Plasma Membrane many models are proposed for the structure of plasma membrane is the fluid mosiac model by - Singer and Nicolson which is the most accepted model.

Plasma Membrane acts as a barrier between cells and surrounding.

Plasma membrane is a selectively permeable membrane.

**Fluid mosaic model**

It is made up of lipids proteins and carbohydrates

Major lipids present in the membrane are phospholipids which are amphipathic in nature ie; contains both hydrophopic and hydrophilic groups. the lipids in the membrane arrange them self to form a lipid bilayer in such a way that the hydrophobic tails are present in the interior and the hydrophilic groups/ heads are present in the exterior interacting with the water molecules.

Embedded in the lipid bilayer are present globular proteins which are of 2 types

Intrinsic proteins - Intergral proteins/ transmembrane proteins which traverse through the bilayer. and

Extrinsic proteins - peripheral proteins which are associated with the cytosolic of extracellular face of the membrane. extrinsic proteins are loosely bound to the surface of the membrane often to the exposed part of the integral proteins.

lipids and proteins in the membrane also associate with the cabbohydrates forming glycolipids and glycoproteins

lipids and proteins also associate with each other through hydrophobic interactions which contributes to the fluidity of the bilayer.

Permeability of the membrane

-lipid bilayer is permeable to small nonpolar molecules: CO2 and O2

-but it is impermeable to ions and polar molecules: glucose, sucrose, Na+, H+, Cl-

-transport proteins enable cell membranes permeable to specific ions and polar molecules

including H2O. Thus, the selective permeability of a membrane depends on both the discriminating barrier of the lipid bilayer and the specific transport proteins.

Some function of plasma membrane

1. The cell membrane functions as a **barrier** that makes it possible for the cytoplasm to maintain a different composition from the material surrounding the cell. The unit membrane is freely permeable to water molecules but very impermeable to ions and charged molecules. It is permeable to small molecules like CO2 and O2

**2. Transport**

It contains various pumps and channels made of specific transverse membrane proteins that allow concentration gradients to be maintained between the inside and outside of the cell. For example, there is a cation pump that actively extrudes sodium ions (Na+) from the cytoplasm and builds up a concentration of potassium ions (K+) within it.

**Enzymatic activity** Plasma membranes include as part of their structures certain [proteins](http://www.ivy-rose.co.uk/Define/Proteins) and [enzymes](http://www.ivy-rose.co.uk/Define/Enzyme) that are involved in some of the [metabolic processes](http://www.ivy-rose.co.uk/HumanBiology/Metabolism/What-is-Metabolism.php) of the cell.

**Signal transduction**

Cell membranes often include receptor sites for interaction with specific biochemicals such as certain hormones, neurotransmitters and immune proteins. In this way the cell can recognize and process some signals received from the extracellular environment.

**Attachment to cytoskeleton and extracellular matrix** -In many cases the cell membrane also helps to hold the [cytoskeleton](http://www.ivy-rose.co.uk/Biology/Cells/Cytoskeleton.php) (which is within the cell) in place. This is achieved by some proteins in the cell membrane attaching to some cytoskeletal fibres and helps to define and maintain the shape of the cell.

diagram below

**Fluid Mosaic model**



Outside of cell

Carbohydrates

Lipid bilayer

Transmembrane protein

Peripheral protein

Inside of cell