

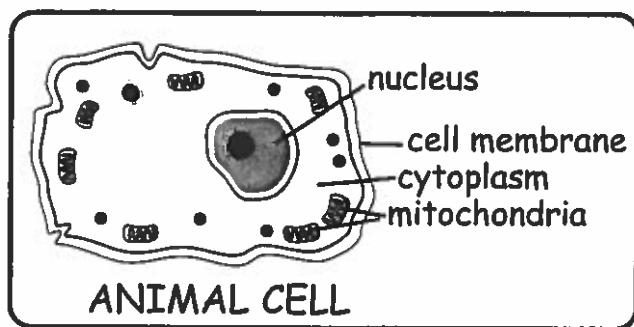
18—Plant and Animal Cells

A ¹Remember that the atom is the basic building block of matter. ²The cell is the building block of all living things. ³Therefore, all organisms are made up of one or more cells. ⁴The simplest organisms, such as **bacteria**, are made of one cell. ⁵Animals and plants have more than one cell. ⁶Humans are made up of trillions of cells. (⁷A trillion is a million million.)

B ⁸A **tissue** is a group of cells that all do the same thing. ⁹For example, muscle is a tissue. ¹⁰Muscle cells all *contract*, or pull together, when they move body parts. ¹¹Brain cells are also a tissue. ¹²They work together to send information. ¹³Can you name other tissues?

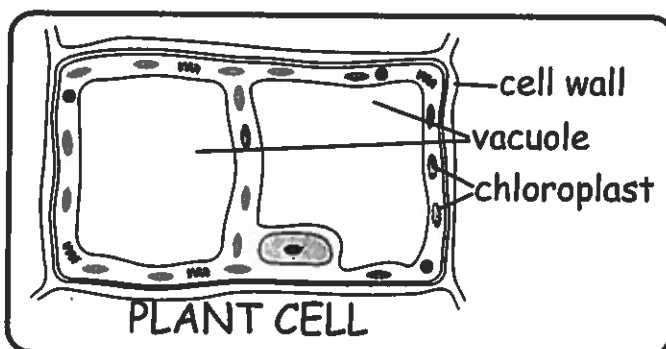
C ¹⁴A cell is made of many different cell parts, or **structures**. ¹⁵Each cell structure has a function. ¹⁶A **function** is the job done by a structure. ¹⁷The structures of animal cells are different from those of plant cells.

D ¹⁸All animal cells have a structure called a **cell membrane**. ¹⁹The function of the cell membrane is to separate the structures inside the cell from everything outside the cell. ²⁰Inside the animal cell is a clear jelly-like liquid called the **cytoplasm**. ²¹Floating in the cytoplasm are a number of different structures. ²²The cell needs each structure in order to survive. ²³For example, **mitochondria** are needed to provide energy for the cell. ²⁴The **nucleus** organizes the cell's activities. ²⁵Look at the diagram of an animal cell, and find the structures you read about.



E ²⁶Plant cells are similar to animal cells, but they have a few different structures. ²⁷For example, plants need energy from sunlight to survive, so plant cells have a structure that changes sunlight into energy. ²⁸This structure is called a **chloroplast**, and it is green. ²⁹Like animal cells, plants have a cell membrane, but they also have a **rigid cell wall**. ³⁰The cell wall is outside the cell membrane. ³¹Cell walls are needed to support plants because they don't have a skeleton. ³²Plants also need to store large amounts of water. ³³In plant cells, a **vacuole** is a storage sack for water and other things.

F ³⁴Look at the diagram of a typical plant cell below. ³⁵Locate the cell wall, chloroplasts, and vacuole. ³⁶Then see if you can find the nucleus, cell membrane, cytoplasm, and mitochondria.



1. For each statement, circle T or F for true or false. In the blanks, write the number(s) of the SENTENCE(s) that gives the best evidence for your answer.
 - a. All cells have the same structures. T F ____
 - b. All cell structures have jobs. T F ____, ____
 - c. Cells get energy from mitochondria. T F ____
 - d. A tissue is made up of cells that do the same thing. T F ____

2. What is the most likely meaning of rigid as it is used in sentence 29?
 - a. stiff
 - b. soft
 - c. light
 - d. weak

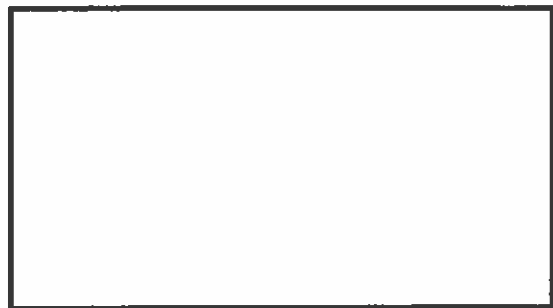
3. What structures do plant and animal cells have in common?

4. Heart cells make up heart tissue.

T F

Write the letter of the paragraph that gives the best evidence for your answer. ____

5. What words mean the same as *contract* in sentence 10?
 - a. get weaker
 - b. get bigger
 - c. tighten
 - d. stretch
6. In the box below, draw a plant cell. Label the nucleus, cell membrane, cytoplasm, mitochondria, cell wall, vacuole, and chloroplast.



7. Why do you think human cells do not have cell walls? Use a complete sentence to explain.

8. Why are plants green? Use a complete sentence to explain.

Write the number of the sentence that best supports your answer.
