

December Hiker Activity – Reindeer Food

Instructions:

1. Introduce the topic by asking, "Do you know what reindeer eat the most in winter?"
ANSWER: Lichen, esp. the type commonly known as reindeer moss.
2. Ask if anyone knows what lichen is and use the information below to teach the children more. Point out the types of lichen that grows only in areas with cleaner air.
3. Search the trees and rocks on school grounds for different types of lichen. A great place to start is the kindergarten turn around (*please supervise children closely in this area*).
4. Ask the children whether they think the air around the school is clean or polluted.
ANSWER: Given the types of lichen found, the air is pretty clean!"
5. Ask the children whether they think the lichen hurts the tree it grows on. See below for more info.
6. Use the magnifiers provided by the school office to observe lichen closely.
7. Use any extra time to visit the Stink o Lantern patch and/or fill the bird feeders.

What is lichen?

Lichen is a symbiosis. That means it is two or more organisms living together such that both are more successful together than they would be living on their own. With lichens the basic components of this partnership are 1) a fungus and 2) one or more algae.

Does lichen hurt trees?

Lichens that grow on trees and shrubs do not harm them. Although the lichens are attached to the bark or penetrate a short distance, they do not enter the inner bark where food is transported, and hence do not rob the tree of nourishment. Neither do lichens cause disease. In addition, lichens grow in the winter, after the leaves have fallen from the trees and no longer block light from reaching the lichens. Thus, the leaves and lichens take turns: leaves use sunlight in summer while lichens use it in winter.

What to reindeer eat during winter? (Taken from howstuffworks.com)

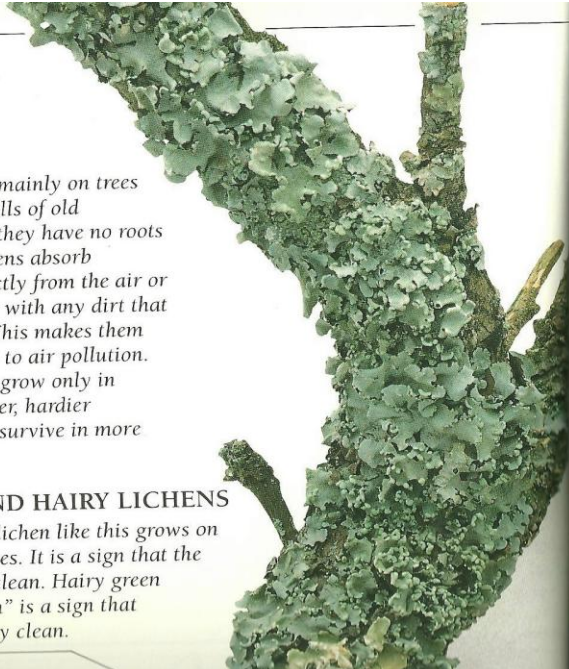
Once winter sets in and snow covers the tundra, the reindeer diet narrows down to one food: lichen. Lichen survives the cold winters because of its unique biological combination of algae and fungus. Thanks to the algae, lichen doesn't require much sunlight to produce chlorophyll; the spongy material of the fungus also holds up well against the harsh temperatures.

Reindeer sniff out lichen beneath the snow and use their curved hooves or antlers to uncover it. During this time, reindeer maintain more sedentary habits to preserve their energy [source: University of Alaska Fairbanks]. The lichen-only regimen is the reverse of the Atkins Diet. The plant contains high amounts of carbohydrates, but no protein. Consequently, the carbs provide the reindeer a source of quick-burning energy that carries them through winter. However, lichen isn't a particularly hearty food, and for that reason, reindeer will eat 4 to 11 pounds of reindeer moss each day [source: Dieterich and Morton]. That's why reindeer pack on the pounds in the warmer months when there's more to choose from. In fact, these animals gradually lose weight starting in the fall and continuing to March [source: University of Alaska Fairbanks].



Reindeer Moss

Source: My First Green Book, Donated by Lake Erie Nature and Science Center



AIR POLLUTION

Most people assume that the air we breathe is clean, but this is not always so. Factories and power stations pour smoke and poisonous gases into the sky as they produce electricity and goods, and vehicles belch exhaust fumes. All these things *pollute* (make dirty) the air around us. Polluted air is bad for all living things: plants, animals, and people.

You can find out how clean or dirty the air is by looking at trees and at the walls of old stone buildings. Below, you can see some of the signs to look for.

LICHENS

Lichens grow mainly on trees and on the walls of old buildings. As they have no roots or stems, lichens absorb moisture directly from the air or rain, together with any dirt that is in the air. This makes them very sensitive to air pollution. Some lichens grow only in clean air; other, hardier varieties can survive in more polluted air.

LEAFY AND HAIRY LICHENS

Leafy green lichen like this grows on walls and trees. It is a sign that the air is fairly clean. Hairy green "beard lichen" is a sign that the air is very clean.

**CRUSTY
ORANGE
LICHEN**

This type of lichen is found on rocks or stones, such as gravestones.

Crusty orange lichen can grow in slightly polluted air.



**CRUSTY
GREEN LICHENS**

Lichens like this grow on trees and rocks. They show that the air is polluted.

**GREEN
ALGAE**

Powdery green algae such as this can tolerate severe pollution. If there are no lichens, just green algae, the air is probably very dirty.



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