

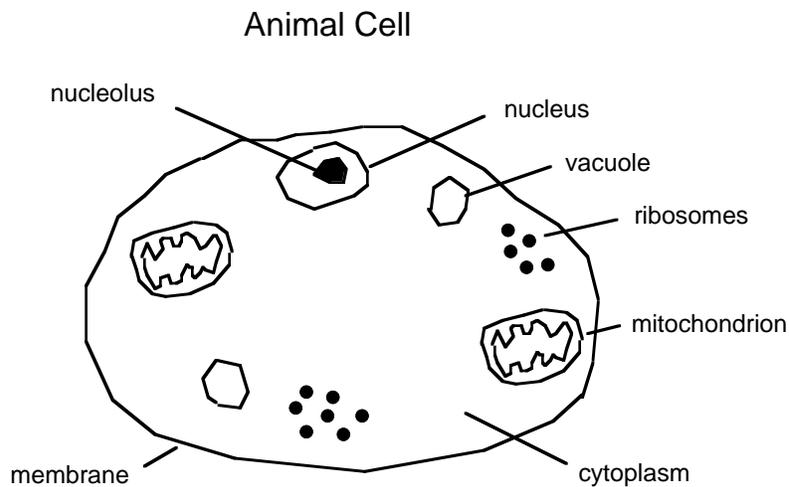
The Cell : Notes/W.S.-30

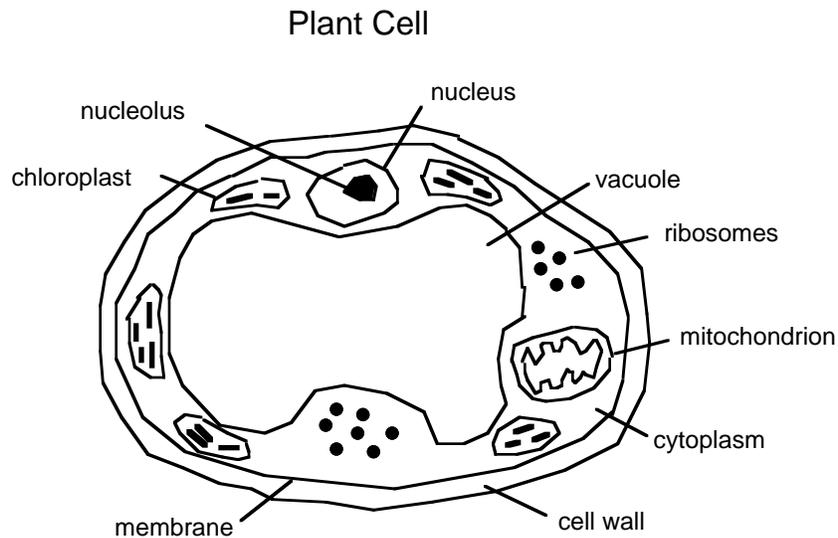
Cell Structure

Animal and plant cells have several features in common. They both have a cell membrane, a nucleus, and cytoplasm. They both also contain DNA, and organelles called mitochondria and ribosomes. They both also contain vacuoles.

There are a few big differences. Plant cells have a cell wall as well as a cell membrane. Plant cells also have organelles called chloroplasts. The vacuoles are large in plant cells, but small in animal cells.

Typical animal and plant cells are shown below.





All cells contain ribosomes. The ribosomes are organelles that make proteins. All cells also contain mitochondria. These organelles produce energy for the cell. The nucleolus contains most of the DNA in the nucleus. The vacuole contains mostly water and some food and waste products. All plant cells contain chloroplasts. These organelles contain green chlorophyll where photosynthesis takes place.

Photosynthesis

Photosynthesis is a chemical reaction that takes place in plant cells in which carbon dioxide and water react using light energy to produce sugar and oxygen. The chemical reaction is shown below.



The sugar is often converted into starch. The starch is then stored for future use as a source of energy for the plant.

Aerobic Respiration

The reverse reaction takes place in animal cells. This reaction is called aerobic respiration. Sugar is "burned" to produce energy.



This reaction takes place in your body all of the time.

Cell Wall

The cell wall and large vacuole of plant cells are necessary to support the plant. The cell wall is made up of cellulose, a substance that is similar to starch.

Questions:

1)a) Draw a picture of a typical animal cell.

b) Draw a picture of a typical plant cell.

2) Name eight things that are found in both animal and plant cells.

3) Name the two parts that are found in plant cells that are not found in animal cells.

4) State the function:

a) vacuole b) mitochondrion c) ribosome

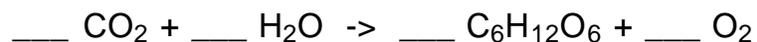
d) chloroplast e) cell wall

5)a) Name the green compound found in the chloroplast.

b) What is photosynthesis?

c) Give the chemical formula for sugar.

d) Balance the photosynthesis equation:



Answers: 1)a) see text, b) see text, 2) membrane, cytoplasm, nucleus, nucleolus, vacuole, mitochondrion, ribosomes, DNA., 3) chloroplast, cell wall, 4)a) stores water, food, and waste, and helps support the plant, b) produces energy, c) makes proteins, d) organelles where photosynthesis takes place in plant cells, e) supports plant cell., 5)a) chlorophyll, b) It is the process where a plant combines oxygen and carbon dioxide to produce sugar and oxygen., c) $C_6H_{12}O_6$, d) 6, 6, 1, 6.