

ACTIVE READING WORKSHEETS

BIOCHEMISTRY**Molecules of Life**

Read the passage below, which covers topics from your textbook. Answer the questions that follow.

Lipids are divided into categories according to their structure. Three classes of lipids important to living things contain fatty acids: triglycerides, phospholipids, and waxes. A *triglyceride* is composed of three molecules of fatty acid joined to one molecule of the alcohol glycerol. Saturated triglycerides are composed of saturated fatty acids. They typically have high melting points and tend to be hard at room temperature. In contrast, unsaturated triglycerides are composed of unsaturated fatty acids and are usually soft or liquid at room temperature.

Phospholipids have two, rather than three, fatty acids joined to a molecule of glycerol. The cell membrane is composed of two layers of phospholipids, which are referred to as the *lipid bilayer*. The inability of lipids to dissolve in water allows the membrane to form a barrier between the inside and outside of the cell. This bilayer arrangement of molecules produces a stable and effective barrier for a cell.

A **wax** is a type of structural lipid. A wax molecule consists of a long fatty-acid chain joined to a long alcohol chain. Waxes are highly waterproof, and in plants, waxes form a protective coating. Waxes also form protective layers in animals.

Fill in the blank to complete each sentence.

SKILL: Completing Sentences

One reading skill is the ability to complete an incomplete sentence by logically determining what will complete the unfinished thought.

1. Lipids are divided into categories according to their _____ .
2. The three classes of lipids are _____ .
3. Saturated triglycerides are composed of _____ .
4. At room temperature, unsaturated triglycerides are _____ .

5. The two layers of phospholipids that form the cell membrane are called the _____ .
6. Lipids cannot dissolve in _____ .
7. The bilayer arrangement of molecules in a cell membrane gives the cell a _____ .
8. Waxes form a protective coating on the outer surfaces of _____ .

Write your answers in the spaces provided.

SKILL: Vocabulary Development

Write “T” on the line if the statement describes triglycerides. Write “P” on the line if the statement describes phospholipids. Write “W” on the line if the statement describes waxes.

9. _____ They consist of a long fatty-acid chain joined to a long alcohol chain.
10. _____ Two categories of these are saturated and unsaturated.
11. _____ They consist of two molecules of fatty acids joined by a molecule of glycerol.
12. _____ Two layers of these enclose a cell.
13. _____ They consist of three molecules of fatty acids joined to one molecule of glycerol.
14. _____ They form a protective layer in animals.

Read the question and write your answer in the space provided.

15. The prefix *lipo-* is derived from a Greek term meaning “fat.” The suffix *-oid* means “resembling” or “having the appearance of.” What can you infer about a substance that is described as being *lipoid*?

Circle the letter of the phrase that best completes the statement.

16. A main structural difference between the three categories of lipids is the number of
 - a. fatty-acid molecules present.
 - b. alcohol molecules present.
 - c. oxygen molecules present.
 - d. Both (a) and (b)