

Topic Page: [Lichen](#)

Definition: **lichen** from *The Penguin Dictionary of Science*

One of a group of specialized organisms comprising a mutualistic ►symbiosis between a ►fungus and an ►alga or ►cyanobacterium. Lichens are highly successful organisms. They have colonized environments that are hostile to other forms of life, such as deserts and high mountain-tops. They are frequently found growing on old stone walls and gravestones, but are highly sensitive to pollution, the presence of certain lichens being used as ►indicator species for sulfur dioxide levels in the atmosphere.

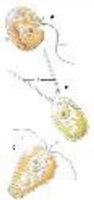


Image from: [Many unicellular \(single-celled\) algae are said... in Philip's Encyclopedia](#)

Summary Article: **lichen**

From *The Columbia Encyclopedia*

(lī'kəθn), usually slow-growing organism of simple structure, composed of fungi (see Fungi) and photosynthetic green algae or cyanobacteria living together in a symbiotic relationship and resulting in a structure that resembles neither constituent. There are about 25,000 species, most comprised of a sac fungus (Ascomycete) and a green alga of the genus *Trebouxia* or *Trentepohlia* or a cyanobacterium of the genus *Nostoc*; some lichens include multiple species of fungi, and more recently scientists discovered that basidiomycete yeasts are present in many lichens in addition.

Lichens commonly grow on rocks, trees, fence posts, and similar objects. The body (thallus) of the lichen is made up of the filaments, or hyphae, of the fungus. Its typical greenish gray color is due to the combination of the chlorophyll from the photosynthetic organism with the colorless fungi, although sometimes the thallus may be red, orange, or brown. Lichens require no food source other than light, air, and minerals. They depend heavily on rainwater for their minerals and are sensitive to rain-borne pollutants. The fungal component of lichens produces acids that disintegrate rock, giving the lichen a better hold and aiding weathering processes, which eventually turn rock into soil. Lichens usually reproduce by the breaking off of a segment that contains both components.

Lichens can withstand great extremes of temperature and are found in arctic, antarctic, and tropical regions. They are often the pioneer forms of life—as in parts of Iceland and Greenland, where they are the predominant vegetation. Reindeer moss (*Cladonia rangiferina*) and Iceland moss (*Cetraria islandica*), both low, branching forms, provide food for large mammals and other animals in northern regions. Old-man's-beard (*Usnea barbata*) is a temperate species that hangs like Spanish moss from coniferous trees.

Before the discovery of aniline dyes, lichens were much used for silk and wool dyes. The blue and purple dyes litmus and archil are still obtained from species of lichens. Others have been used in perfume manufacturing and brewing. The “manna” of the Bible is thought by some to have been a lichen found in Old World deserts and easily carried along by wind.

See Alimadjian, V. , *The Lichen Symbiosis* (1967);

Hale, M. E. Jr., *The Biology of Lichens* (1970);

Brodo, I. M. et al., *Lichens of North America* (2001).

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lichen. (2018). In P. Lagasse, & Columbia University, *The Columbia encyclopedia* (8th ed.). New York, NY: Columbia University Press. Retrieved from <https://search.credoreference.com/content/topic/lichen>



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