

# Lichen, it's a Lifestyle

Although lichens are diverse, lichens can be found in three major forms. Check the box next to each lichen form you find on your hike.

## Sensitive Species

Lichens get their food from light, air and rain so they are easily damaged by pollutants in the air. Scientists study lichens to learn about air pollution. The healthier the air, the more species of lichen there will be. 1) On your hike, count how many different lichens you can find. 2) Based on your findings, would you consider the area to have good or bad air quality?

# of Lichens						
0	1-4	5-9	10-19	20-29	30-39	40+
Air Quality: _____						

## Crustose

Crustose lichens are thin like crust. The lichen's edges stay flat against the object it is growing on. Crustose lichens grow slowly and some are among the oldest living organisms on Earth!



**Porpidia**  
*Porpidia cf. albocaulerulescens*

Many lichens don't have a common name. What would you name this lichen?

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**Script Lichen**  
*Graphis scripta*



**Gold Dust Lichen**  
*Chrysothrix xanthina*

## Foliose

Foliose lichens look like dry, wavy foliage (leaves). The edges curl off the surface the lichen is growing on.



**Punctelia**  
*Punctelia rudecta*



**Powdered Ruffle Lichen**  
*Parmotrema hypotropum*

Look for little black 'hairs' called cilia!



**Lungwort Lichen**  
*Lobaria pulmonaria*

## Fruticose

Fruticose lichens are the most three-dimensional lichens. Some look like mini fruit trees without leaves while others hang down from branches like hair.



**Ramalina**  
*Ramalina culbersoniorum*

What would you name this lichen?

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**Pixie Cup Lichen**  
*Cladonia chlorophaea*



**Old Man's Beard**  
*Usnea dasaea*

Lichens come in many shapes, sizes and... colors!

What colors of lichens can you find?

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## Tiny Pioneers

Crustose lichens are nature's pioneers because they can grow in places that are too extreme for most other organisms. Severe heat, cold and drought are no match for lichens because lichens are able to go dormant, or "turn off," during harsh conditions. What kind of surfaces can you find lichens growing on that plants are not growing on?

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## Leading the Way

Without lichens, plants may not grow in some places. Lichens are often the first to grow in a disturbed area. Over time, lichens are able to break down rock and produce thin layers of soil. More complex lichens, mosses and flowering plants are then able to take root. Find a community of lichens and describe the layers of lichens you see.

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## Lichens, The Next Frontier

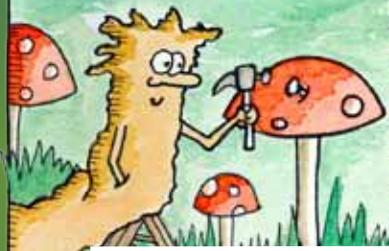
Most questions about basic lichen biology remain unknown. The real mystery begins when lichens are studied under a microscope. Will you be the next scientist to make a lichen discovery?

# Alice Algae & Freddy Fungi

THE STORY OF HOW LICHEN CAME TO BE

TOGETHER, ALICE ALGAE AND FREDDY FUNGI FORM AN ORGANISM CALLED LICHEN. HERE IS THEIR STORY...

FREDDY THE FUNGUS WAS A GREAT BUILDER...



...BUT ALL THAT HARD WORK MADE HIM HUNGRY.

ONE DAY, FREDDY FUNGI SMELLED SOMETHING DELICIOUS...



...SO HE RAN.

**SURPRISE!** HE MET ALICE ALGAE, USING THE SUN'S ENERGY...



...SHE WAS COOKING SUGAR THROUGH THE PROCESS OF PHOTOSYNTHESIS.

ALICE ALGAE THOUGHT FREDDY WAS A FUN-GUY.



FREDDY TOOK A LIKIN' TO ALICE.

FREDDY FUNGUS WENT OUT ON A LIMB...



...BY BUILDING A NICE HOME FOR THEM.

BETTER TOGETHER, FREDDY AND ALICE ANNOUNCED THEIR SYMBIOTIC RELATIONSHIP IN A CEREMONY.



I NOW PRONOUNCE YOU LICHEN!

**TRACK** your hike at [kidsinparks.com](http://kidsinparks.com) and get **FREE** prizes!



Thanks for joining us on the trail today! Visit our website to find more TRACK Trail™ adventures near you!

*Kids in Parks...*

*Providing a network of fun-filled outdoor adventures that get kids and families connected to nature.*

*Inspiring the next generation of healthy, active stewards to protect our parks in the future.*



The next generation of stewards will help preserve the world's plants, animals, natural lands and our heritage. What will you do to make a difference?



TRACK Trail Partners



Kids in Parks Founding Partners



# Hikin' to Find Lichen

WHAT IS THAT? MOSS? UGLY WORMS... AN ALIEN SPACESHIP ??? IT'S LICHEN! Together, some fungus and algae create an organism called lichen. In a symbiotic relationship, the algae and fungus both help each other survive. The Southern Appalachian Mountains have a high diversity of lichens and scientists are always finding new species!



USE THIS BROCHURE TO DISCOVER THE LIFE OF LICHENS AND HOW TO IDENTIFY THEM. BE CAREFUL NOT TO TOUCH LICHENS BECAUSE THEY ARE FRAGILE.