Curriculum Options

OMSI Outdoors takes pride in providing quality, concept-based education. The goal of each lesson is to aid students in understanding scientific concepts rather than memorizing facts. The concepts mostly relate to natural processes, cycles, and relationships and align closely with Next Generation Science Standards. OMSI instructors choose activities that support their individual teaching styles, and though certain activities may differ, the overarching concepts for each class are the same from instructor to instructor. Talk to the program supervisor about concepts you would like emphasized. They can guide you to appropriate classes and ensure OMSI instructors are prepared to adapt their lessons accordingly.

Field Studies

Field studies are the bulk of daily programming. Choose one field study for each full day you will be on site.

Arid Land Ecology

Students learn how the rain shadow effect creates a semi-arid environment in Eastern Oregon, how biotic and abiotic elements interact in ecological communities, and how limiting resources shape habitats and natural communities. They'll study the unique adaptations of organisms and the delicate balance of ecosystems. Students compare and contrast different plant and animal communities to determine the factors that make each area unique. Field hikes may include botany (plant identification), tracking, and birding.

Geology/Paleontology

Students explore the breathtaking hills around Hancock Field Station, focusing on the processes that formed the area and those that are now eroding it. Students learn about the rock cycle and the local strata. The local formations represent 50 million years of geologic, climatic, and environmental change. Students learn how fossils form and what scientists can learn from them. Since activities occur on protected property, fossil material cannot be disturbed or removed.

Riparian Ecology

Students compare natural pond and stream systems and formulate a list of requirements for aquatic organisms to survive and prosper. This may include testing pH, dissolved oxygen, temperature, and other water quality indicators and performing macroinvertebrate surveys to understand how aquatic macroinvertebrates can be used to indicate water quality. *Note: Riparian*

Ecology is not recommended in the fall or during dry years when streams are dry. Confirm availability with the program supervisor.

Survival

Students learn the basic rules of survival and techniques for finding shelter, food, and water. They get the chance to try them out in an arid environment. They may also learn the basic principles of orienteering and tips on how to be rescued in case you become lost as well as knot-tying, fire building, and cordage-making.

Interest Groups

Interest groups are 90-minute classes focusing on one topic. There is typically one interest group per day. Some classes are limited to one or two teaching groups at a time so several interest groups may be offered per day.

Avian Study

With access to Hancock Field Station's study collection of prepared birds, bones, skulls, and feathers, students are introduced to basic bird anatomy. Equipped with binoculars and field guides, students head out into the field to look for birds, nests, and other evidence and to learn more about individual species and their unique adaptations. Birds are usually more active in the morning, so check with the program supervisor about scheduling a morning class.

Early Oregon Skills

Students investigate traditions and skills that were, and continue to be used by Native people and settlers of the High Desert, including cultural history and the development of various technologies. Through active participation, students learn about traditional techniques for fire-starting, making cordage from plant materials, and traditional methods of hunting, such as rabbit sticks and atlatl (dart throwers).

Ethnobotany

Students use plant guides and observational skills to find specific plants and explore their traditional uses as food, equipment, and medicine. Students may have the opportunity to make traditional preparations or foods from local plants. *Note: This activity is more successful when local plants are abundant. Please check with the program supervisor before choosing this activity.*

Fossil Study

This activity focuses on fossils – what they are, how they are formed, and what they can reveal about natural history. Students gain insight into natural fossilization processes, and examine fossils in the local area, building an

understanding of changes to the ecosystem, climate, and environment over the past 50 million years.

Insects and Spiders

With plenty of live specimens and Hancock Field Station's large insect collection, students learn about the special adaptations of insects and spiders and their importance in ecosystems worldwide. Catching wild insects and using identification guides allows students to investigate insect anatomy and behavior. Students release their specimens at the end of class.

Lapidary *(Available April 15 - October 15)*

Thundereggs are Oregon's state rock. In this class, students learn how they are formed. OMSI instructors guide them through the polishing process and each student gets to keep their own polished thundereggs. While awaiting their turn to polish, they learn about rocks and minerals.

Thunderegg halves must be purchased by the group and sent to Hancock Field Station ahead of time (to allow for preparation) or requested through the program supervisor at least two weeks before the program. Thundereggs purchased through Hancock Field Station cost $4.50 per half. An additional fee of $1.00 per participant will be charged for use of the lapidary equipment. Fees can be added to the group's final invoice. (see Lapidary Shop in the Logistics section below)

Due to the limited number of machines, and depending on the size of your group, lapidary activities may not be available for all students or chaperones. This activity is weather-dependent, and therefore only offered April 15 through October 15. Please consult with the program supervisor to plan this activity.

Orienteering

Students gain insight into the skills of navigating using natural signs and mechanical processes. Students learn about the earth's magnetic field and how to use a compass. They are challenged to use compasses and paces to follow an orienteering course. For older students, the concepts of topography and map-reading are introduced.

Predator/Prey

In this large format tag game, students learn how trophic levels support a healthy ecosystem as they act out different parts of a food chain. Concepts of dynamic equilibrium and bioaccumulation are incorporated. This is always available as an interest group or departure day activity and from *April to June* as an evening program.

Reptiles and Amphibians

Students compare and contrast reptiles and amphibians: their physiology, behavior, and the adaptations they have to a semiarid climate. Students may also attempt the capture and release of wild specimens, learning how to properly handle them to view them up close. Finding wild reptiles and amphibians is most successful during warmer weather (May through September).

Rocks and Minerals

Students take a hands-on approach to learning about rocks and minerals: how they are formed, the characteristics used to identify them, and the tests that can be used to measure properties such as hardness, streak, crystal habit, and luster.

Skulls, Skins, and Bones

This class about form and function helps students understand how animals are uniquely adapted to their environments. Students handle specimens, make observations, and ask questions. All of our study specimens were donated or obtained through natural deaths or road kills, and have been properly prepared.

Weather and Climate

Students learn weather-related concepts such as albedo, air pressure, and humidity before using various weather instruments to measure them. Drawing on data they collect, readings from Hancock Field Station's weather station, and their own knowledge, students are challenged to consider how weather and climate are related and historic and contemporary factors relating to climate change.

Evening Programs

Evening programs are one hour long and take place between dinner and campfire or, occasionally, after campfire. Depending on the evening program, it could be indoors or outdoors and students may be divided by study group, or the whole school may be together. To assist OMSI staff and students, chaperones/counselors must be present at a one to ten ratio (1:10). Please select one evening program for each night.

Solar System Slideshow

Go on a photographic journey through our solar system. The slideshow photos are the result of work done by hundreds of people using telescopes and NASA space probes, including the Hubble Space Telescope. New images are often added as they become available.

Bat Slideshow

A slideshow on the natural history of bats, including the bats of Oregon, demonstrates the importance of bats in the ecosystem. Students learn about the myths and realities of bats and become familiar with their evolution. During late spring and early fall, students may have the opportunity to use bat detectors to locate wild bats around Hancock Field Station.

Birds of Prey

Students take a hands-on approach, handling study specimens from a variety of birds, to learn more about the adaptations that make raptors unique. Students may ask questions about raptors and other birds and examine preserved bird specimens to help them answer their questions.

Eco-Games

Eco-games is offered as an evening program during times of the year when there is daylight after dinner. It can also be offered as an interest group or on the morning of departure days. Students play a variety of active field games designed to illustrate specific natural history concepts such as the food chain, camouflage, invasive species, and carrying capacity.

Environmental Forum

Students separate into groups and take on the personas of a variety of stakeholders. Working within the parameters of the activity, based on a realistic land-use issue, each group debates why their group should emerge victorious in a town-hall style debate session. The activity demonstrates the complexity of land-use issues and the importance of compromise.

Evening Walk

When daylight after dinner permits it, you may opt for an evening walk around Hancock Field Station. Watch for bats or owls flying overhead and listen for crickets, frogs, night birds, and coyotes. See the landscape take on new shapes and colors as the light fades and the desert comes to life. Students

learn about the crepuscular habits of many desert animals. Available May, and September

Hancock Trivia

Students compete as teams in a game-show format science trivia game. Questions draw upon information covered during the week and offer a fun review of the week's activities. This activity is most successful for groups that stay four or five days.

Night Hike

Discover the night! Test your senses through outdoor activities while learning about the adaptations of nocturnal organisms. Night hike includes hiking along uneven trails in the dark without the aid of a flashlight. Consult the program supervisor if you're concerned about your students' comfort level during this activity. Available March-April and October.

Observational Astronomy

Clear nights unhindered by light pollution offer views of the stars, planets, moon, and deep space. OMSI instructors will lead sky tours and use telescopes to bring distant objects a little closer. In the event of poor viewing conditions, group leaders are requested to choose a backup activity. Due to late sunset times, observational astronomy is not offered in late April or May.

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