

Lise LeTellier

Holyoke Catholic High

Chicopee MA

Environmental Science COURSE Outline

COLLEGE PREP and HONORS

Academic Year 2011/2012

Textbook(s)/Resources:

Pearson Environmental Science 2011 Jay Withgott

Plus various Supplemental materials

Term 1 - Introduction to Environmental Science

Chapter 1-

General topics:

- The Nature of Science- The Science Process
- Resource- <http://undsci.berkeley.edu/>
- Resources and sustainability
- Ozone-
 - http://undsci.berkeley.edu/article/0_0_0/ozone_depletion_01
- Phenology

Activities include:

- Ecological Footprint calculator
 - <http://www.earthday.org>
- Tragedy of the Commons Game
- HONORS- World in Balance population doubling time calculation
 - http://www.pbs.org/wgbh/nova/teachers/activities/3108_worldbal.html
- Pearson's Student Study Guide- Finite Resources graphing activate
- Inquiry Lab- Green vs Conventional Cleaner
- GLOBE-Green Down www.globe.gov-
 - Green Down Protocol-Citizen Scientist

Chapter 3

General topics:

- Properties of Matter
- Atomic Structure, Ionic and Covalent Bond Worksheets
- Earth Spheres
- BioGeochemical Cycles
- Activities include:
 - Lab- pH of household materials and water from various sources
 - Atmosphere layers drawing
 - PBS Video- Japan, Killer Quake (Geo/hydro Sphere
 - Topographic Map activity
 - NASA Cryosphere video
 - HONORS-Ice Out data Activity (on lifelines)
 - CarbonTravels Online Computer game
 - CarbonTravels activity (on lifelines)

Term 2-

Chapter 4

General topics:

- Ecology
- Populations and Population Growth

Activities include:

- Fives a Crowd Activity
- Lessons from the Kaibab Activity

- Mark and Recapture Modeling Activity
- Exponential and Logistic growth Graphs
 - <http://otherwise.com/population>
- Yeast population LAB- combined with O2 and CO2 probe monitoring levels

Chapter 5

General topics:

- Evolution
- Species Interaction
- Ecological Communities
- Community Stability
- Succession
- Invasive Species

Activities include:

- Variation in Population Activity
- Battle of the Beaks Activity
- Pom Pom Activity
- Energy Pyramids Activity
- Owl Pellet Lab: Honors- add on- Calculating for Pyramids
- CP Succession cartoons
- HONORS-Succession Flip Books
- Researching Invasive Species-
 - CP- Mini Poster- HONORS- research paper

Term 3-

Chapter 7

General topics

- Biodiversity
- Nonrenewable resources

Activities include:

- 90 Second Naturalist podcast-
 - CP posters HONOR- Poster and paper

Chapter 16,17&18

General topic:

- Energy
- Global Climate Change
- Renewable Resources

Activities include:

- HONORS-Energy graphs Activity
- Hidden Energy activity
- HONORS-Nuclear Energy Presentation option
 - Online reference (NASA, NFS, NOAA, etc...)
- 4 R's of Climate Change Independent Research and
- Elms College Conference Presentation
- Labs- **Greenhouse gases**
- Sea level rise
- Sea Ice vs land ice
- Various independent labs based on individual research topic