

Lesson 2: Lichen Structure Lab*

Objectives:

- *Students will be able to compare and contrast lichens, moss, fungi, and vascular plants.*
- *Students will be able to recognize the three main growth forms of lichens.*

Materials:

 Each group will need:

- Hand lens and/or dissecting microscope
- Printout or access to websites below
- Samples of crustose, foliose, fruticose lichens; moss, fungi, vascular plants

Students should work in groups of 2. Use the specimens provided in the lab and these websites to answer the questions below. <http://fresc.usgs.gov/products/fs/fs-154-02.pdf>, <http://www.fs.fed.us/wildflowers/interesting/lichens/>

1. Compare the morphology (structure) of samples of lichen, fungi, moss, and vascular plants.

	Lichen	Fungi	Moss (bryophyte)	Vascular plant
Color, presence of chlorophyll?				
Body structure, leaves?				
Attachment to ground, roots?				

2. How is a lichen different from a vascular plant in its structure? How does this make it well adapted for its niche?

3. Describe the structure and function of these lichen parts:

- a. Thallus
- b. Photobiont (algae or cyanobacteria)
- c. Cortex
- d. Medulla
- e. Rhizine

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4. Examine a sample of each of the three main growth forms of lichen (crustose, foliose, or fruticose). Complete the table below with their characteristics (structure, shape, growth form).

Growth form	Characteristics
Crustose	
Foliose	
Fruticose	

5. Examine a foliose lichen under the dissecting microscope or hand lens. Draw and label what you see, showing the thallus, reproductive structures, and rhizines, if visible. Compare upper and lower surfaces. Note magnification.
6. Examine a fruticose lichen under the dissecting microscope or hand lens. Draw and label what you see, showing the thallus, reproductive structures, and rhizines, if visible. Are there distinct upper and lower surfaces? Note magnification.
7. Which growth form of lichen do you think is generally most sensitive to air pollution? (Hint, think about surface area) Why?

*For other ideas, see a similar lesson at:

http://gis.nacse.org/lichenair/doc/lesson_plans/LP2LichenMorph&Drawing7Jul2009.pdf

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