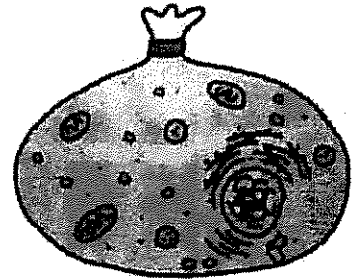


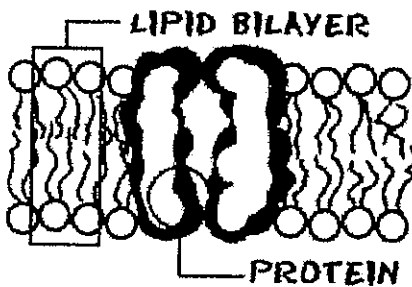
Cell Membranes

Let's look at the **cell membrane** and see how that membrane keeps all of the pieces inside. When you think about a membrane, imagine it is like a big **plastic bag with some tiny holes**. That bag holds all of the cell pieces and fluids inside the cell and keeps any unnecessary or harmful things outside the cell. The holes are there to let some things move in and out of the cell.



Flexible Containers

The cell membrane is not one solid piece. Everything in life is made of smaller pieces and a membrane is no different. Compounds called **proteins** and **phospholipids** make up most of the cell membrane. The phospholipids make the basic bag. The proteins are found around the holes and help move molecules in and out of the cell.



Scientists describe the organization of the phospholipids and proteins with the **fluid mosaic model**. That model shows that the phospholipids are in a shape like a head and a tail. The heads like water (**hydrophilic**) and the tails do not like water (**hydrophobic**). The tails bump up against each other and the heads are out facing the watery area surrounding the cell. The two layers of cells are called the bilayer.

Ingrained in the Membrane

What about the membrane proteins? Scientists have shown that the proteins float in that bilayer. Some of them are found on the inside of the cell and some on the outside. Other proteins cross the bilayer with one end outside of the cell and one end inside. Those proteins that cross the layer are very important in the active transport of ions and small molecules.

Many Membranes

Most organelles inside of eukaryotic cells have a membrane. They do not have the same chemical makeup as the cell membrane. Each membrane is unique to the **organelle**. The membrane that surrounds a lysosome is different from the membrane around the endoplasmic reticulum. They are both different from the cell membrane.

Some organelles have two membranes. A mitochondrion has an outer and inner membrane. The outer membrane contains the mitochondrion parts. The inner molecule holds digestive enzymes that break down food. Chloroplasts also have a double membrane. While we talk about membranes, you should remember they all use a basic phospholipid bilayer, but have many other different parts.