

Section  
19-1

**The Fungi**

(pages 407-416)

**SECTION REVIEW**

In this section you learned about the interesting and sometimes exotic organisms that belong to the kingdom Fungi. You discovered that fungi are eukaryotic heterotrophs. You also discovered that many fungi are saprophytes, or organisms that obtain nourishment from decaying organic matter. Other fungi live as parasites, and still others live as symbionts.

You learned that fungi are classified into five phyla according to their methods of reproduction and their basic structure. The phylum Oomycota includes protistlike fungi such as

the water mold. Common molds, such as bread mold, belong to the phylum Zygomycota. Sac fungi are members of the phylum Ascomycota, which includes yeasts and morels. Perhaps the most familiar phylum is Basidiomycota, or the club fungi. This phylum includes the many varieties of mushrooms. The last phylum that you learned about was Deuteromycota, or the imperfect fungi. Included in this phylum are *Penicillium*, which is the source of the antibiotic penicillin, and many fungi that cause disease.

**Applying Definitions: Building Vocabulary Skills**

Each of the terms below describes an important characteristic or a characteristic structure of fungi. Write a sentence to explain the meaning of each term.

1. Heterotroph: \_\_\_\_\_  
\_\_\_\_\_
2. Decomposer: \_\_\_\_\_  
\_\_\_\_\_
3. Mycelium: \_\_\_\_\_  
\_\_\_\_\_
4. Hyphae: \_\_\_\_\_  
\_\_\_\_\_
5. Gametangium: \_\_\_\_\_  
\_\_\_\_\_
6. Sporangia: \_\_\_\_\_  
\_\_\_\_\_

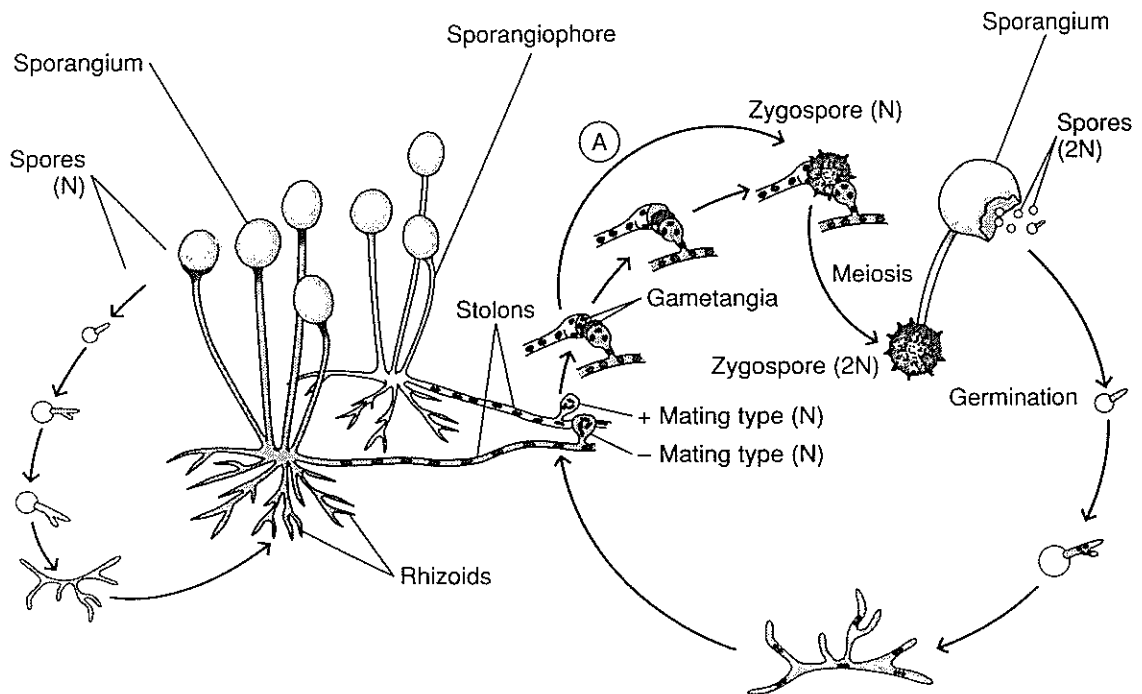
**Five Phyla of Fungi: Understanding the Main Ideas**

Each of the statements below describes a characteristic of one of the five phyla of fungi. In the blank before each statement, write the first letter if the phylum it describes: O for Oomycota, Z for Zygomycota, A for Ascomycota, B for Basidiomycota, and D for Deuteromycota.

- \_\_\_\_\_ 1. Fungi in this phylum do not undergo sexual reproduction.
- \_\_\_\_\_ 2. Mushrooms belong to this phylum.
- \_\_\_\_\_ 3. These fungi are closely related to plantlike protists.
- \_\_\_\_\_ 4. This is the largest phylum of Kingdom Fungi.
- \_\_\_\_\_ 5. Common molds that grow on cheese and bread are members of this phylum.
- \_\_\_\_\_ 6. This is the only group of fungi that produce motile spores.
- \_\_\_\_\_ 7. Rhizoids and stolons characterize these fungi.
- \_\_\_\_\_ 8. Yeasts are members of this phylum.
- \_\_\_\_\_ 9. These fungi have what is probably the most elaborate life cycle of all fungi.
- \_\_\_\_\_ 10. Sexual reproduction involves the formation of an ascus.
- \_\_\_\_\_ 11. The reproductive structure is called a basidium.
- \_\_\_\_\_ 12. *Penicillium* is a member of this phylum.

**Interpreting a Diagram: Life cycle of a Zygomycete**

The diagram below shows the life cycle of black bread mold, a zygomycete. Refer to the diagram as you answer the questions.



1. Three specialized types of hyphae are shown in the diagram. Name each one and describe its function. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. Which part of the diagram shows asexual reproduction? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Explain what happens in asexual reproduction. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Which part of the diagram shows sexual reproduction? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Explain what is happening in section A of the cycle. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
6. What is the advantage of sexual reproduction over asexual reproduction?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

 **Concept Mapping**

The construction of and theory behind concept mapping are discussed on pages vii–ix in the front of this Study Guide. Read those pages carefully. Then consider the concepts presented in Section 19–1 and how you would organize them into a concept map. Now look at the concept map for Chapter 19 on page 185. Notice that the concept map has been started for you. Add the key facts and concepts you feel are important for Section 19–1. When you have finished the chapter, you will have a completed concept map.

**Section 19-2 Fungi in Nature**

**(pages 417–423)**

**SECTION REVIEW**

In this section you learned about the ecological importance of fungi and the effects of fungi on human life. You learned that fungi play an important role in nature as decomposers and recyclers of organic material. This recycling is important because it prevents the loss of chemical energy and enables the return of nutrients to the soil.

You learned that fungi are found almost everywhere on Earth and in almost every kind of environment. An interesting aspect of fungi is that they have many ways in which to disperse spores in order to accomplish asexual reproduction. Another important aspect of fungi is their participation in symbiotic relation-

ships with other organisms.

You discovered that fungi affect humans in many ways and that some of these effects are beneficial. For example, yeasts are important to people because of their role in baking and brewing. Mushrooms—those that are not poisonous—are a highly desirable food.

Effects of fungi that are not beneficial include diseases that affect people, plants, and animals. Among the most destructive plant diseases are potato blight, wheat rust, and corn smut. Among the familiar human conditions caused by fungi are athlete's foot, ringworm, and thrush.

**The Many Roles of Fungi: Interpreting the Main Ideas**

Each of the statements below describes a situation in which a fungus is playing an important role. Read each statement, then describe the role of the fungus. If possible, identify the particular type of fungus involved.

1. You open the refrigerator planning to enjoy some of the raspberries you bought the day before but discover that most of the berries are covered with an unappetizing white fuzz. \_\_\_\_\_  
\_\_\_\_\_
2. A mass of tangled whitish threads known as reindeer moss grow in the arctic tundra, where most plants are scarce. This organism serves as food for reindeer, who might otherwise go hungry. \_\_\_\_\_  
\_\_\_\_\_
3. Although strep throat was at one time a life-threatening disease, this illness can now be treated effectively with an antibiotic that destroys pathogenic bacteria. \_\_\_\_\_  
\_\_\_\_\_
4. The odor of rotting meat comes not from a decaying carcass but from a living organism that looks like a lacy ball growing out of the ground. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. A flat piece of dough left for a time in a warm place begins to expand, resulting in a mound that is three or four times as high as the original dough.

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6. The roots of a plant that produces beautiful lavender orchids are covered with a network of tiny fibers.

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7. A few days after showering in the locker room of a public swimming pool, you discover several red, inflamed sores between your toes.

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8. In France, a domestic pig is taken over the countryside to search for a delicacy that will be sold to restaurants and gourmet shops.

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9. Between 1845 and 1860, a third of Ireland's population starved to death because of a shortage of potatoes, the principal food crop.

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10. A farmer destroys all the barberry plants within the vicinity of his farm in order to protect his wheat plants from disease and death.

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### Concept Mapping

The construction of and theory behind concept mapping are discussed on pages vii–ix in the front of this Study Guide. Read those pages carefully. Then consider the concepts presented in Section 19–2 and how you would organize them into a concept map. Now look at the concept map for Chapter 19 on page 185. Notice that the concept map has been started for you. Add the key facts and concepts you feel are important for Section 19–2. When you have finished the chapter, you will have a completed concept map.