

### Ecology Expedition

Zip-lining may be fun, but it can also be used to explore the ecosystems that exist along the rim of the New River Gorge. Incorporating curriculum-standard-based activities, teachers will be able to enrich textbook lessons through a hands-on science day. During this full day trip, students learn how plants, animals and non-living factors play critical roles in their environment. Among other activities that teach self-awareness and human impacts, students will record the biodiversity of the New River Gorge.

### Objectives/Understandings:

- Learn how certain plants and animals adapt to and change their environment
- Learn how parts of an ecosystem are interrelated
- Practice critical thinking skills by debating an environmental issue
- Learn to identify common plant, tree and animal species on the ACE property
- Learn about dichotomous keys and practice using them

### Essential Questions/Guiding Questions:

- What is an ecosystem?
- How are abiotic factors, plants and animals interrelated?
- What plant and animal species can be found in the New River Gorge?
- How do some plant and animal species adapt to their environment?
- Is climate change affecting local flora and fauna?
- How can laymen contribute to science?

### Activity Descriptions

**Carrying Capacity** – An active game that demonstrates the dynamic nature of populations within an ecosystem.

**Energy Pipeline** – This activity demonstrates the concept that energy is lost as you move from plants to herbivores to carnivores in the food chain. It shows students that it is more “energetically expensive” to be higher up on the food chain.

**Zip-lining** – Students will have the opportunity to view different ecosystems while traveling by zip-line. They will also learn that zip-lines were first used by scientists to help them travel through their test sites. There are 5 zips and 2 sky bridges included in the day’s activities.

**Citizen Science Project** – Students will participate in a project to plot the biodiversity of the New River Gorge. Using iNaturalist (a citizen science database) they will classify and record specimens to be uploaded. Students will then complete a simple worksheet that demonstrates what can be done with the information they have collected.

**Beaver Ecology** – Students will participate in a lesson that demonstrates the effect beavers have on the surrounding environment and how they have adapted genetically to it.

**The Great Debate** – Students will practice their debate skills by participating in a discussion about one of three topics: invasive species, recreational use of land or climate change -- (or choose your own).

**Links:**

**National Park Service's New River Gorge – Start exploring our ecosystem!**  
<http://www.nps.gov/neri/index.htm>

**West Virginia Division of Natural Resources Publications:**  
<http://www.wvdnr.gov/publications/publications.shtm>

**iNaturalist – A citizen science database for recording observation about the natural world.**  
<http://www.inaturalist.org/>.