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## Fungi - Friends or Foes?

By Cindy Grigg

They're all around you. Open a door, and thousands of them float inside. They are too small for you to see. They are looking for food. Some land on a piece of bread, an orange, or an open jar of jam. Others land on damp clothes, a shower curtain, or sweaty socks. They leave fuzz behind wherever they have been eating. The fuzz can be blue, white, green, black, or pink.



Outside, millions of them feed on trees and flowers. Others feed on insects and other animals. Some eat wooden things like porches, fences, decks, and steps. They feed on these things until the objects fall apart. Others help plants and trees grow. They provide food for thousands of creatures. Many of them are nature's recyclers. Who are they? They are fungi (one is a fungus).

A fungus can be only one cell. Most fungi are more than one cell. Fungi cannot make their own food. Some fungi grow on foods that we eat. Some fungi grow on bread. We call it mold. Other kinds of fungi grow on living things. They can make the other living things sick. Mushrooms are fungi that get food from dead matter in the soil.

For hundreds of years, people thought that fungi were plants. Now they are classified into a separate group all by themselves. There are three main things that make fungi different from plants.

First, plants have roots, leaves, and flowers. Plants can use their leaves to make their own food from the sun's energy. Fungi have no leaves, flowers, or roots like plants do. They can't make their own food. Fungi feed on living or dead matter around them.

Second, plants are made from a material called cellulose. Fungi are made of chitin. Chitin is a tough material that is found in the outer

skeletons of insects. Chitin is not found in plants.

Third, most plants reproduce, or make more of themselves, by making seeds in their flowers. Fungi reproduce in other ways.

Most fungi begin their lives as spores. Spores are tiny. When they land on something wet, they begin growing. The spore begins to grow a long thin tube called a hypha (plural: hyphae). The hyphae (say: hi-FEE) ooze powerful chemicals called enzymes. The enzymes slowly digest the food for the fungi. Unlike animals, fungi digest their food outside of their bodies. Then they absorb through the hyphae the nutrients that are released.

The hypha grows in many directions. Each hypha is like a tiny thread. They are a thousand times smaller than a human hair. In a few days, the hypha is twisting, turning, and branching back on itself. It begins to look like a mass of cobwebs. The only thing we can see is a little fuzz.

Some fungi grow very quickly. Within days, they can spread over a loaf of bread in your kitchen. They can cover a rotting orange in your refrigerator with blue fuzz. The mycelia of bread molds grow a balloon-like container at the ends of their threads. Each container is filled with new spores. These spores "ripen," fall, land on food, and begin to grow.

The spores are spread by wind, rain, and animals. Some fungi make millions of spores. Giant puffballs send up clouds of brown "smoke" with as many as five trillion spores. If each spore found food and began growing, the Earth would soon be covered with fungus. Few spores find what they need to live and grow. That is why fungi make so many spores.

Many fungi are helpful to humans. Penicillin is a medicine used to treat infections. You have probably taken this medicine when you have been sick. Penicillin was first made from fungi. Some fungi have been used to treat heart disease. Another medicine made from molds is used to treat organ-transplant patients.

Yeasts are fungi that we use to make our bread light and soft. Molds give blue cheese and some other types of cheeses their blue streaks and tangy tastes. The citric acid in cola is made by a fungus.

Some fungi are not so good for humans. Athlete's foot and ringworm are two problems that are caused by fungi. Inhaling spores can cause asthma attacks in some people. Plants, too, are attacked by fungi.



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Dutch elm disease has destroyed many trees across Europe and North America. Molds attack grapes, chestnuts, and avocado trees.

Fungi also break down dead plant matter. They feed on leaves, branches, and other matter that is no longer living. As they eat the decaying matter, they release minerals and gases that nourish living plants and animals. They provide food and nesting material for small animals and birds.

Fungi can cause and cure disease. They can help other plants absorb nutrients or kill them. They can turn a lump of dough into a soft loaf of bread. They play a vital role on planet Earth. They can be both friend and foe.

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## Questions

- \_\_\_\_\_ 1. A fungus can be only one cell or many cells.
  - A. false
  - B. true
  
- \_\_\_\_\_ 2. What makes fungi different from plants?
  - A. Plants have roots, leaves, and flowers, but fungi don't.
  - B. Plants are made of cellulose, but fungi are made of chitin.
  - C. Plants reproduce by making seeds, but fungi reproduce in other ways.
  - D. All of the above
  
- \_\_\_\_\_ 3. The chemicals the hyphae produce are called:
  - A. spores
  - B. athlete's foot
  - C. yeast
  - D. enzymes

- \_\_\_\_\_ 4. How do fungi digest their food?
  - A. with their roots
  - B. with the sun's energy
  - C. outside their bodies
  
- \_\_\_\_\_ 5. How can spores be spread?
  - A. by magic
  - B. by wind, rain, and animals
  - C. by ocean tides
  
- \_\_\_\_\_ 6. What do fungi leave behind when they eat?
  - A. Dutch elm disease
  - B. Yeast
  - C. fuzz
  
- \_\_\_\_\_ 7. How many spores find what they need?
  - A. All of them
  - B. Most of them
  - C. Half of them
  - D. A few of them
  
- \_\_\_\_\_ 8. What are some problems fungi can cause?
  - A. athlete's foot and ringworm
  - B. Dutch elm disease
  - C. asthma attacks
  - D. all of the above

**Write a paragraph about the "good" fungi you have in your life. How has fungi helped you?**

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