

Fall High School Curriculum Options

Opal Creek Ancient Forest Center will work with you to customize your program curriculum and itinerary to fit your educational goals and needs. All students who visit Opal Creek begin their trip with a three-mile walk through the old-growth forest to reach Jawbone Flats. Our instructors lead this hike, and the education begins immediately. Our curriculum is concept-based, hands-on, and experiential. The students will be learning science through hands on activities in the lab and in the field.

Please review the curriculum options below and let the Coordinator know what you would like to focus on during your stay. The Coordinator will then create a schedule based on your interests and what they think will work best for your group size, average age and time of year. Once you are sent a draft schedule please review it and let the Coordinator know if you have questions or would like to make any changes. Please note that the schedule is a guideline for your stay and can be changed as you and the Opal Creek instructors deem necessary (due to weather, energy levels, etc.) once you are on site.

Note: If staying for one night, you will choose one evening activity. If staying for two or more nights, please choose: the student-driven research project, an extended field study and one interest group, OR a field study and two interest groups for each full day you are in Jawbone Flats. All groups will choose one evening program for each night of their stay.

EXTENDED FIELD STUDY:

An extended field study is a 4-5 hour excursion covering several subject areas. With a full day on the trail, breadth and depth of study is flexible according to the interests/abilities of each group. Topics could include cultural history, forest ecology, botany, geologic history, and more.

FIELD STUDIES:

Field studies are typically a 2 hour in-depth study of a specific subject area. Possible topics include:

- **Forest Ecology:** A continuation of topics covered on the three mile walk in. Students compare old growth and second growth forest plots using tools (clinometer, DBH tape measure, densiometer, field guides, etc.) to invoke a discussion of biodiversity, ancient forest habitat, and forest succession.
- **Stream Ecology:** A closer look at the streams of the ancient forest. An exploration of water quality indicators using probes (pH, DO₂, temperature, conductivity, etc.) as well as macroinvertebrate and amphibian surveys.
- **Geology/Local History:** A lesson on the formation of the Western Cascades and the rocks and minerals found here, which can include a discussion of the history of mining in the area.

STUDENT-DRIVEN RESEARCH PROJECT:

Driven by student interest, this full day (5 hour) research project allows students to delve deeper into a topic of interest covered on the interpretive walk in. Small groups elect their own research topic, collect data in the field, and present findings to peers. Suggested research topics include: water quality testing, lichen and/or bryophytes surveys, mushroom survey, and nurse log investigation.

INTEREST GROUPS:

Typically shorter studies of 1 hour, interest groups are conducted in close proximity to Jawbone Flats.

Possible topics include:

- **Owl Pellets:** A discussion of owl species found at Opal Creek, their adaptations, and how/why they produce pellets. Students then dissect owl pellets, distinguishing and re-articulating the skeletons of the small mammals found inside.
- **Meter Plots:** Students take a close look at shrub and ground cover diversity within a square meter area, helping them to see beyond the trees when looking at the forest.

- **Fluvial Geomorphology:** Learn about the processes through which water carves the earth surface and the resulting channel shapes through exploration of stream tables.
- **Mineralogy:** A lesson on the rocks and minerals found at Opal Creek and how to identify them.
- **Team Building:** Students work as a group to solve a variety of mental and physical challenges through team-building activities.

The following can be up to 2 hours in length, allowing for more in-depth study of one topic:

- **Mosses and Lichens:** Collection, identification and discussion of the role these organisms play in the ancient forest.
- **Macroinvertebrates:** Collection and identification of the macroinvertebrates living in Opal Creek or the Little North Fork of the Santiam paired with a discussion of macroinvertebrates as indicators of water quality.
- **Fungus:** This fall time lab and field program focuses on the basics of fungal biology and ecology. After learning how to properly collect and identify mushroom specimens, students will use spore-prints and microscopes to delve deeper in examining local species and their roles in the surrounding ecosystem.

EVENING PROGRAMS:

Evening programs are 1-1.5 hours and take place after students have dinner and do chores. *Note: many evening programs are also adaptable to a 1 hour interest group session.* Possible activities include:

- **Night Hike:** An extended hike in the ancient forest by night. Students test their senses of hearing, smell, and touch through sensory activities while learning about the adaptations of nocturnal animals. This is a great first night activity.
- **Sustainability Debate:** Interactive program that uses a debate format to engage students in issues of sustainable practices. A discussion of power, water, and food systems at Jawbone serves as a platform for examining alternative energy and human impacts on the watershed.
- **Living History Timeline:** Interactive program that covers the human history of the area: Native inhabitation to the mining era to the conservation movement and eventual wilderness designation. Students act out each era in skits that are developed along with the help of instructors/teachers/chaperones.
- **Botany:** Learn about how the amazing structure of plants allows them to function and survive. Students begin with a botany walk to collect specimens. Back at the lab, they look at structural differences under the microscope and set up an experiment that demonstrates photosynthesis and respiration.
- **Nocturnal Insect Hunt:** This lab and field program introduces students to the basics of entomology. After a quick discussion of life cycles, behavior, and ecology, students will learn to collect and identify a range of local insects.
- **Ancient Forest Slideshow:** Our classic slideshow that covers the natural history of Opal Creek's forests, what lives there, adaptations of plants and animals, etc. Paired with a night hike.
- **Astronomy:** A slideshow on astronomical phenomena paired with an evening stargazing excursion in the meadow. Topics include constellations, light pollution, the history of astronomy, and our place in the universe.
- **Mammals & Birds:** First, a slideshow will introduce students to local avian and mammalian life and their various adaptations to the old-growth forest. Each student will then get a chance to dissect an owl-pellet, demonstrating one of many examples of how these often elusive creatures interact.
- **Rage Over Trees:** This 1989 film, narrated by Paul Newman, looks at the head-to-head struggle between loggers and conservationists over the Pacific Northwest's last ancient forests, highlighting the conflict at Opal Creek.
- **Jawbone Jeopardy:** Students compete as teams in a game show format science trivia game with content derived from their studies while at Opal Creek. This is a great last night activity.