

HEADWATERS SCIENCE INSTITUTE



Introduction to Research Camp:

During the Intro to Research Camp, students will ask original science questions, design experiments to test their questions, collect data, and present their findings. Students will stay at a camp/lodge outside of Louisville and will be able to fully immerse themselves in the environment that they are studying. Over three days, students will learn from professional scientists while creating and carrying out their own original study and learn to problem solve and overcome challenges.

DAY 1 • INTRODUCTION & EXPLORATION

Students will arrive at camp and go through an orientation. Students will be split into groups and will be assigned a science mentor. Each group will begin to explore the area, and brainstorm questions about the ecology of the area. At the end of the day, all groups will have a testable research question and hypothesis. In the evening, campers will go on a guided night hike to learn about nocturnal animals.

DAY 2 • DATA COLLECTION & ANALYSIS

Day two will be dedicated to data collection. Students will work with their mentor and group to gather sufficient data for their question. The day will be broken up with games and other activities. Each group will begin to analyze their data and graph their findings. In the evening there will be a campfire with stories and an optional talent show.

DAY 3 • PROJECT SYNTHESIS & PRESENTATION

Students will finish data analysis and graphing, and prepare presentations to share their project with the group. Optionally, groups can meet after camp with their mentors to give virtual presentations for family and friends.

Program Outcomes: Students will leave the program with hands-on science experience, different from what they would experience in a traditional classroom. Students will be familiar with the scientific method, and will know how to apply it. Many students will overcome challenges in their projects, contributing to problem solving skills. This program is aimed at empowering students to enjoy and understand science. Students will build community within their groups, and will be supported by that community while overcoming these challenges.



HEADWATERS SCIENCE INSTITUTE



More About Headwaters:

OUR MISSION

Provide transformational science education to students through an adaptable curriculum for any educational setting.

OUR APPROACH

The Headwaters Science Institute approach is based on **student-driven research**. Each program begins by helping students ask original questions about the topics at hand and designing experiments from those questions. Students then work in groups to answer their questions gaining skills in:

- Hands-on problem solving
- Critical thinking
- Field data collection techniques
- Applied statistics
- Technology presentation and communication
- Data visualization

Allowing students to focus on subjects they are interested in creates ownership of their experience which builds a passion for science.

Students are mentored by professional scientists as they learn to think critically, adjust their projects to overcome challenges that arise, and to use science, math, technology, writing, and public speaking skills. Our approach gives students scientific knowledge and experience, research skills, improved critical thinking skills, and a broader awareness of science career options, all while building their academic confidence.



“I enjoyed this program because I got to research something I was interested in. I enjoyed spending time collecting data and then finalizing it and seeing what it meant. At school we will do one or the other, either doing the research or analyzing that data, but here we did both and got to go through the whole process.”

-Anonymous Program Participant



For More Information: visit HeadwatersScienceInstitute.org or email morgan@headwatersscienceinstitute.org