Note: To use this page as a worksheet, save this version as a key and then delete the sample answers before making copies for students.

Name: _____ ***Date:*** _____

Cell Part	Cell Structure and Function
Mitochondria	Rod-shaped or round, with two membranes and an inner matrix. Inner membrane is folded into ridges, called *cristae mitochondriale*, and has enzymes for converting chemical energy into available energy (ATP). Matrix has enzymes for synthesizing proteins and metabolizing fats. Mitochondria are the powerhouses of cells.
Nucleus	Present in every animal cell except red blood cells (RBC), blood platelets, and lens fibers. They are round, elongated, flat, oval, and the average size is 8-10 micrometers. They function as a barrier between nucleoplasm and cytoplasm.
Cell Membrane	Encloses cytoplasm. It's too thin to be seen by light microscope, and functions as a selectively permeable barrier. Serves as a cell-to-cell communication receptor site for hormones.
Cell Wall	In plants only, surrounds cell membrane, protects against pathogens, and counterbalances osmotic pressure. Cell walls are necessary for maintaining cells' shape, provides attachment sites for bacteriophages, and provides a rigid platform for surface appendages.
Endoplasmic Reticulum	Network of flat, round, tubular vesicles. There are two types—rough (RER) and smooth (SER). RER function is protein synthesis; SER function varies with cell type, and involves synthesis of lipids, triglycerides, lipoprotein complexes, and steroids.
Ribosomes	Three types are distinguished by structure—small granules, rounded, 15-17 nm in diameter. Occurs in two forms—*bound* which synthesizes protein for secretion, and *free* which synthesizes protein for cell growth and regeneration.
Golgi Apparatus	Visible as pale area above nucleus. Has stacks of cisternae, is flat in the center, and is distended at the ends. Function is to provide concentration and packaging of secretory material, synthesis of substances rich in carbos, and production of lysosomes.
Lysosomes	Have rounded bodies and are 800-1000 nm in diameter. Number varies depending upon activity of cell. Cells with high metabolic activity have many lysosomes. Different types of lysosomes depend on content and density. Lysosomes work with a nucleus to make proteins.
Cytoplasm	Lies within the cytoplasmic membrane. It's featureless under electron microscope, has a gel-like consistency with different properties, and holds many cellular constituents. Cytoplasm is the medium in which many functions for cell growth, metabolism, and replication are carried out.
Cytoskeleton	Maintains cell shape, invisible under microscope, anchors organelles in place, and moves parts of cells in processes of growth and motility. Cytoskeleton is composed of protein filaments, and it's critical for cell division.
Vacuole	Membrane-bound sac found in plant and animal cells that's used for storage. It has a variety of functions, including playing a role in intracellular digestion and the release of cell waste. A plant cell has single large central vacuole; animal cells have varying numbers and sizes.