

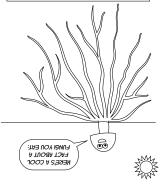
delicacies. Be careful though, because some lichens are poisonous! Most of the poisonous ones are yellow

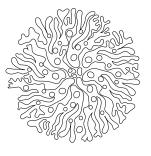


SCIENCE M(*)M

Q OF THIN STRANDS CALLED HYPHAE.

OF THE FUNCUS IS UNDERCROUND, A MASS THE FUNCUS - THE FRUITING BODY, MOST A MUSHROOM IS JUST A SMALL PART OF





Some lichens are so regular in their CIRCULAR GROWTH THAT SCIENTISTS MEASURE THEIR DIAMETER TO DATE ROCKS IT'S CALLED "LICHENOMETRY."

пснеи роит ните Roots.

		ГІСНЕИ
CO ⁵ H ⁵ O N b K	ЯІА	САКВОИ
2 Ca Mg Fe	ИІАЯ∖ЯІА	MATER
	ЯІА	ИІТВОСЕИ
	ЯІА	OTHER NUTRIENTS





symbiotic Super-tough Photosynthetic



And NOT a plant!

are the crops. fungi are the farmers and the algae of lichen as a small farm where the It's perhaps more accurate to think

photobiont they are partnering with. can also switch which type of (byotopiouts). Several mycobionts without any algae or cyanobacteria of lichen, the mycobiont can survive definitely in control. In some types the lichen (the mycobiont) is arrangement, but the fungus part of exactly. They both benefit from the dependent on each other? Not where both partners are equally Are lichens equitable relationships





There are more than 15,000 species of lichen, and some of them are very long lived—thousands of years old!

Lichens can have an incredible variety of colors, from neon-yellow to orange, red, brown, gray or green. Lichens become dormant when dry, entering a state of hibernation or stasis. When they get wet, their color and shape change dramatically as the fungal filaments absorb water and the algae or cyanobacteria resume photosynthesis

since the late 1800s. used to measure and study air quality Because of this, lichens have been

of the first organisms to be affected. toxic gasses, the lichens will be some levels of lead, sulfur dioxide, or other arrborne pollutants. If there are high makes them very vulnerable to to grow on any surface, but it also This remarkable ability allows them minerals and nutrients from the air. toots. Lichens absorb most of their minerals from the soil through their Plants absorb their nutrients and

VillauQ vih ot svitisns?

LICHENS

At first glance, lichens might look a bit like moss. But don't be fooled! Lichens are not plants. In fact, they're not just one organism, they're two, or sometimes, even three. Lichens are fungi growing with a species of algae or cyanobacteria, living together in a symbiotic relationship.

This dual system is remarkably hardy and adaptable. Lichens can be found in every climate and continent on Earth, from the frozen deserts of Antarctica to the tropical jungles of the Amazon.

incredible organism: lichen. can all be traced back to this one realize that the idea and word itself ont modern world, and it's neat to Symbiosis is a common concept in

living together of unlike organisms." coined the term SYMBIOSIS-"the a new word. So in 1879, scientists was so novel and important it needed Once it was accepted, the concept

this "dual hypothesis" was accepted. carefully with a microscope) before individual member of the lichen (and the proof of teasing out each idea easily. It took years of debate Other scientists didn't accept his

Lichens grow on bark and wood, rocks, soil, houses, underwater, even on cars or the backs of turtles! They can grow on anything that stays in the same place for a long time without moving.

They have an incredible variety of shapes, from flat round pods to antler-like tusks or thready filaments. But all lichens are relatively small, so to appreciate them, you have to get down close.

Next time you're outside, stop a moment to kneel down and peer at the rocks and logs and see what kinds of lichens you can discover.

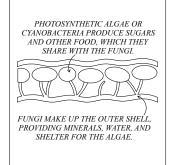
DINEKSE; CICHERS HISE INCKEDIBLY FILAMENTOUS, AND POWDERY. THESE! GELATINOUS, MORE CATEGORIES THAN THERE ARE EVEN FRUTICOSE

the reindeer (or caribou). not boot instroqmi na Eladonia rangiferina 18 The fruticose lichen like miniature shrubs. Tubular or bush-like. These lichens often look

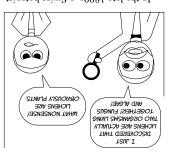
Often has an almost pebble-like pattern. true foliose lichens do. lower layer (cortex) like have an actual "skin" or the substrate somewhat, but the lichen doesn't The edges lift up from



THE BASIC MODEL



"enslaved" an algae. dual organism of a fungus that had as commonly believed, but instead a the idea that lichens weren't plants, usmed Simon Schwendener put forth In the late 1800s, a Swiss botanist





lichen to its substrate. rootlets" that attach the me nenen even grows plants. The fungal part of роок легу тись іне small are so leaf-like that they have a distinct upper and ower surface. Some species Leaf-like. These lichens

CRUSTOSE

on cement sidewalks. teracissima, which grows rustose lichen is: Sidewalk Firedot Lichen, Caloplaca pieces of the substrate as well. One example of a Salvomer thouse the substrate. Cannot be lifted very close to the sutface of Crust-like. Grows flat and



FOLIOSE

*WOSL COWWON LK*bES OE FICHEN

$\mathbf B$	A	A	X
B	C		D
F	E	I	D
E	G	Ð	X