



## Learning Opportunities at the National Environmental Science Center

With the introduction of the new campus comes new developments in the NatureBridge curriculum. Your students may be breaking ground on some of the first environmental science investigations and trail explorations in the area! It is an exciting time in environmental education and we are glad that you are joining us in a new adventure as we continue to provide rich environmental science experiences that will connect students to the natural world while fostering environmental literacy.

### Sustainable Campus

One of the most exciting teaching opportunities at the new campus is the new campus! The National Environmental Science Center at Henness Ridge is being designed to meet LEED (Leadership in Energy and Environmental Design) standard. There are a number of features that will reduce the energy needed on campus and will limit the need for fossil fuel consumption. Learning and interacting with these elements, including on-site photovoltaics, ground source heat pumps, bio-gas recovery system, energy efficient building designs, and use of local materials will be incorporated into students' overall educational experience.

#### Top five sustainability features of the new campus:

1. Through **biogas harvesting**, the water heated by the ground source heat pumps is then heated to bathing temperatures.
2. **Passive house design** makes it possible to capture not only the radiant warmth coming through windows, but also body temperatures. With super insulated walls and active ventilation system, the rooms stay warm even in the coldest temperatures.
3. The bathhouse is outfitted with a **grey water collection system** that will be used to flush toilets. Eventually, the buildings will be outfitted with rainwater capture ability which will also help minimize water use. The design will help to save approximately 60% over standard water use.
4. The incense cedar siding on the exterior of building consists of **salvaged wood** downed in the Rim Fire which burned just outside of Yosemite National Park in 2013.
5. **Ground source heat pumps** capture the radiant heat from the earth and bring water to ambient temperatures.

## Fire Science

NatureBridge has partnered with UC Berkeley and National Park Service scientists to establish curriculum, lesson plans, and teaching sites that involve one of the most relevant fields of science for students in California. Teaching about fire, how it behaves and how we as humans can manage it, is one of the most important areas of study for students growing up in California. Through guided, hands-on investigations, students will determine factors that influence the risk of a fire occurring and participate in the ongoing fuels reduction project around the site. Groups also have the opportunity to hike up to the Fire Lookout and assess the interaction of humans and wild land fire.

## Cultural History

Heness Ridge's unique location allows groups to get a glimpse back in time. Settlers began to arrive in the surrounding area about 170 years ago and their presence is marked by 160-year-old rail lines. Students will learn about the railroads that many of the trails have emerged from and historical logging activity, invoking discussion about how human relationships with National Parks continue to evolve.

## Citizen Science

Students will have access to established citizen science projects such as stream study, benthic macro invertebrates and phenology. There will also be opportunities to participate in snow surveys similar to the ones carried out in the meadows at our Crane Flat campus. In addition to the old favorites, NESC is introducing a **Wildlife monitoring project** in which students hike out to secluded areas where trail cameras have been set up. Participants are then able to download and review images of potential wildlife sightings. The data collected will serve the National Park Service biologists in their understanding of wildlife in the park.

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