

Name _____ Class _____ Date _____

SECTION 2-2 Structure and Function of Cells (pages 45-57)

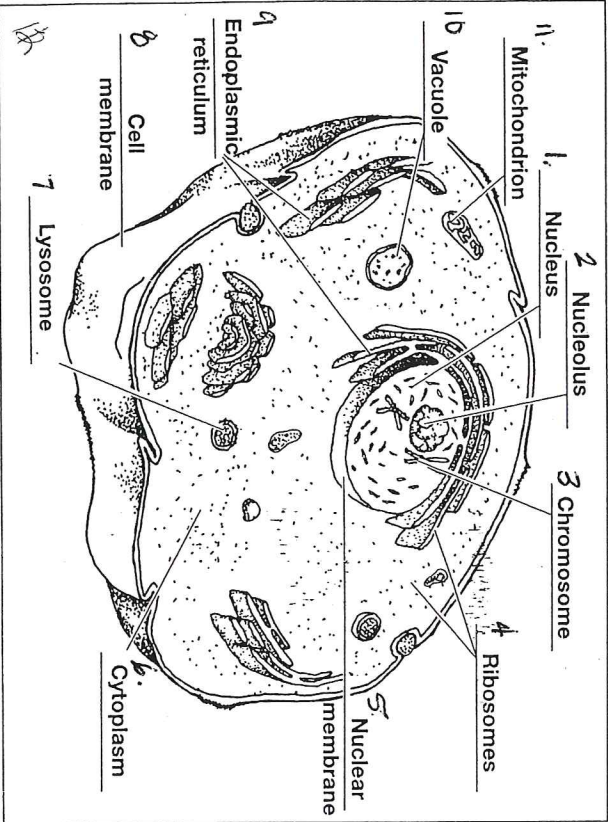
KEY CONCEPTS

▲ The structures within a cell function in providing protection and support, forming a barrier between the cell and its environment, building and repairing cell parts, transporting materials, storing and releasing energy, getting rid of waste materials, and increasing in number.

Building Vocabulary Skills: Labeling Diagrams

The following diagrams show two typical cells. In the space provided above each diagram, identify whether the cell is a plant cell or an animal cell. Then label each cell structure by writing the correct term on each blank.

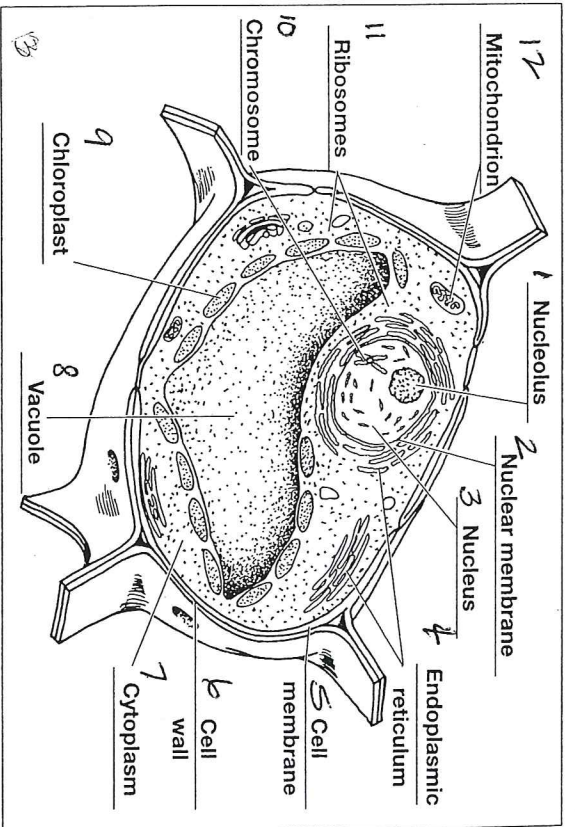
TYPICAL _____ Animal _____ CELL



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TYPICAL _____ Plant _____ CELL



Organizing Information: Using the Main Ideas

The accompanying table gives the following information about each of the main parts of the cell: its name, a brief description of it, its function(s), and whether it is found in a typical plant cell, a typical animal cell, or both. Complete the table, then use it to answer the questions that follow.

Cell Part	Description	Function	Plant, Animal, Both
Cell wall	Strong, stiff, nonliving layer outside the cell membrane; in plants, made of cellulose	Supports and protects the cell	Plant
Cell membrane	Outermost living layer of the cell; elastic and flexible; contains pores	Controls movement of materials into and out of the cell	Both

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Cell Part	Description	Function	Plant, Animal, Both
Cytoplasm	Region between the nucleus and the cell membrane; consists of a jellylike substance that contains many organelles	Moves organelles and various materials throughout the cell	Both
Nucleus	Large, oval structure in the center of the cell; bounded by the nuclear membrane; contains the chromosomes and nucleolus	Control center of the cell—regulates all the activities of the cell	Both
Nucleolus	Small, dark area in nucleus	Place where ribosomes are made	Both
Chromosome	One of a set of structures found in the nucleus; made of DNA, plus some protein	Directs cell activities; passes on traits of the cell to new cells; stores information for building proteins	Both
Endoplasmic reticulum	System of clear, tubular passageways; spreads through the cytoplasm	Transport materials throughout the cell	Both
Ribosome	Small, granlike body made primarily of RNA; may be attached to endoplasmic reticulum or floating free in cytoplasm; produced in nucleolus	Place where proteins are made	Both

Cell Part	Description	Function	Plant, Animal, Both
Mitochondrion	Rod-shaped organelle; located in the cytoplasm; has a smooth outer membrane and a greatly folded inner membrane	"Powerhouse" of the cell; place where food molecules are broken down and their energy used to make special energy-rich molecules	Both
Vacuole	Large, round water-filled sac in cytoplasm	Stores food, water, wastes, and other materials; in plants, keeps cell firm	Both
Lysosome	Small, round sac in cytoplasm; contains digestive enzymes	Breaks down food, old cell parts, and cells that are dead, injured, or obsolete	Animal, rare in plant
Chloroplast	Large green structure in cytoplasm; contains chlorophyll	Captures energy in sunlight and uses it to produce food	Plant

- Name the organelles that are found in the cytoplasm. Endoplasmic reticulum, ribosome, mitochondrion, vacuole, lysosome, chloroplast
- Name two cell parts that are found in plant cells and are not found in animal cells. Cell wall, chloroplast
- Why is the process that takes place in a mitochondrion often described as being the opposite of the process that takes place in a chloroplast? The process that takes place in a mitochondrion (respiration) takes food and breaks it down to release energy; photosynthesis takes energy (sunlight) and uses it to make food.