



LAKEHEAD REGION
CONSERVATION AUTHORITY

LICHENS



MACKENZIE POINT CONSERVATION AREA



Let's discover the interesting world of Lichens !

Lichens are a very special organism made from a **fungus** and a **green alga** (or cyanobacterium) that live together in a **symbiotic relationship**. This means that both species live together and benefit from the partnership with the other. The fungus derives its energy from the algae and the algae derive their moisture from the fungi.

They may not be exactly the most exciting or cutest creatures but looking at these small living growths through a magnifying glass reveals a **new miniature living world** to an interested observer.



Lichens tend to have limited commercial value to humankind, but are an essential component of the natural world. Lichens are useful biological **indicators of air quality**, with specific species being considered as "canaries in the coal mine" since they are sensitive to pollutants in the atmosphere.

They provide food, shelter, and camouflage for other animals, and have been used for traditional medicines and dyes.

In the Boreal zone, apparently living on "thin air", they tend to colonize exposed surfaces on which few other organisms could survive. As they grow and die, they **provide new organic "soil"** in which other organisms can establish and thrive. Carbon dioxide is collected from atmosphere and is used for photosynthesis by the alga, allowing fungus partner to "share" some of the produced organic materials. Some of the algae partners are able to capture gaseous nitrogen from the air (at 78% of the atmosphere, nitrogen is quite abundant), to make amino acids for proteins and nucleotides for DNA. Otherwise the abundant atmospheric nitrogen is not available to living creatures, including lichens.



Moisture is another requirement for lichen growth, and the fungal partner and its moisture retaining capabilities appear important to lichen existence. Partly shaded areas and horizontal surfaces, which retain moisture longer, tend to be favoured by lichens. The **lichens are desiccation tolerant** and can withstand long periods without water (even weeks in space outside the International space station!), but they only metabolize and grow when water is available. This can be for only short periods of time when water is not frozen, and clearly a contributing factor to lichens' slow growth rate of only a few millimeters per year.



Threats to lichens include industrial city centers and neighbourhoods with poor air quality which are virtual deserts in respect to lichen growth. Other forms of human activity, such as deforestation have nearly eliminated certain species of lichens requiring specialized habitats such as old trees.

Start learning about lichens by recognizing six basic growth forms: crustose, **foliose**, **fruticose**, **squamulose**, **umbilicate** and **jelly-like**.

Here are some common locations for some common lichens;

- Umbilicate and crustose lichens: Mainly on rock faces and cliffs. Try looking at Silver Harbour and Little Trout Bay. Conservation Areas
- Fruticose lichens: On trees. Try looking at Hazelwood Lake, Cascades, Mills Block, and Cedar Falls Conservation Areas.
- Foliose: On the ground, trees and rocks.

Look through a hand lense at the fine details of plants, and hunt for the little ecosystem creatures which live in these miniature forests: like collembola, centipedes, and insect larvae.

There are more than 2,500 species of lichens in Canada, which has among the highest lichen biomass worldwide.

The Star-tipped Reindeer Lichen was announced as Canada's Lichen and is found in every province and territory, is easily recognized with its cauliflower-like tufts, and covers vast tracts of boreal woodland, a defining ecosystem of Canada.

Have fun getting to know lichens in one of our conservation areas and remember to take nothing but pictures and leave nothing but footprints.

Challenge:

Instead of taking a picture of the lichen first try your hand at drawing it. Get up close, start with light pencil strokes to get the overall shape and form. Slowly add details. Add a scale for size reference. Be sure to note on what substrate the lichen is located and if there is any colour worth noting. Once finished then take out your smart phone and use the 'Seek' app by iNaturalist to record your lichen and find out what kind it is.

