

Directions: Read the information below.

Parts of a Cell

All living things are made of cells. You are made of cells. Your dog is made of cells. The flowers in front of your house are made of cells. Because we are all living organisms, our bodies need to be built on a mechanism that can adapt and grow as we do. Before babies are born, they begin as a single cell. Throughout a mother's time carrying the child, the baby's cells do not grow; instead, they multiply. Scientists have estimated that a typical adult has around 37 trillion cells. Here's a look at the structures of animal and plant cells.

Cell Membrane

The outside of all animal cells (which includes humans) is called the cell membrane. This structure is like a guard and determines what comes into and goes out of the cell. Specifically, its job is to make sure the cell has an appropriate flow of water so that it does not become dehydrated or overhydrated. It allows chemicals to flow through so that our bodies can perform important functions. The cell membrane also holds sensory receptors on the outside allowing us to perceive what is in our environment.

Cell Wall

The outside of a plant cell is the cell wall. The cell wall gives the plant cell its shape. It protects it from outside damage. Cell walls use fluid to put pressure on the outside of the cell, causing it to have a firm shape. This is also what gives veggies their crunchiness.

Nucleus

In a cell, the nucleus holds all the DNA, or genetic information. It's the boss of the cell, directing all its activities.

Mitochondria

The mitochondria give the cell energy. They are the power center, allowing the cell to perform all its functions. Mitochondria produce ATP, which is the molecule that produces sugar, a source of energy for the body.

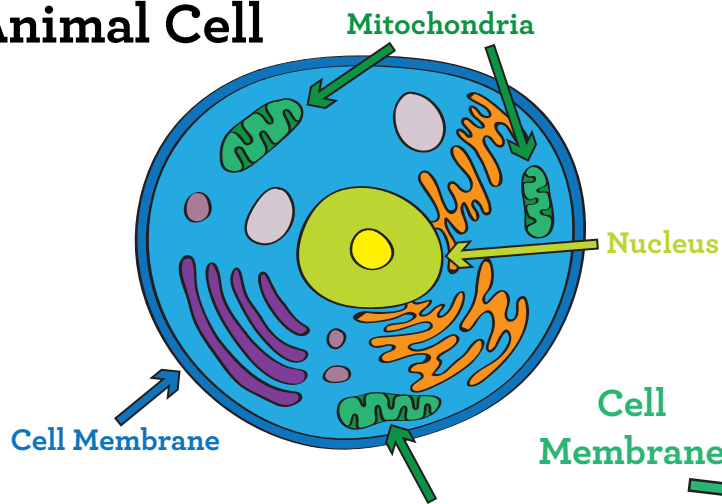
Chloroplasts

This structure is only found in plants. As you may recall, plants use energy from the sun in a process called photosynthesis. Chloroplasts hold chlorophyll that make the photosynthesis process possible. They help convert the sun's energy into a form that the plant can use.

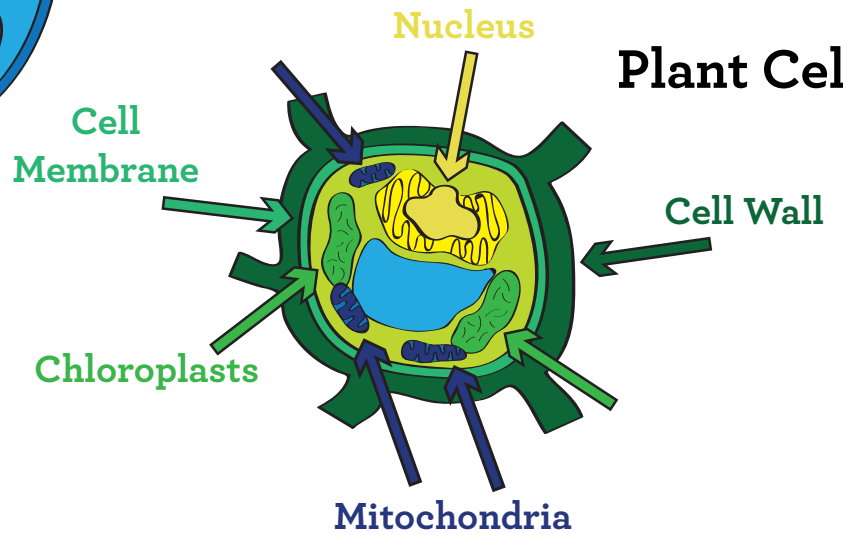
*Source statistics cited from:

- <http://news.nationalgeographic.com/2016/01/160111-microbiome-estimate-count-ratio-human-health-science/>
- <http://phenomena.nationalgeographic.com/2013/10/23/how-many-cells-are-in-your-body/>
- <https://www.ncbi.nlm.nih.gov/pubmed/23829164>

Animal Cell



Plant Cell



Directions: Answer the questions below.

1. Consider the word organelles and its relatedness to the word organs. Humans have organs in our bodies, like the heart, liver, stomach, kidney, etc. Compare the organelles in a cell to the organs in a human body. How are the systems set up similarly?
2. For each type of cell, describe the organelles and their function. If a cell does not have a particular organelle, indicate that in the box.

	Animal Cell	Plant Cell
Cell Membrane		
Cell Wall		
Nucleus		
Mitochondria		
Chloroplast		