



LICHEN RESOURCE SHEET (FOR EDUCATORS)

INTRODUCTION

Lichens are composed of 2 or more organisms: a fungus plus a photosynthetic organism (i.e. an algae or cyanobacteria) living together in a symbiotic mutual partnership. Lichen cover 6% of our planet with over 17,000 different species of lichen worldwide. Lichen can provide food and habitat for many animals and can help break down rocks to become soil. The fungus provides physical structure and water: the algae and cyanobacteria, using photosynthesis, produce food. Lichen is an excellent indicator of air quality, making it a bioindicator. These hearty pioneer species can be found on every continent on earth. Have you noticed any lichen in your favourite spot in nature, or perhaps somewhere on the outside of your house like the roof or a deck?

WHAT ABOUT MOSS?

Lichen and moss are often mistaken for one another. While certain types of lichen might resemble moss, they are very different. Mosses are defined as simple plants with the most basic of root structures, leaves, and stems. Lichens are a very different and they are referred to as a composite organism. Lichens are actually a single entity created from a joining of algae and fungus that can start another copy of itself in a new habitat (by fragments of lichen, called soredia that have both the fungus and the algae or cyanobacteria present).

Glossary

- **Algae:** Algae are organisms, or living things, that are found all over the world. Algae are very important because they make much of Earth's oxygen, which humans and other animals need to breathe. Some algae, such as seaweed, look like plants. However, algae are actually neither plants nor animals.
- **Bioindicator:** Any species or group of species (known as an indicator species) that can reveal important information about an environment - such as air quality - simply by being present. Lichens, which live on surfaces such as trees or rocks or soil, are very sensitive to toxins in the air. This is because they obtain their nutrients mostly from the air. We can tell our forests have clean air by the amount and types of lichens found on the trees.
- **Composite Organism:** Organisms that are made up of two or more independent organisms. For example, fungus and algae.

- **Crustose:** flat and crusty/dusty lichen
- **Cyanobacteria:** A group of photosynthetic bacteria, some of which are nitrogen-fixing, that live in a wide variety of moist soils and water either freely or in a symbiotic relationship with plants or lichen-forming fungi.
- **Foliose:** leaf-like lichen with 2 sides (top and bottom)
- **Fruticose:** shrubby and branch-like lichen
- **Fungus:** A fungus is a simple organism, or living thing, that is neither a plant nor an animal. When there is more than one fungus they are called fungi. Some familiar fungi are mushrooms, moulds, mildews, truffles, and yeasts.
- **Pioneer Species:** Pioneer species are the first species to colonize bare earth after a disturbance, or when the environment is too harsh to allow for colonization by other species.
- **Soredia:** little reproductive structures or fragments of lichens that are distributed to new habitats by wind, animals and rain
- **Symbiotic Mutual Partnership:** A relationship between organisms of different species, in which both organisms benefit from the association.

CREDIT/REFERENCES:

This activity has been modified from <https://wildsight.ca/wp-content/uploads/2020/05/lesson-plan-lichen.pdf> that was developed by unknown author.