

LICHEN LESSON PLAN ADDITIONAL RESOURCES AND REFERENCE

This is a good list for beginning interests that will provide more than enough study and information for the purposes of these lesson plans. Sources with * have good introductory chapters for lesson plan "What is a lichen?"

Online:

**LichenLand*. <http://ocid.nacse.org/lichenland/>. Comments: All ages. Good introductory lessons on lichen with diagrams, pictures and photos of lichen morphology and physiology.

*General lichen slide show.

http://www.geobotany.uaf.edu/teaching/biol474/biol474-06_lab13.pdf Comments: Introductory slightly higher level information, suitable for a highschool science class, with lots of lichen photos from the web.

**The Lichens of British Columbia*, Goward, T., McCune, B. and Meidinger, D. 1994. <http://www.for.gov.bc.ca/hfd/pubs/docs/Srs/Srs08.htm>: Comments: 10th grade or higher. Good introductory sections to many aspects of field collection, habitats and communities of lichens and laboratory lichen directions. Includes detailed dichotomous keys

*Lichen Ecology lesson by *WolfTree, Inc.*

<http://www.eglimpse.org/Assets/l.%20Lichens.pdf> Comments: 9th to 11th grade. Excellent summary of broad brush approach to lichens, from morphology to ecology. Useful as a hand out to students.

Recent literature on lichens. Culberson, W.L., Egan, R.S. & Esslinger, T.L. 2006. http://www.nhm.uio.no/botanisk/bot-mus/lav/sok_rll.htm: Comments: Advanced highschool science level to professional scientist. Source of searchable database of lichen publications. Great for literature searching of scientific journal articles.

How to identify a macrolichen. May, P. 2000.

<http://www.huh.harvard.edu/collections/lichens/howto.html>: Comments: All ages. A set of detailed directions on collecting lichens in the field.

Lichens and air quality. <http://gis.nacse.org/lichenair> Comments: photos, drawings, and sensitivity ratings of lichens, query the database to make species distribution maps. Download or contribute Lesson plans.

Off-line:

**Lichens of North America*. Brodo, I.M., Sharnoff, S.D., and Sharnoff, S. 2001. Comments: Best one stop shopping for information on lichens in English. Includes sections on numerous areas of lichenology (morphology, physiology, ecology, taxonomy) as well as comprehensive photographs of many species in North America. Many dichotomous keys to genus and species and descriptions of several thousand species.

How to know the lichens. Hale, M.E., Jr. 1979. Comments: Classic general guide to understanding lichens but not useful for regional taxonomy. Appropriate for teachers to gain detailed understanding of lichens.

Some Regional Guides:

These are some of the available field guides all of which are the best way to get to know the local lichen flora quickly. They are easy to throw in a backpack, along with a hand lens and take in the field to try to id lichens on any afternoon.

Lichens of the Ottawa region. Brodo, I.M. 1988. (available from the author at ibrodo@mus-nature.ca)

Lichens of California. Hale, M.E., Jr. and Cole, M. 1988.

Macrolichens of the Pacific Northwest. McCune, B. and Geiser, L. 2009.

Macrolichens of the Northern Rocky Mountains. B. McCune & T. Goward. 1996

A Color Guidebook to Common Rocky Mountain Lichens. St. Clair, L. 1999.

Equipment and other resources:

Hand lenses can be purchased at www.kooters.com (geology supply) or at a University bookstore, which often sells laboratory supplies.

Curation backing material (ask for cast padding) can often be purchased from a veterinarian clinic for a few dollars.

Acid free printer paper can be obtained at most office or herbarium supply stores.