

Exploring Ecology

4/3 – 4/10

Purpose/Rationale:

This lesson serves to introduce students to the basics of ecology, and specifically includes dynamic equilibrium, carrying capacity, population growth curves, population interactions, and food chains and webs. Students will explore these topics through numerous hands-on and relevant activities.

VA SOLS:

- BIO. 9. The student will investigate and understand dynamic equilibria within populations, communities, and ecosystems. Key concepts include the following:
- a. Interactions within and among populations including carrying capacities, limiting factors, and growth curves
 - d. The effects of natural events and human influences on ecosystems

Materials and Resources:

PowerPoint and notes skeleton sheet
"Oh Deer!" ProjectWILD activity sheet
Colored paper
SmartBoard, Data table
"Good Buddies" ProjectWILD activity sheet
ProjectWILD K-12 Curriculum and Activity Guide (2004)
"Food Chain" online gizmo, www.exporelearning.com
"Food Chain" activity sheet
Owl pellets
Owl pellet lab sheets
Rulers
Tweezers
Glue
Specimen trays
Hand lenses
Skull guide handouts
"The Biology Coloring Book" by Robert Griffin (1986)

Class Management and Safety Issues:

Students should use caution when moving around the classroom during the "Oh Deer". Students should also follow the Acceptable Use Policy for using school computers and Internet.

Procedures:

Engage (45 minutes)

1. Students will participate in the “Oh Deer” ProjectWILD activity (45 minutes), which introduces students to the concepts of carrying capacity and dynamic equilibrium. Students will complete a corresponding activity sheet.

Explore (90 minutes)

2. Students will participate in a modified version of the “Good Buddies” ProjectWILD activity, which explores symbiotic relationships. Students will also participate in an online “Food Chain” gizmo (25 minutes), which explores food web dynamics. There will be corresponding activity sheets for students to complete.

Explain (45 minutes)

3. Students will be provided with a notes skeleton on which to take notes from the Ecology PowerPoint, covering ecology basics, dynamic equilibrium, population interactions, predator/prey relationships, and food chains/webs.

Elaborate (90 minutes)

4. Students will dissect owl pellets, examine the prey’s bones, and determine what the owl’s food source was. Students will try to identify as many bones as possible (especially skull, vertebrae, leg and arm bones). Students will then complete the “Communities” and “Ecological Pyramids” review coloring sheets.

Evaluate

5. Students will complete corresponding sheets for each activity, which will be graded for accuracy (see attached keys for grading criteria).