

STUDY
GUIDE

CHAPTER
Protists

18

Section
18-1

The Kingdom Protista

(pages 381-383)

SECTION REVIEW

In this section you were introduced to protists, or members of the kingdom Protista. A protist can be defined as a single-celled eukaryotic organism that is not an animal, plant, or fungus.

Protists, which first appeared about 1.5 billion years ago, were the first group of eukaryotes to evolve. One explanation for the way the first eukaryotes developed from

prokaryotes is Lynn Margulis's Endosymbiont Hypothesis. According to this hypothesis, the first eukaryote—and the first protist—was formed by a symbiosis among several prokaryotes. Evidence to support this hypothesis includes structural similarities between certain eukaryotic organelles and bacteria and the bacterial endosymbionts that are found in certain protists alive today.

Applying Definitions: Building Vocabulary Skills

1. Using your own words, define the word *protist*. _____

2. In the past, why were protists often difficult to classify? _____

3. Explain the Endosymbiont Hypothesis in your own words. _____

4. Describe the evidence that supports the Endosymbiont Hypothesis.

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 18-1 and how you would organize them into a concept map. Now look at the concept map for Chapter 18 on page 178. Notice that the concept map has been started for you. Add the key facts and concepts you feel are important for Section 18-1. When you have finished the chapter, you will have a completed concept map.

Section 18-2 **Animallike Protists**

(pages 384-394)

SECTION REVIEW

The four phyla of animallike protists were described and discussed in this section. Recall that members of the phyla Ciliophora, Zoomastigina, Sporozoa, and Sarcodina are known as animallike protists.

The members of the phylum Ciliophora are known as ciliates because they have short hairlike structures called cilia. Cilia are used in movement and in feeding. Most ciliates are free-living. Some ciliates are solitary; others are colonial. Ciliates typically have two types of nuclei: a macronucleus and a micronucleus. The macronucleus is the control center of the cell. The micronucleus is involved in conjugation. *Paramecium* is an example of a typical ciliate.

The members of the phylum Zoomastigina move through the water by means of long, whiplike projections called flagella. Some

zoomastigins are free-living. Others, such as trypanosomes, are parasites. Still others, such as *Trichonympha*, are endosymbionts.

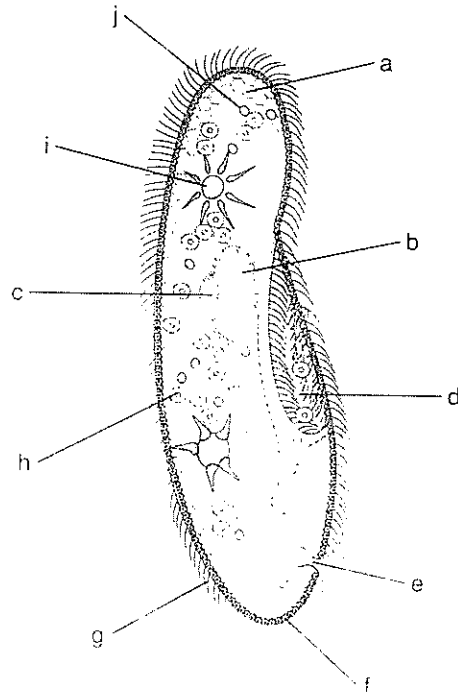
The members of phylum Sporozoa are parasitic and nonmotile and reproduce by means of spores. The sporozoan *Plasmodium* causes the human disease malaria. Like many other sporozoans, *Plasmodium* has a life cycle that involves more than one host.

The members of phylum Sarcodina, or sarcodines, possess pseudopods that are used in feeding. Some sarcodines, such as amebas, also use pseudopods in locomotion. There are four groups of sarcodines: amebas, heliozoans, radiolarians, and foraminifers. Some sarcodines produce shells of silica or calcium carbonate. Although most sarcodines are free-living, a few, such as *Entamoeba*, are parasites.

Identifying Structures: Building Vocabulary Skills

Examine the accompanying diagram of a paramecium. In the spaces provided, identify each part of the paramecium and write a definition for each part.

- a. _____
- _____
- _____
- _____
- b. _____
- _____
- _____
- _____
- c. _____
- _____
- _____
- _____
- d. _____
- _____
- _____
- _____



Name _____ Class _____ Date _____

e. _____

f. _____

g. _____

h. _____

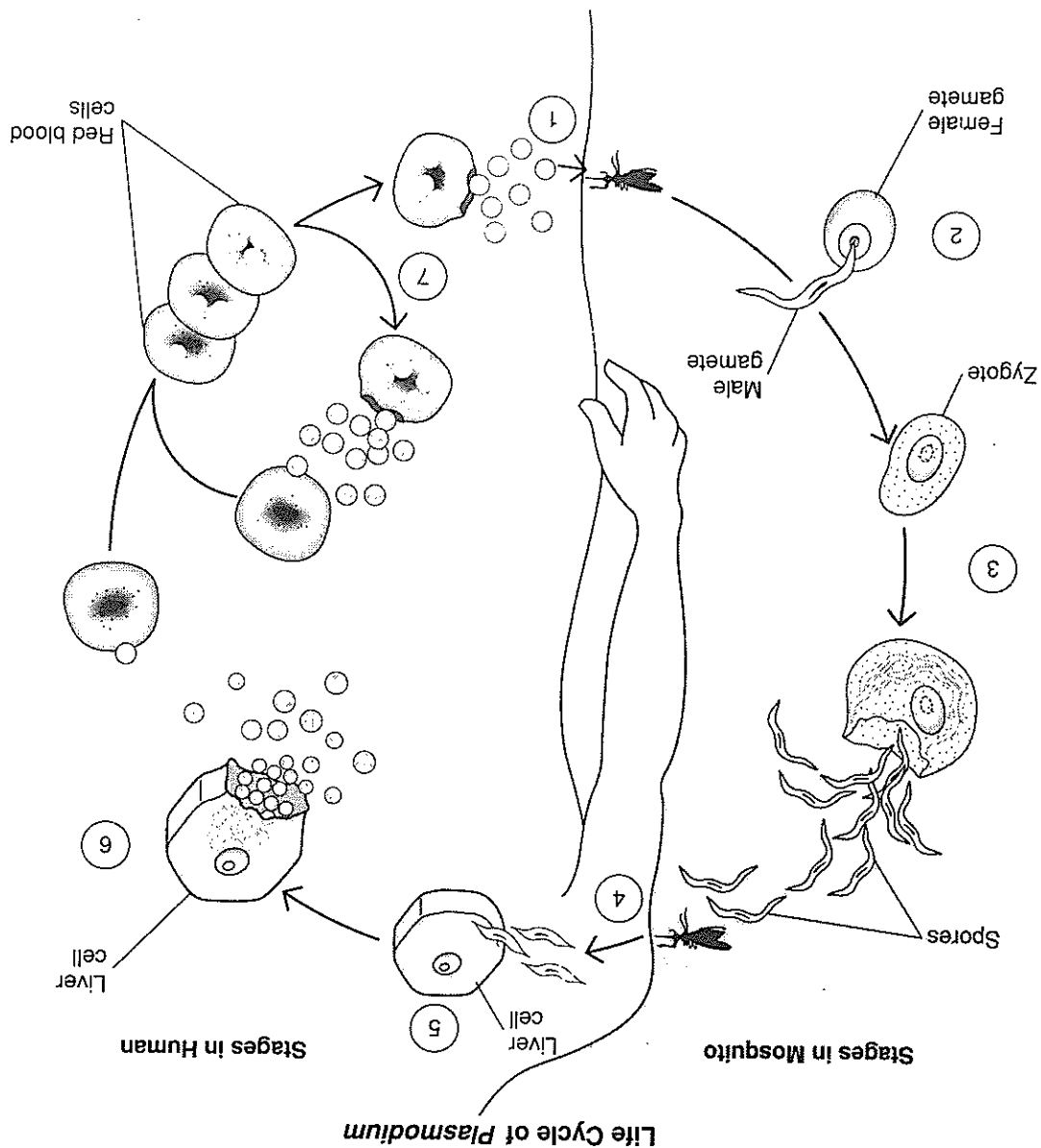
i. _____

j. _____

Discussing Concepts: Finding the Main Ideas

1. In your own words, describe the events that occur during conjugation in paramecia.

2. Why is conjugation significant? _____



Examine the diagram below of the life cycle of *Plasmodium*, the protist that causes malaria in humans. In the spaces provided on the next page, describe what happens in each of the numbered stages. Two of the stages have been described for you.

Malaria: Interpreting Diagrams

4. What are two ways in which animallike protists benefit other organisms?

3. What are two ways in which animallike protists harm other organisms?

Name _____ Class _____ Date _____

1. _____

2. *Plasmodium* cells develop into gametes in the mosquito's digestive tract. Fertilization occurs, forming a zygote.

3. The zygote attaches to the wall of the mosquito's digestive tract and develops into thousands of spores. Spores migrate to the mosquito's salivary glands.

4. _____

5. _____

6. _____

7. _____

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 18-2 and how you would organize them into a concept map. Now look at the concept map for Chapter 18 on page 178. Notice that the concept map has been started for you. Add the key facts and concepts you feel are important for Section 18-2. When you have finished the chapter, you will have a completed concept map.

**Section
18-3**

Plantlike Protists

(pages 394-401)

SECTION REVIEW

In this section you learned about the five phyla of plantlike protists. The members of phyla Euglenophyta, Pyrrophyta, and Chrysophyta are usually photosynthetic and are considered to be types of algae. The phyla Acrasiomycota and Myxomycota contain slime molds, which are not photosynthetic.

Euglenophytes are flagellates closely related to zoomastiginans. The most famous members of this group belong to the genus *Euglena*. A euglena usually swims using the longer of its two flagella. It can also creep along a surface by a process known as euglenoid movement. Although euglenas are usually photosynthetic autotrophs, they can also live as heterotrophs.

Pyrrophytes are also known as dinoflagellates. Most dinoflagellates are photosynthetic and move by means of two flagella. Many are

luminescent. Dinoflagellates are the only eukaryotes that lack histones, the proteins associated with DNA.

Chrysophytes have cell walls that contain pectin instead of cellulose and store food in the form of oil rather than starch. Most chrysophytes are diatoms, protists that form intricate cell walls rich in silicon.

Acrasiomycetes are also known as cellular slime molds. They spend most of their lives as single ameboid cells. At one point in their life cycle, however, the individual ameboid cells come together to form a multicellular mass that acts much like a single organism.

Myxomycetes, or acellular slime molds, also spend part of their lives as ameboid cells. At one point in their life cycle, acellular slime molds form a multinucleate structure known as a plasmodium.

Relating Terms: Building Vocabulary Skills

In your own words, define the terms in each of the following pairs. Then explain how the paired terms are related to each other.

1. Euglena, diatom: _____

2. Dinoflagellate, bloom: _____

Name _____ Class _____ Date _____

3. Acrasiomycete, myxomycete: _____

4. Phytoplankton, oxygen: _____

5. Slime mold, plasmodium: _____

Relating Form and Function: Using the Main Ideas

Examine the accompanying diagram of a euglena. In the spaces provided, identify each part of the euglena and write a definition for each part.

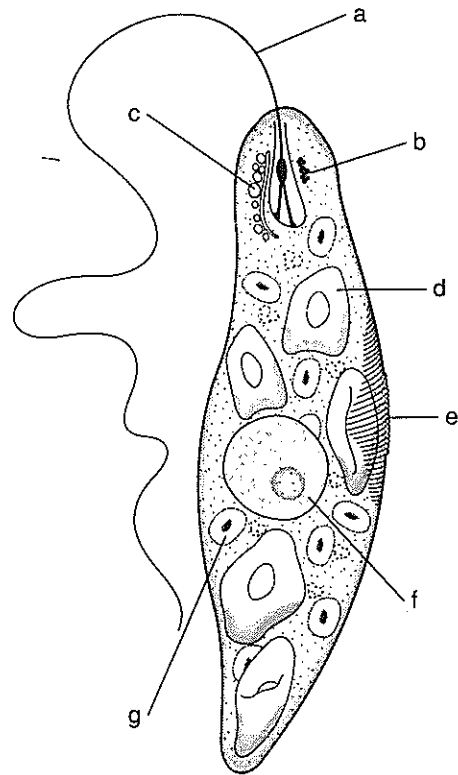
- a. _____

- b. _____

- c. _____

- d. _____

- e. _____



- f. _____

- g. _____

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 18-3 and how you would organize them into a concept map. Now look at the concept map for Chapter 18 on page 178. Notice that the concept map has been started for you. Add the key facts and concepts you feel are important for Section 18-3. When you have finished the chapter, you will have a completed concept map.