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# Learn about Lichen

Students will learn how to identify 3 forms of lichen.

 Magnifying glass, clipboard with lichen sheet (page 3) and pencil.

 Grades: 5-7    30-60 minutes    Activity sheet included

## Introduction

Lichen is composed of 2 or more organisms: an **algae**, **cyanobacteria** and a **fungus** living together in a **symbiotic mutual partnership** (see page 2 for a glossary of all bolded words). Lichen covers 6% of our planet with over 17,000 different species of lichen worldwide. Approximately 1,100 species of lichen are found in British Columbia.

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?

## Directions

- With your clipboard, pencil, lichen sheet and magnifying glass, head outside to your favourite place in nature.
- Look for the three basic forms of lichen: **Fruticose** (shrubby and branch-like) **Crustose** (flat and crusty/dusty) and **Foliose** (leaf-like and has 2 sides).



*Fruticose*



*Crustose*



*Foliose*

- Note all the different colours, textures and forms you find on your sheet and try to draw the different forms of lichen you find.

## So 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 type of creature, called a **composite organism**. Lichens are actually a single entity created from a joining of algae and fungus.

## 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.
- **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.
- **Symbiotic Mutual Partnership:** A relationship between organisms of different species, in which both organisms benefit from the association.

## Extension

**Read:**

**Students Collect Lichen for Caribou** - students who participated in Wildsight's EcoStewards program collected lichen for endangered Mountain Caribou.

**Research:**

Research the difference between moss and lichen and write a little paragraph about what you discover.

## Resources

**Lichens of North America**

**Lichens of BC**






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# Lichen Sheet

Try to find the 3 different forms of lichen. Notice the colour, texture, location and draw the lichen you find.

<p>Hairy, shrubby (Fruticose) branched plant; can be hanging or upright</p>	<p>Crusty (Crustose) grows flat on trees or rocks. Looks like paint on rocks/trees</p>	<p>Leaf-like (Foliose) grows on tree branches and rocks. Often has 2 sides and may have 2 colours</p>
		
<p>Colours:</p>	<p>Colours:</p>	<p>Colours:</p>
<p>Where found:</p>	<p>Where found:</p>	<p>Where found:</p>
<p>Draw it:</p>	<p>Draw it:</p>	<p>Draw it:</p>



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