

# NATURE KIDS



## SCIENCE PROJECTS JUST FOR FUN.

### Lichen Hunting

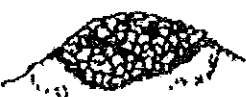








Combos, they are cool. Musicians play together in a combo. Fast food restaurants offer you special deals on combos. Well, nature has some cool combos too. One that you can probably find in your own back yard is lichen. (Sounds like like-n). Lichens look like one thing but they are really two: an alga- a green plant related to the stringy plants that grow in pond water; and a fungus- related to toadstools and the bracket fungi that

grow on old logs. Together these two create something totally new, with its own shape, size color, and texture. In Houston we find them mostly growing on tree trunks, rocks and occasionally on the brick or stonework of old buildings. They are often black, gray, or pale green in color.

Lichens grow in three different kinds of shapes: flat, leafy and branched.

The flat ones might look like round colored patches on the bark of a tree. The leafy ones curl a little bit. The branched ones are the hardest to find. The pictures below give you an idea of what to look for, but since all lichens are pretty small, a magnifier can be a big help. Take one on your hunt if you have one. You can use it to get a good, close-up look at the lichens in your area. Good hunting.

*Check off one box for each type of lichen you find. Which shape grows best where you live?*

flat	leafy	branched
 <p><i>brownie button lichen</i></p>  <p><i>script lichen</i></p>  <p><i>map lichen</i></p>	 <p><i>ragged shield lichen</i></p>  <p><i>smooth rock-tripe lichen</i></p>  <p><i>stone-rato lichen</i></p>	 <p><i>British soldier lichen</i></p>  <p><i>pixie cups lichen</i></p>  <p><i>reindeer lichen</i></p>
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# TEACHER'S CORNER

by Jenni Malone



ragged shield lichen

## A Liking for Lichens

Nature is full of odd quirks and combinations. Lichens are one of the most interesting. Long thought to be a single plant, lichens are really a combination of two organisms: clusters of green or blue-green alga cells enmeshed in fungus filaments. Although some scientists recognized that a lichen was a combination over 130 years ago, the precise relationship is still not completely understood.

Some scientists think that it is a mutualistic partnership, with both the alga and the fungus benefiting. Others think that it is parasitic, with the fungus living off the alga but contributing nothing to it. However, that theory doesn't explain how a lichen can survive where neither the fungus nor the alga could alone, nor how it is that the lichen produces chemicals that neither partner is capable of by itself.

While never very large, lichens have a wide range of sizes: from *pyrenocarps*, the black pinpricks we sometimes find on rocks, to 20 inch long dangling "beards". They also have a wonderful array of colors and shapes, which result from the particular combination of fungus and alga that make up the lichen. Colors range from dull grays or black to brilliant oranges and yellows.



reindeer lichen

The shapes can be sorted into three main categories: *crustose*, *foliose*, and *fruticose*. The *crustose* or "crusty" ones are often the most common in cities. We find them as roundish patches on tree bark and rocks. You can feel the difference in the texture but they are almost impossible to pull or peel off. They sometimes look almost as if they were painted on. The "leafy" or *foliose* have a leathery feel. They are attached to their substrate (or base) only in the center or along an edge with lobed projections growing out. Then there are the *fruticose* lichens, those with branching stalks that stand up or dangle from their substrate.

Lichens dramatically demonstrate the combination of fragility and resilience we often find in nature. Lichens grow where nothing else can. They can tolerate such extremes of temperature and moisture that allow them to survive in habitats as diverse as desert, rainforest and Arctic wilderness. In fact, in the Polar Regions they outrank every other plant group in number and variety. Some can survive temperatures of 440 degrees Fahrenheit. Others can survive more than a year without water. Still others can hold more than 30 times their own weight in water. And yet, while they can tolerate bright sunlight, drying winds, cold and snow, they

are easily damaged by air pollution and are quite sensitive to water contamination. Because of these sensitivities scientists can use lichens as environmental monitors, and to track the spread of pollution.

For all their lowly appearance, lichens provide a wide array of benefits both to people and to their fellow plants and animals. Many are nitrogen fixers, able to take nitrogen from the air and combine it with other elements into usable forms for plants. They provide homes for spiders, mites and a number of insects. Some are edible, the most famous being "reindeer moss" which forms an important part of the diet of reindeer and caribou in Arctic regions. They are often called pioneer plants, colonizing areas previously uninhabited; creating new soil that allows other plants and then animals to move in. We utilize them for medicines; dyes, especially for wool; perfumes; poisons; and antibiotics.



brownie button lichen

So the next time you are out for a stroll, take a closer look at the tree trunks and rocks. Don't miss out on one of nature's wonders: lichens.