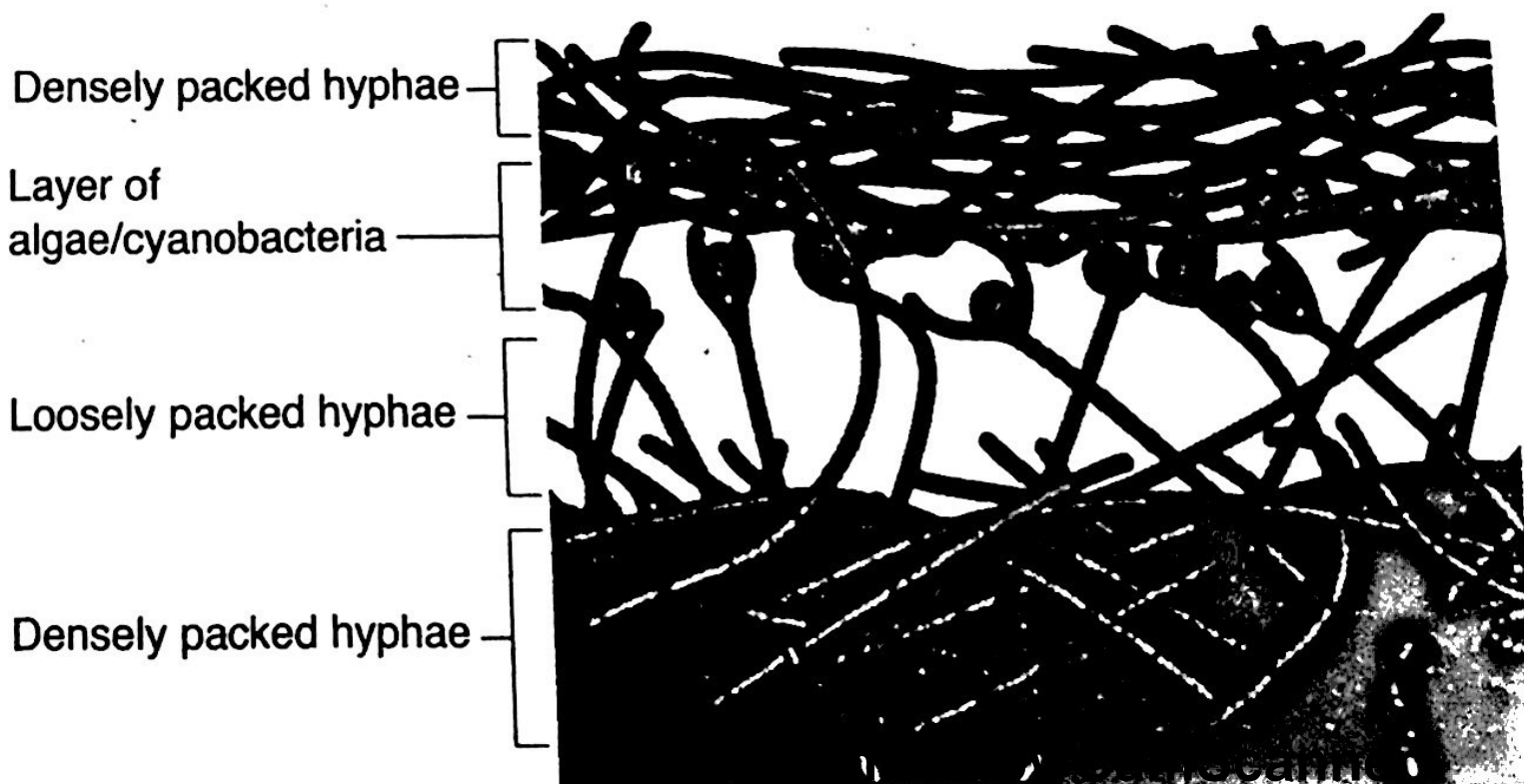


they are symbiotic associations between a fungus and a photosynthetic organism. The fungi in lichens are usually ascomycetes, although a few are basidiomycetes. The photosynthetic organism is either a green alga or a cyanobacterium, or both. **Figure 21-16** shows the structure of a lichen.

Lichens are extremely resistant to drought and cold. Therefore, they can grow in places where few other organisms can survive—on dry, bare rock in deserts and on the tops of mountains. Lichens are able to survive in these harsh environments, because of the relationship between the two partner organisms. The algae or cyanobacteria carry out photosynthesis, providing the fungus with a source of energy. The fungus, in turn, provides the algae or bacteria with water and minerals that it collects and protects the delicate green cells from intense sunlight.

Lichens are often the first organisms to enter barren environments, gradually breaking down the rocks on which they grow. In this way, lichens help in the early stages of soil formation. Lichens are also remarkably sensitive to air pollution, and they are among the first organisms to be affected when air quality deteriorates.

Question What two groups of organisms grow together in lichens?



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