

Modern Topics in Ethnobotany

In our introductory session of *Valuing Tradition* our discussion leaders will set the tone for the five-day academy by challenging students to step beyond their familiar world and explore some pressing ecological challenges facing our native tribes and society in general today, the impact these challenges place on cultural tradition and the various applications of ethnobotany being utilized to address these challenges. All discussions will use the Socratic Method where we will get students to ask questions and through conversation and interaction arrive at the answer themselves.

Lab: Phytoremediation I and II

This laboratory investigation will introduce students to the use of phytoplankton and *Lemma minor* as effective natural agents in the process of phytoremediation. Following the National Standards and the Oklahoma PASS objectives; developing a working hypothesis, experimental design, and data analysis will be emphasized. In this two-part investigation students will practice mathematical techniques by conducting statistical analysis.

Toxic Tour Field Study: Tar Creek Superfund Site and Followup Discussion

The toxic tour allows students to ride together and experience a true tour of the Tar Creek Superfund site. Stops along the way will engage the students in sample collections as well as learning more about toxic and dangerous sites, such as the point source for the Tar Creek Superfund site.

Lab: Stream Analysis

Students will discover the connection between these broad fields of science as they evaluate stream qualities such as: pH, dissolved oxygen, turbidity, stream velocity, temperature, and macroinvertebrate biodiversity. Students will collect and analyze data as well as create a photo-essay of their experience.

Walking Lab: Ethnobotany

Students will spend the afternoon in local tribal wilderness areas learning about identification of local plants, many of which are commonly viewed by the average person as weeds. *Valuing Tradition* participants will gain an understanding of these plants' roles in the ecosystem and some of the many uses for the plants by the ancestors of the native tribes.

Dinner and Discussion: Reclamation of Endangered Plant Species

Valuing Tradition will present information on case studies of endangered plants that have been rescued and current efforts to save more species. The discussion will also further exploration of the afternoon topic by encouraging intellectual conversation and debate in a casual setting with one or more of the guides from the afternoon laboratory.

Native American Basket weaving and Textile Dying

Students will learn the ancient art of basket weaving from a native weaver while discussing the plant sources of the various materials used.

Lab: Analysis of the Flood Zone

This field study will connect directly to previous coursework in biology and chemistry as students examine soil texture, macronutrients, porosity, and soil nematodes.

Lab: Medicinal Applications of Herbal Remedies

This two-part investigation will immerse students in ethnobotany as they investigate the antibiotic properties of selected herbal medicines.

Mathematical Analysis and Application of Various Field Data

In these sessions students will use data which they collected and see how simple algebraic and statistic formulae can be used to derive meaning from the data. Techniques for summarizing data into tables and graphs will be presented so that students can utilize this skill in their final presentation.

Mythbusters: Spooklight Tour

Several items of study will be presented to the students and they will be asked to form their own hypotheses about the cause of the eerie lights which appear in the Superfund site.