

Wilderness Watershed Adventure: Exploring Environmental Science

*A week-long immersive, intergenerational camping experience for high school students in the
Lake James Watershed*

August 3rd-8th, 2025

This is a FREE environmental science and outdoor adventure program for high school students (age 15-19). Students will spend 5 nights and 6 days together studying watershed and riverine science, riparian health, lake ecology, and shoreline habitat and management in the Lake James Watershed. Led by adults in the environmental field and college student mentors, participants will work in intergenerational teams to collect, analyze, and summarize environmental data from Lake James and the Linville River. Potential activities and a sample itinerary are listed below.

Students arrive at Visitors Center by 12 PM on Sunday

- Icebreaker Activity
- Orientation and Gear Prep
- Hike to campsite in Linville Gorge

LINVILLE GORGE (First 2 nights)

History of the Gorge/Fonta Flora

A discussion of the history of the land that the students are camping on. Will include a discussion of the communities, major historical events in the vicinity, and the interaction of land and people throughout time.

Macroinvertebrates and the NCBI

This activity is an extension of LJEA's Kids-in-the-Creek program. We will go into greater depth concerning the use of macroinvertebrates to determine the quality of the aquatic habitat and water quality. Students will collect samples, using LJEA's protocols, and use magnifying glasses and taxonomy guides to identify. Each team of students will "grade" the stream based on their sample and then the sample results will be aggregated to produce a composite grade. The differences in scores will be discussed. Prior LJEA sampling data and scores will be presented. Sources of error and the natural variability of results (seasonal and otherwise) will be discussed.

Stream Assessment & Chemical monitoring

The basis of this activity is the NCDEQ/Division of Water Resources Stream Assessment procedure and forms. Students will be trained in the purpose, basis, procedures and DWR forms and then the student teams will perform an assessment on a common reach of the Linville river. The results will be discussed with an emphasis on the problems and value of such subjective observations. Water quality probes and simple test kits will be used to look at the physical and chemical properties of the water in the river. Students will be provided a summary of LJEA's long-term water quality monitoring data for the river. They will be asked to reflect upon the variation and significance of results.

Night Walk (after dark)

Observe and learn about amphibians and other “creatures of the night” accompanied by expert guides.

Fauna and Flora Hike

LAKE JAMES STATE PARK (3 nights)

Hike to Rock Hill Cemetery (Evening)

Wetlands, Amphibians and Herpetology of the Lake James area (day time)

Discussion of research in the wetlands and riparian areas around Lake James.

Explanation/demonstration of field techniques, including conservation trapping and release.

Understanding the History and Limnology of Lake James - Water Quality Sampling

The focus is on getting on Lake James to perform water quality sampling while having discussions of the Lake: its history, limnology, current conditions and issues such as invasive species, and how the lake is managed. Students will be provided data from prior Lake water quality sampling (including vertical profiles of Temp, pH, DO, conductivity) and challenged to interpret those data as it relates to the structure and condition of the Lake.

LJSP Multipurpose Use and Management

LJSP staff discussion of the purpose, use, and management of the Park.

Fire Ecology and Prescribed Burns

Hike through burn area in LJSP

Art Project with Toss

Cyanotype printing

Friday 4 PM Presentations at the Visitors Center

SAMPLE DAY ITINERARY

Wake up 7:30 AM

Breakfast 8 AM

Short Warm up Activity

Morning Field Activity (9:30-11:30)

Lunch

30 Min Down time then Warm Up Activity

Afternoon Field Activity (1- 3)

Adventure Time or Downtime (3:30- 5:30)

Dinner 6 PM

After Dinner Activity

Bed 9:30

