include, but are not limited to, simple call and response songs, student skits, and stories. If you know musicians, invite them along—always a bonus at a campfire.

Tips for a Successful Campfire Program

1. **Get kids excited** about campfires before and during the outdoor school experience.
2. **Be enthusiastic yourself.** It's hard for the kids to get excited if you don't show the same excitement. (Extreme silliness often wins over even the "coolest" of your student body.)
3. **Keep things simple and appropriate for all audiences**. This goes for songs, stories, and skits.

Songs

Consult the OMSI Camps Songbook when you arrive. We have listed skits and songs. Also consult Rise Up Singing (Annie Patterson and Peter Blood, 1992), and group song books that your school music teacher might be able to suggest.

Stories

Can be fun if someone feels comfortable telling one. Please, no scary stories before bedtime.

1. They can be read or memorized and acted out in the spirit of true storytelling by students or adults.
2. Topics are up to you, but relating them to their outdoor experience is always helpful.
3. Check your local or school library for good books on Northwest folklore, campfire stories, and native legends.
4. Read the Lorax by Dr. Seuss. Have the kids act out the parts: truffula trees, brown bear-ba-loots, swomee swans.

Skits

Can be prepared prior to arrival or during your stay and are a great way to get everyone involved in the campfire.

1. Give students a theme for the skit (e.g., an ecological concept) and have them act it out.
2. During free time at HFS, give cabin groups a piece of paper with a saying on it. For instance, "When cheese sandwiches ruled the earth, the world was like...".
3. Give cabin groups a small paper bag with random objects in it and have them create a skit using those objects.
4. Assign one of the following questions to each group and have them create a story to explain the answer. These skits do not have to be scientifically correct; let the kids come up with their own legends.

How did the beaver get its flat tail?
How did the bobcat get its short tail?
Why does the western fence lizard do push-ups?
How did the black-tailed jackrabbit get such big ears?
Why does a coyote howl?
How did the porcupine get quills?
How did the owl learn to fly silently?
How did the rattlesnake get its rattle?