

CHAPTER REVIEW

CONTENT REVIEW

Multiple Choice

Choose the letter of the answer that best completes each statement.

- Unlike most plants, algae lack
 - chloroplasts.
 - accessory pigments.
 - a nucleus.
 - an internal system of tubes.
- Which of the following algae are able to live in deep ocean water?
 - red algae
 - green algae
 - Volvox*
 - Spirogyra*
- Algae take in nutrients through their
 - holdfast.
 - stipe.
 - blade.
 - cell membrane.
- Some single-celled algae are included in the kingdom
 - Monera.
 - Protista.
 - Animalia.
 - Fungi.
- Red algae have a special pigment that enables them to absorb energy from
 - red light.
 - yellow light.
 - violet light.
 - blue light.
- Green algae live in each of the following environments except
 - dry land.
 - a pond.
 - moist areas on land.
 - a lake.
- Filaments of some forms of green algae are attached to the bottom of a lake or pond by a (an)
 - stipe.
 - holdfast cell.
 - air bladder.
 - egg.
- The largest algae in the world are the
 - red algae.
 - filamentous algae.
 - green algae.
 - brown algae.

True or False

Determine whether each statement is true or false. If it is true, write "true." If it is false, change the underlined word or words to make the statement true.

- Alternation of generations is a characteristic of all plants.
- Chlorophyll can make blue light more useful for photosynthesis.
- Fucus are single-celled green algae.
- Kelp are the largest algae in the world and can grow longer than 60 meters.
- Filamentous algae can reproduce sexually when they break apart.
- A colony is a group of cells that are joined together and that show few specialized structures.
- Special light-absorbing pigments found in some kinds of algae are called gametes.
- Most algae get necessary gases and nutrients from the air.

Word Relationships

In each of the following sets of terms, three of the terms are related. One term does not belong. Determine the characteristic common to three of the terms and then identify the term that does not belong.

- eggs, sperm, spores, stipes
- red, brown, green, yellow
- Chlamydomonas*, *Volvox*, *Spirogyra*, *Fucus*
- ponds, lakes, rivers, oceans

CONCEPT MASTERY

Use your understanding of the concepts developed in the chapter to answer each of the following in a brief paragraph.

1. Explain the importance of algae to life.
2. Describe two characteristics that help scientists classify algae.
3. How are some kinds of red algae adapted to life in deep ocean water?
4. What is the main difference between a colony and a multicellular organism?
5. What is alternation of generations?
6. Why do some scientists place all algae in the kingdom Protista?
7. How are algae different from land plants?
8. Accessory pigments do more than provide color for algae. What important function do accessory pigments perform?

CRITICAL AND CREATIVE THINKING

Discuss each of the following in a brief paragraph.

1. **Applying concepts** How does having a method of both asexual reproduction and sexual reproduction contribute to an organism's survival?
2. **Making predictions** Suppose all species of algae on Earth died out. What effects would this have on other organisms?
3. **Relating cause and effect** Suppose you were able to design a new species of algae that could live in deep water. What important characteristics would you include? Why?
4. **Applying technology** You have been chosen to work on a new space probe that will carry humans deep into space. A friend suggests that it would be important to have a population of algae on this trip. How could these algae help human space travelers on a long voyage in space?
5. **Analyzing concepts** You know that all life comes from life. Your friend observes that a pond in the area has dried up and appears to lack life. Later, this pond fills with water again. Algae begin to grow. Your friend is puzzled. How could you explain the growth of algae in this pond?
6. **Relating concepts** Some scientists think that a form of algae was an ancestor of certain land plants. What are some changes that would have to occur in order to make algae able to survive on land?
7. **Using the writing process** The huge kelp forests along the west coast of the United States are home to the sea otter. There are relatively few of these animals alive in the wild. The otters are fond of eating abalone and other shellfish. Because of their eating preferences, they often come into conflict with local people who earn a living by capturing and selling the shellfish. These local people want to eradicate the kelp. They feel that the sea otters will move away if the kelp is destroyed. You are the lawyer hired by the government to protect the kelp and the otters. The local newspaper wants you to write an article detailing your position. Here is your chance to influence people. Write an article for the paper. Save the otters!