Food and Energy

Guide for Reading

- Why does your body need food?
- How do the six nutrients needed by the body help carry out essential processes?

Foods provide your body with materials for growing and for repairing tissues. Food also provides energy for everything you do.

Your body breaks down the foods you eat into nutrients. **Nutrients** are the substances in food that provide the raw materials and energy the body needs to carry out all its essential processes. There are six kinds of nutrients necessary for human health—carbohydrates, fats, proteins, vitamins, minerals, and water.

The amount of energy released by nutrients can be measured in units called calories. One **calorie** is the amount of energy needed to raise the temperature of one gram of water by one degree Celsius.

Carbohydrates are nutrients composed of carbon, oxygen, and hydrogen. They are a major source of energy. **In addition to providing energy, carbohydrates provide the raw materials to make parts of cells.** Carbohydrates are either simple or complex. Simple carbohydrates are sugars. One sugar, **glucose,** is the major source of energy for your body's cells. Complex carbohydrates are made up of many sugar molecules linked together in a chain. Starch is a complex carbohydrate found in some plant foods. Fiber is a complex carbohydrate found in plant foods. Fiber keeps the digestive system functioning properly.

Like carbohydrates, **fats** are energy-containing nutrients that are composed of carbon, oxygen, and hydrogen. They contain twice as much energy as an equal amount of carbohydrates. **In addition to providing energy, fats have other important functions. Fats form part of the cell membrane, the structure that forms the boundary of a cell. Fatty tissue protects and supports your internal organs and insulates your body.** Unsaturated fats are usually liquid at room temperature. Saturated fats are usually solid at room temperature. trans fats are found in many commercially baked goods. Cholesterol is a waxy, fatlike substance found only in animal products. Large amounts of cholesterol, saturated fats, and trans fats can lead to heart disease.

Proteins are nutrients that contain nitrogen as well as carbon, hydrogen, and oxygen. **Proteins are needed for tissue growth and repair. They also play an important part in chemical reactions within cells.** Proteins are made up of small units called **amino acids.**

Vitamins act as helper molecules in a variety of chemical reactions within the body. **Minerals** are nutrients that are not made by living things. You obtain minerals by eating plant foods or animals that have eaten plants. **Both vitamins and minerals are needed by your body in small amounts to carry out chemical processes.**

Water is the most important nutrient because the body's vital processes—including chemical reactions such as the breakdown of nutrients—take place in water. People cannot live without fresh water.

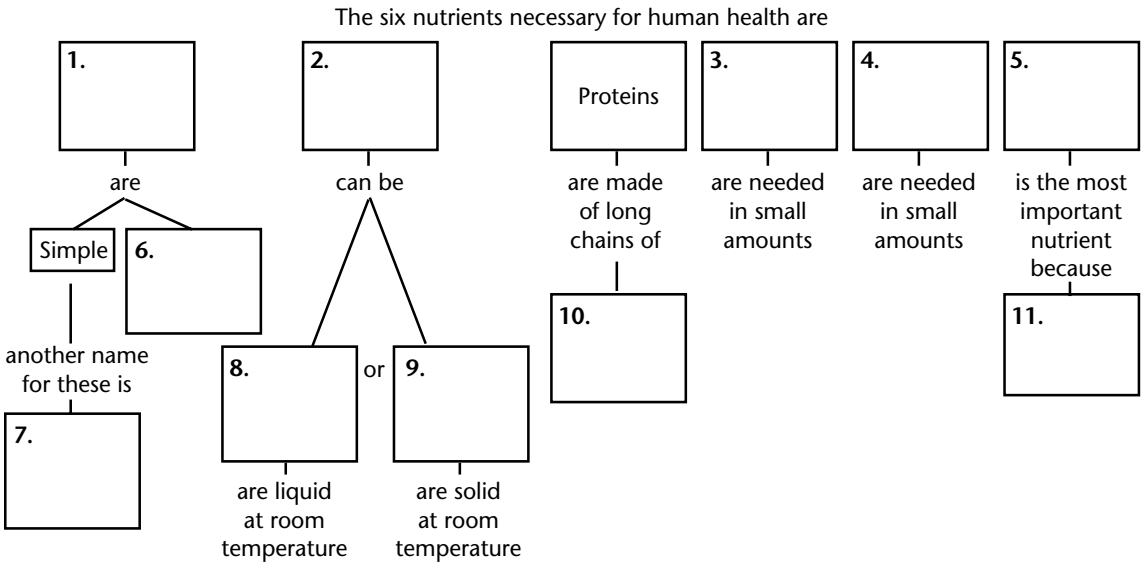
© Pearson Education, Inc., publishing as Pearson Prentice Hall. All rights reserved.

Name _____ Date _____ Class _____

Food and Energy

Understanding Main Ideas

Fill in the blanks in the concept map below.



Answer the following questions on a separate sheet of paper.

12. Nutrients provide two things that are necessary for body processes. What are these two things?

13. What is the difference between a calorie and a Calorie?

Building Vocabulary

From the list below, choose the term that best completes each sentence.

calorie	fat	vitamin	glucose
fiber	carbohydrate	protein	cholesterol
mineral			

14. _____ is a waxy, fatlike substance found only in animal products.

15. A(n) _____ acts as a helper molecule in many chemical reactions in the body.

16. _____ is a useful complex carbohydrate that cannot be broken down by your body.

17. The sugar _____ is a major source of energy for your body's cells.

18. A(n) _____ is a nutrient that contains nitrogen, carbon, hydrogen, and oxygen.

19. A(n) _____ is a nutrient not made by living things.

© Pearson Education, Inc., publishing as Pearson Prentice Hall. All rights reserved.