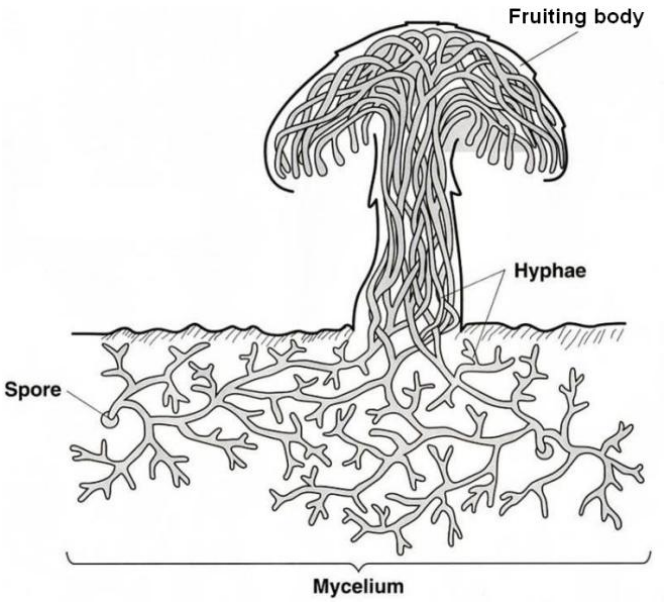
Name: _____ Date: _____ Period: _____

What are fungi?

Mushrooms are common fungi. The yeasts used to make some breads and cheeses are a type of fungus. Fungus may grow on a loaf of bread or on your shower curtain. All fungi are **eukaryotic**, which means that they do have a nucleus. Fungi have **cell walls**, but they do not have chloroplasts. Fungi do not have chlorophyll and do not make their own food. Fungi do not have specialized tissues and organs such as leaves and roots. Fungi grow best in warm, damp areas, such as tropical forests or between toes.

What are hyphae?

Most species of fungi are multicellular. The body of a fungus usually is made up of chains of cells that form threadlike tubes or fibers called **hyphae** (HI fee). When the hyphae grow into a large twisted mass, it is referred to as the **mycelium**. The mycelium is found underground and is like the "root" of the fungus. When a fungus reproduces, an above-ground structure called a **fruiting body** will appear. Fruiting bodies come in different shapes, sizes, and colors. Fruiting bodies release **spores** into the air, which will grow into new fungus if they land in a suitable environment.



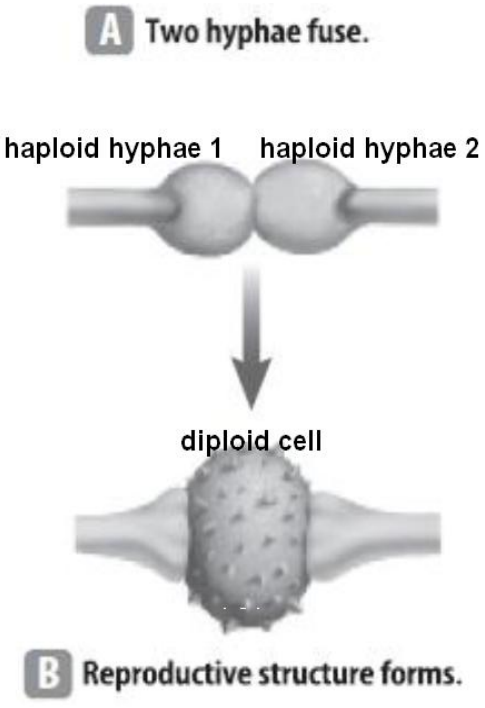
How do most fungi get food?

Fungi are a type of **heterotroph**, which is an organism that cannot make its own food and must eat other organisms. But if a fungus does not have a mouth, how does it eat? Hyphae release enzymes that help externally digest food that the fungus absorbs from another organism. Most fungi are decomposers or **saprophytes** (SAP ruh fites), meaning they get food by absorbing dead or decaying tissues of other organisms.

How do fungi reproduce?

Fungi reproduce both asexually and sexually. For both types of reproduction, fungi produce spores. A **spore** is a waterproof reproductive cell that can grow into a new organism. In asexual reproduction, the cells divide to produce spores. These spores grow into new fungi that are genetically identical to the fungus from which the spores came. Another way that fungi asexually reproduce is simply by having a part of the hyphae break off and start to grow into a new fungus exactly like the original.

Fungi are not identified as either male or female. For sexual reproduction to take place, the hyphae of two different fungi of the same species grow close together. If the hyphae join, a reproductive structure, such as the one in figure B to the right, forms. Meiosis, or cell division that produces sex cells, results in spores that will grow into new fungi. These fungi are genetically different from either of the two fungi whose hyphae joined together.



How are fungi classified?

Fungi are classified into 4 main groups. The groups are identified by the type of structure formed when the hyphae join together.

Club Fungi

Mushrooms, bracket fungi, and puffballs are examples of club fungi. The mushroom is the reproductive structure of the fungus. Most of the fungus grows as hyphae in the soil or on the surface of its food source. The spores of club fungi are produced in a club-shaped structure called a **basidium** (buh SIH dee uhm) (plural, *basidia*).

Sac Fungi

The largest group of fungi includes yeasts, mildews, and truffles. There are more than 30,000 different species of sac fungi. The spores of sac fungi are produced in a little, saclike structure. Although most fungi are many-celled, yeasts are one-celled organisms. Yeasts reproduce sexually by forming spores like other fungi. Yeasts reproduce asexually by **budding,** in which a new organism forms on the side of the parent organism. The two organisms are genetically identical.

Thread-like Fungi (Zygote Fungi)

Black molds that you might see growing on old bread or old fruit are a type of thread-like (zygospore) fungus. The thread-like fungi produce spores in a round spore case called a **sporangium** (spuh RAN jee uhm) (plural, *sporangia*). Sporangia form on the tips of some hyphae. When a sporangium splits open, hundreds of spores are released into the air. Each spore that lands on a warm, moist surface will grow and reproduce if it has a food source.

Imperfect Fungi

The imperfect fungi include fungi that do not fit into the other groups. These fungi never reproduce sexually. They usually are called imperfect fungi because there is no evidence that their life cycle has a sexual reproduction stage. Most of these types of fungi are parasites. Some scientists classify *Penicillium* as an imperfect fungi.

Not quite a fungus? - Lichens

A **lichen** (LI kun) is an organism made up of a fungus and a green algae, or a cyanobacterium. These two organisms have a relationship that benefits both of them, also known as a **mutualistic relationship**. The alga or cyanobacterium lives among the threadlike strands of the fungus. The fungus gets food made by the green algae or cyanobacterium. The green alga or cyanobacterium gets a moist, protected place to live.

Analysis Questions:

1. True or False: Organisms in Kingdom Fungi are eukaryotic. _____
2. Describe what a saprophyte is. _____

   _____
3. Describe what happens to the spores when a sporangium splits open.

   _____
4. Why are some fungi called *imperfect*? _____

   _____
5. What is a lichen? _____

   _____
6. Define the following terms:
   a. **Budding: _____**

      _____
   b. **Heterotroph**: _____

      _____
   c. **Hyphae: _____**

      _____
   d. **Lichen**: _____

      _____
   e. **Mycelium: _____**

      _____
   f. **Spore**: _____

      _____

7. In the table **write the term of the reproductive structure** and **examples of fungi** for each Fungi type.

	Club Fungi	Sac Fungi	Threadlike Fungi
Reproductive structure(s)			
Examples			

8. Label the parts of a typical fungus in the diagram below.