Cell Organization

Structure and Function

Cells have several things in common and come in two basic types. They all have a membrane, a gel-like material called cytoplasm inside the membrane, and a nucleus that controls or directs the cell. The cytoplasm contains proteins, nutrients, and all of the other cell organelles (structures). The control center is either a nucleus or nuclear material. The two basic types of cells are eukaryotic (with a true nucleus) and prokaryotic (no true nucleus). Eukaryotic cells have a nucleus surrounded by a membrane. DNA is located in this part of the cell, which is the reason the nucleus is often called the control center of the cell. Most cells are eukaryotic. Prokaryotic cells have nuclear material floating around inside the cytoplasm but lack a nuclear membrane. Bacteria, the simplest cells in existence, are prokaryotic.

Two Kinds of Cells:

- **Eukaryotic** - a cell with a true nucleus; nuclear material is inside a membrane.
- **Prokaryotic** - a cell without a true nucleus; nuclear material is present, but it is not inside a membrane (i.e., bacteria).

The Three Main Parts of a Cell:

- **Cell membrane** - A thin layer that encloses the cell and controls the movement of materials into and out of the cell; it offers shape and protection for the cell.
- **Nucleus** - Round or egg-shaped structure found near the center of the cell and is usually darker in color; contains DNA and controls all cell activities.
- **Cytoplasm** - All the living material in a cell except the nucleus; contains proteins, nutrients, and all of the other cell organelles.
Cell Organization: *Reinforcement Activity 1*

To the student observer: A membrane surrounds the nucleus of a cell. Based on what you have learned, what do you think the job of a nuclear membrane would be?

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**Analyze:** In your opinion, what do you think would happen to a cell if the nucleus was taken out of it?

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**Directions:** Answer the following questions.

1. What controls the activities of a cell?

2. List the three functions of the cell membrane.
   a. 
   b. 
   c. 

3. List and explain the two types of cells.
   a. 
   b. 

4. A cell is mostly made up of what substance?

5. Label the three main parts of the cell in the diagram below.

![Diagram of a cell with labeled parts A, B, and C.]