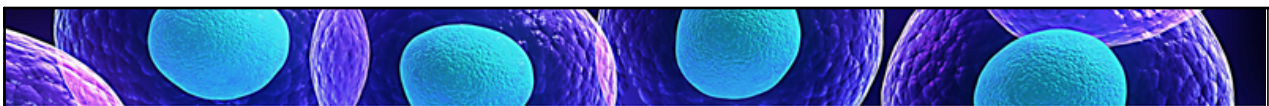


Grade 8 Science

Unit 2: Cells



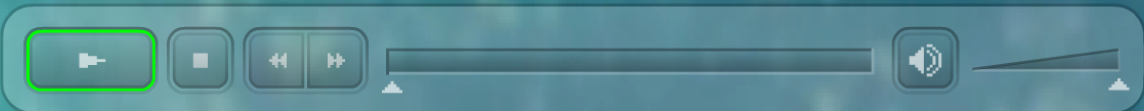
Cell Organelles

Last period you did some brief reading and summarized some information about cell organelles. Today we will take some more time to discuss these tiny structures in more detail.

We will start by watching a video. This video, although computer generated, will provide you with a visual representation of what many of the cell organelles look like. It will also explain the function of each of the organelles.

When we are done the video, we will then review each of the organelles. By the end of today's period, it is expected that you know the cell organelles and their functions. This is information that will appear of your end of unit test.

Overview of CELL STRUCTURE



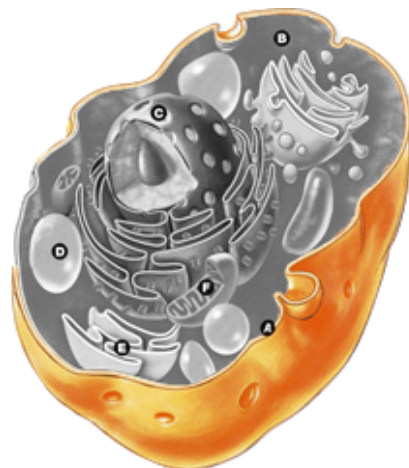
Cell Membrane

Description:

The cell membrane is a thin, flexible organelle that is wrapped around the cell.

Function:

The cell membrane controls the movement of materials into and out of the cell. Later in the unit we will discuss diffusion, osmosis, and active transport, the ways that materials are moved through a membrane.



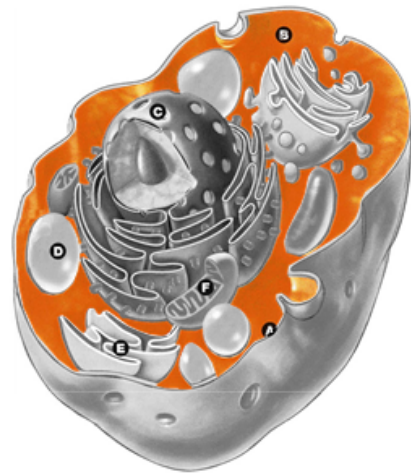
Cytoplasm

Description:

Cytoplasm is a jelly-like material that completely fills the space within the cell membrane.

Function:

Although not an organelle, the cytoplasm plays a very important roll in that it allows materials to safely move around the cell. It also provides padding to the organelles, protecting them.



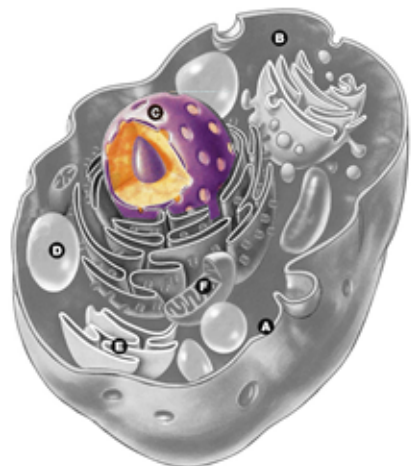
Nucleus

Description:

The nucleus is a spherical dark organelle. It is large, in comparison to the other organelles, and is often the most easily seen. The nucleus is sometimes surrounded by a nuclear membrane.

Function:

The nucleus acts like the control center of the cell, providing instructions to all of the other organelles. Contained within the nucleus are chromosomes, these thread like structures contain the instructions that the nucleus gives. Chromosomes are where genetic information is stored.



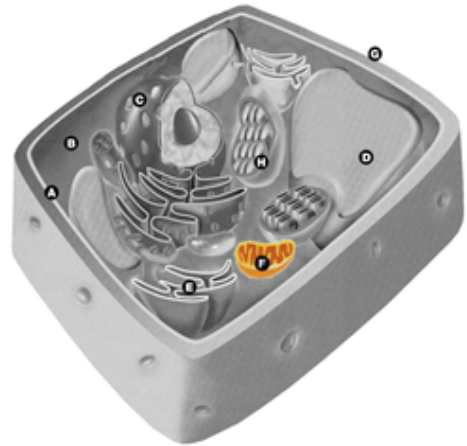
Mitochondria

Description:

A mitochondrion is a small oval shaped organelle. The number of mitochondria found in a cell varies based on the function of the cell.

Function:

The mitochondria is where energy is produced in the cell. The mitochondria breaks down food particles and releases the sugars inside. It then combines these with oxygen to produce carbon dioxide, water and energy. The energy produced by the mitochondria is what the cell uses to perform all of its functions.



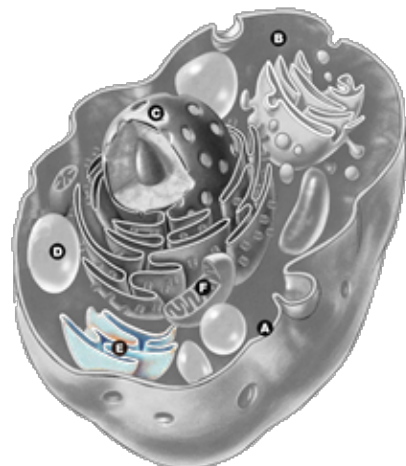
Endoplasmic Reticulum

Description:

The endoplasmic reticulum is a series of folded membranes that make canals through cytoplasm.

Function:

The endoplasmic reticulum transports proteins and other materials throughout the cell, and also to the outside of the cell.



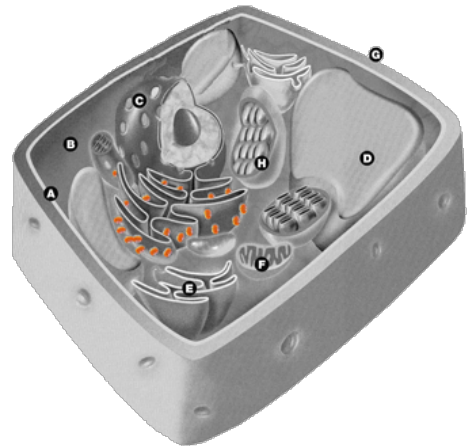
Ribosomes

Description:

Ribosomes are tiny circular organelles that can be found free floating in the cytoplasm, or stuck to the sides of the endoplasmic reticulum. A cell will contain many ribosomes.

Function:

The ribosomes produce proteins, which are large molecules used by the cell for many different things. Cells require proteins to grow, repair and reproduce, among other things.



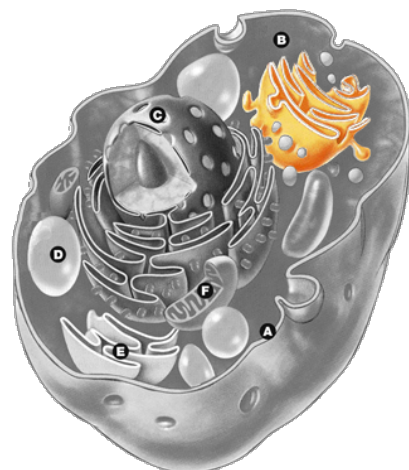
Golgi Body

Description:

A golgi body, also known as a golgi apparatus, is a folded membrane, similar to the endoplasmic reticulum.

Function:

The golgi body takes the proteins made by the ribosomes, and customizes them for use in the cell. The golgi body will alter the shape of the proteins, and will also add other materials to it.



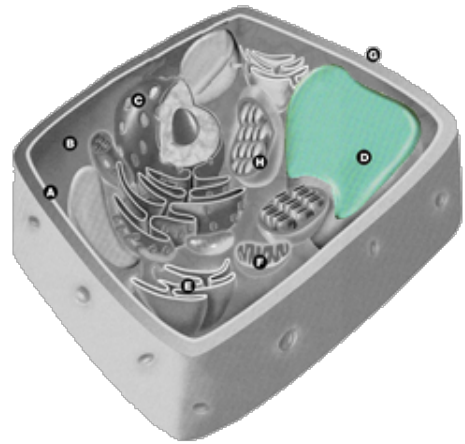
Vacuoles

Description:

A vacuole is a sack-like organelle. In plants there is one large "central" vacuole, which occupies most of the cell. Animal cells have several small vacuoles. A vacuole has a membrane around it.

Function:

The vacuoles are storage spaces within the cell. They store excess food, waste, or any other material, until the cell has need for it or gets rid of it.



Cell Wall

Description:

Only found in plant cells, the cell wall is a rigid casing that surrounds the cell. The cell wall has several pores (holes) in it.

Function:

The main function of the cell wall is to provide support and structure for a plant cell, which in turn creates rigidity in plants. Cell walls also allow materials to pass in and out of the cell.



Chloroplasts

Description:

The chloroplasts, found only in plant cells and some unicellular organisms, are small oval shaped organelles. All chloroplasts are green. They contain a series of folded membranes on the inside.

Function:

Chloroplasts are the location in which photosynthesis happens. A chloroplast contains a chemical called chlorophyll, which is able to absorb energy from the sun. The chloroplast then uses the sun's energy, carbon dioxide, and water to make sugars and oxygen. In this way, plant cells get the sugars they need in order to get energy.



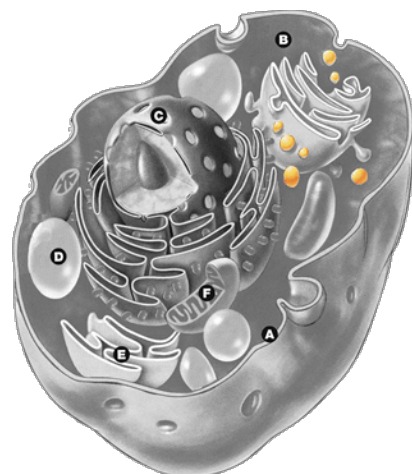
Lysosomes

Description:

A lysosome is a spherical organelle, surrounded by a membrane, that contains enzymes.

Function:

The lysosomes clean the cytoplasm by absorbing unwanted materials, and breaking them down using the enzymes contained within its membrane. Once broken down, the cell can then use the parts of these materials, should it need them.



Cilia and Flagella

The last two cell parts, which we discussed earlier in this unit, will be included here for completeness sake.

Cilia:

Cilia are tiny hair-like structures found on the outside of the cell. The cilia will work together, moving back and forth, to help the cell move, and to help it draw in food. A cell containing cilia will often be completely covered with them. In singular, they are called cilium.

Flagella:

Flagella are long tail-like structures found on the outside of the cell. The cell will either whip the flagella back and forth, or spin it, propelling the cell through fluids. Often a cell will only have one or two flagella. In singular they are called flagellum.

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