

2006 California Envirothon Forestry Learning Concepts

Students should be able to:

1. Understand the fundamental life processes of plants including photosynthesis and transpiration.
2. Understand the function of each part of a tree.
3. Understand basic ecological concepts including food webs, succession, competition, adaptation, and symbiosis.
4. Understand how forest management can affect wildlife habitat, water quality, and soil health.
5. Understand how forest health and management affect the following issues: biological diversity, forest fragmentation, air quality, fire, and recreation.
6. Understand how forests are managed to yield timber and what products are derived from timber.
7. Understand the Professional Foresters Law and the role of the Registered Professional Forester in California.
8. Understand state and federal environmental legislation that relates to the practice of forestry.
9. Identify key species in a redwood forest.
10. Identify with common and Latin names the following common trees without a key:
 - tanoak
 - Ponderosa Pine
 - Coast Live Oak
 - Douglas Fir
 - Coast Redwood
 - madrone
 - California Buckeye
 - Bay Laurel
11. Understand the role of forests in the carbon cycle.
12. Understand the role of natural and human caused fires on an ecosystem.
13. Determine both diameter and number of logs of a tree using only a Biltmore Stick.
14. Use the following forestry tools: clinometer, diameter tape, and prism.
15. Interpret all aspects of USGS quad maps; understand legal descriptions and associated terms such as section, township, and range.
16. Interpret volume, class, and site index tables using raw data collected through a timber cruise operation.
17. Know the differences, advantages, and disadvantages of even and uneven age silvicultural management practices.

References:

Ecology at About.com

<http://ecology.about.com/science/ecology/>

Forestry at About.com

<http://forestry.about.com/>

Basics of Tree ID

<http://www.fw.vt.edu/dendro/forsite/Idtree.htm>

<http://forestry.about.com/library/silvics/blsilseqsem.htm>

SelecTree California

<http://selecttree.calpoly.edu/>

CalPhotos - Plants

<http://dlp.CS.Berkeley.EDU/photos/flora/>
Online Biology Book
<http://gened.emc.maricopa.edu/bio/bio181/BIOBK/BioBookTOC.html>
Tree Physiology
<http://www.dsisd.k12.mi.us/mff/Environment/TreePhys.htm>
California Environmental Resources Evaluation System
http://ceres.ca.gov/education/students/nat_sci.html
California Natural Resource Conservation Service Homepage
<http://www.ca.nrcs.usda.gov/>
USDA Forest Service
<http://www.fs.fed.us/>
University of California Digital Library
<http://www.cdlib.org>
Climate Information
<http://www.noaa.gov>
USGS Biological Resource Division, National Biological Information Infrastructure
<http://biology.usgs.gov>
Environmental Protect Agency Water Quality Programs
<http://www.epa.gov>
US Fish and Wildlife Service
<http://www.fws.gov>
California Department of Conservation Land Use Planning Information Network
<http://ceres.ca.gov>
California Department of Fish and Game
<http://www.dfg.ca.gov/>
Manual of California Vegetation
<http://www.ice.ucdavis.edu/cnps/site.html>
Silvics of North America
http://www.na.fs.fed.us/spfo/pubs/silvics_manual/table_of_contents.htm
<http://www.snr.missouri.edu/silviculture/>
<http://www.freenetwork.org/teachers/envquiz.html>
Glossary of climate change terms
http://yosemite.epa.gov/oar/globalwarming.nsf/content/Carbon_sequestration
The science of wildfire
<http://www.smokeybear.com/wildfire-science.asp>
Insects and Diseases of Forest Trees
<http://www.forestpests.org>
<http://www.bugwood.org/>
<http://www.forestpathology.org>
Map Information
<http://www.usgs.gov/>
<http://nationalatlas.gov/>
<http://www.ghostowns.com/topotmaps.html>
http://geography.about.com/c/ht/00/07/How_Read_Topographic_Map0962932700.htm
Federal Laws Related to the USDA Forest Service
<http://www.healthyforests.gov/>
<http://www.epa.gov/epahome/laws.htm>
California Environmental Law Information
http://ceres.ca.gov/topic/env_law/ceqa/more/faq.html
California Department of Forestry and Fire Protection
<http://www.fire.ca.gov>

Fire and Resource Assessment Program, California Department of Forestry and Fire Protection
<http://frap.cdf.ca.gov/>

Forestry Connections Page of the National Association of State Foresters
<http://www.stateforesters.org/>

California Licensed Foresters Association
<http://www.clfa.org/index.htm>

The Professional Foresters Law and the Role of the Registered Professional Forester in Managing California's Forests, January 1, 2003

http://www.fire.ca.gov/CDFBOFDB/pdfs/Role%20of%20RPF_2002%20ygeditfinal_.pdf#search='california%20forester%20licensing'

The Forest Guild
<http://forestguild.org/index.htm>

Fire and Aviation
<http://www.fs.fed.us/fire/>

Society of American Foresters
<http://www.safnet.org>

Books:

The Dictionary of Forestry, John Helms, 1998, Society of American Foresters

California Forestry Handbook, T. F. Arvola, 1978, State of California

Miscellaneous forestry sites:

<http://forestryindex.net/>
<http://www.worldforestry.org/>
<http://www.americanforests.org/>
<http://www.forestryimages.org/>

Urban Forestry:

<http://www.ufe.org/>