

High School Full Day Lesson Plan

Time: All Day/Late May or Early June

Place: Snake River levee system, Jackson, Wyoming or any area infested with a variety of noxious weeds

Objective: To provide information and materials so high school students will be able to make informed decisions about the impact of noxious weeds and to observe/compare healthy habitats versus unhealthy habitats.

Goal: By the end of the day the students will be able to identify noxious weeds, compare healthy with unhealthy plant ecosystems, and learn how to compile that information into a GPS system.

Wyoming State Education Standards Met: 1.7 Ecology, 4.0 Habits of Mind, 6.1 Science in Personal and Social Perspectives, 8.0 Science and Technology, and 9.5 Safety

Activity #1- Plant Identification

Before the students can study soil plots they must have some background knowledge in plant identification. The students will already have been studying native plants in the classroom. This will be the opportunity for them to learn at least 10 key noxious weeds found in the area. They will all be supplied with “Noxious Weed Handbooks” and be separated into groups of 4. Each group will also have a Weeds of the West book to use as further reference. Employees of the County Weed & Pest will be leading groups on tours of the area and discussing noxious weeds as they go. The hope is that the students will begin to identify the noxious weeds on their own in the rosette stage as well as an adult. The group will meet back for discussions about each weed and further information about control.

Activity #2- Soil Plots

The students will remain in their groups of 4 for this activity. They will be marking off 2 different 1m x 1m plots. One will be closer to the river in the riparian area or on the levee itself. The other will be at least 20 meters off of the levee and away from the river. The students will be surveying the plots to identify the species that are present, and estimate the % of coverage and density in that area. All data will be recorded in field guides so they can be graphed in class the following day. Comparisons will be made between the plot near the levee and the plot further away. Questions will be answered as to which plot seems healthiest, why, and how come they are different or alike, etc.
***If no riparian area is available, have the students compare a healthy ecosystem and an unhealthy one.

Activity #3- GPS System

Teton County Weed & Pest District uses GPS systems frequently to locate infestations and to catalog new ones. The students will remain in the same groups they have been in

all day and split off with a Teton County Weed & Pest employee for instruction on how to use the GPS and what we use them for. Maps of the area will be provided as well as one GPS unit per group. Students will learn to mark points, compare the points with their position on the map, and find certain points using the GPS and maps for guidance. Each group will be marking at least 20 points and labeling the noxious weed they have marked. The following days in class, points will be downloaded (if capable) onto a mapping program where they will be comparing the points they marked on their map in the field with the points the GPS mapped for them.

***Under a limited time, this activity can be shortened by having points marked before the students begin using the GPS and they can practice finding areas using the GPS rather than recording their own findings into the GPS.

Tentative Schedule:

9:20am	Meet at field trip site
9:20-9:45	Introductions
9:45-10:05	Noxious Weed Tours in Small Groups
10:05-10:35	Learning how to use the GPS Units and Practice with each
10:35-11:30	Survey Plot Activity
11:30	BREAK for Lunch
12:00	Finish Survey Plots if needed or Begin Weed Pull
12:30-1:30	Weed Pull
1:30-2:00	Closure/Reports on Survey Plots

Day 2: If time allows, education coordinator will come back to the school to help the students record and present their results, bringing samples of gps information that has been compiled by the Jackson Hole Weed Management Association or local Weed and Pest District.

***Note: To turn this lesson into a student-driven, discovery learning activity- Take students to an area and split them into small groups. After touring the area and learning to identify noxious weeds, allow the groups to determine if the area is a healthy ecosystem or unhealthy ecosystem by performing their own study of the area and reporting their results at the end of the day. This will take a little longer, but should allow the students to make better connections between their previous knowledge and the new information about noxious weeds. Provide field guides, tape measures, gps units, cameras, and anything else that you think they will need to study the area.

Follow Up Questions

1. In site #1 which plant species had the highest density? Was this plant native or non-native? Was it a noxious weed?

2. In site #2 which plant species had the highest density? Was this plant native or non-native? Was it a noxious weed?

3. How did site #1 compare to site #2?

4. Which site contained the least amount of non-native plants or noxious weeds? Why do you think that is?

5. Which site appeared to be the healthiest? Why?