

Membranes

**HOW DO CELLS
TRANSPORT
MATERIALS?**

Background Information:

Solution



Solutions are uniform mixtures of two or more substances

Pull Arrow

Made of

Solute

the *dissolved* substance in a solution



Solvent

the substance that the solute is *dissolved* by



Pull Arrow



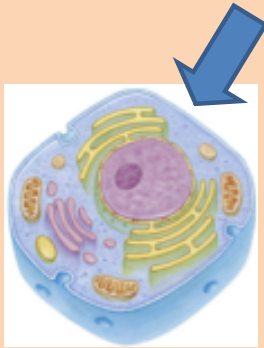
Solvent

Solution

Solute



Come up with your own example using a solid!



What is a Membrane?

the *boundary* around a *cell or organelle* that *separates the inside* environment from the *outside* environment

The Membrane is like...

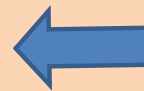


Drag arrow to make correct analogy

Pull tab to check answers

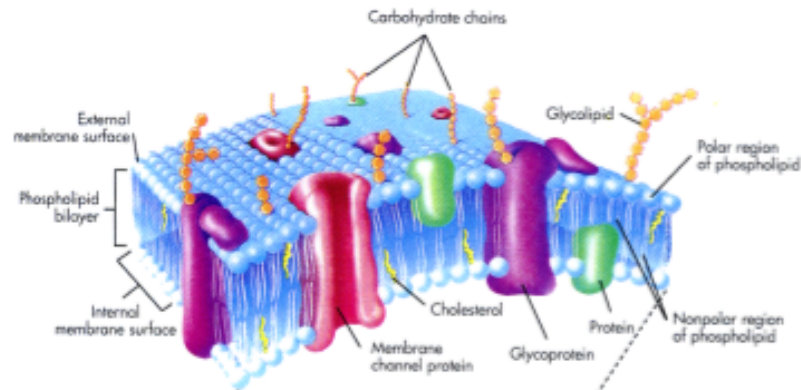
Membrane

Membrane = Milk Carton
because the carton holds the milk
inside like the membrane holds the
cytoplasm and organelles

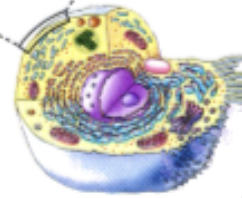


MEMBRANE

Cell Membrane: the outer layer that binds the cell together



Cell Plasma Membrane

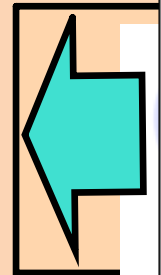
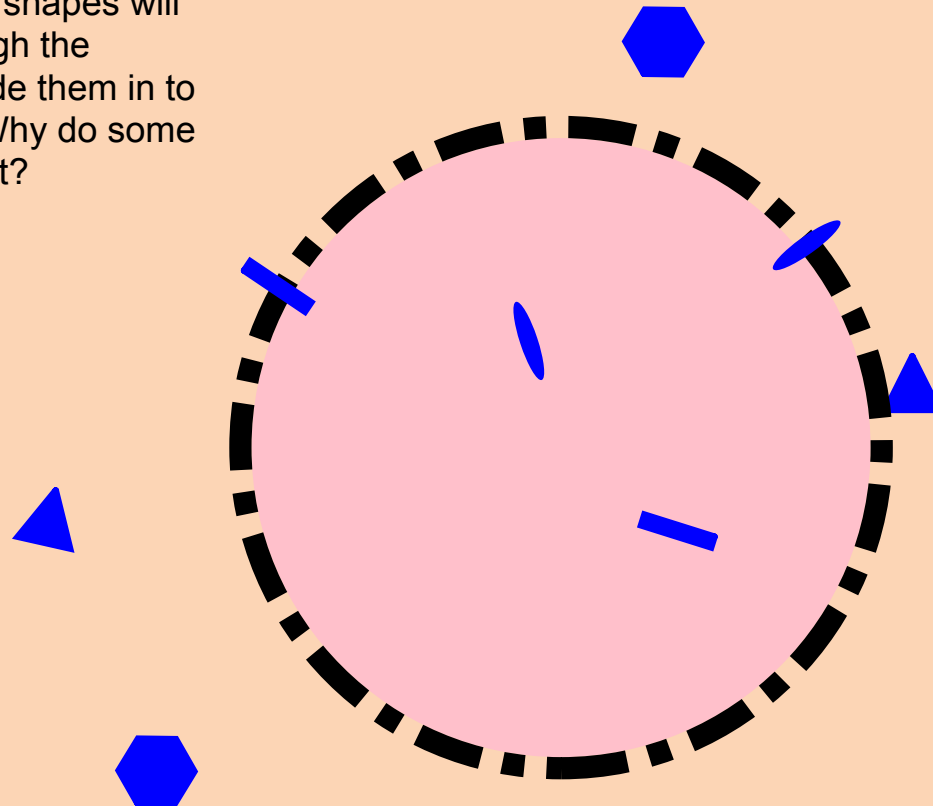


» Helps separate and protect the cell from its external surroundings

» Controls the movement of materials in and out of the cell

The Cell Membrane is *Selectively Permeable*

Choose which shapes will go through the membrane...slide them in to see if they fit. Why do some not fit?



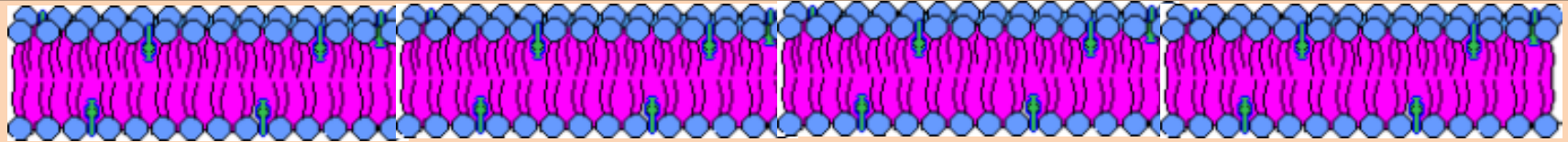
The Cell Membrane is Like....A

The cell membrane is flexible, not rigid so it acts more like a liquid



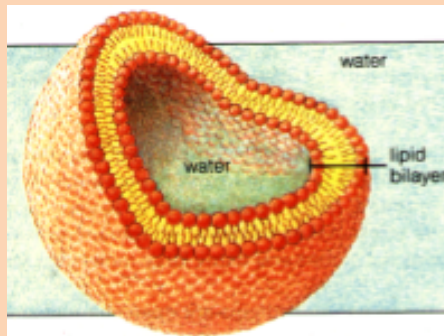
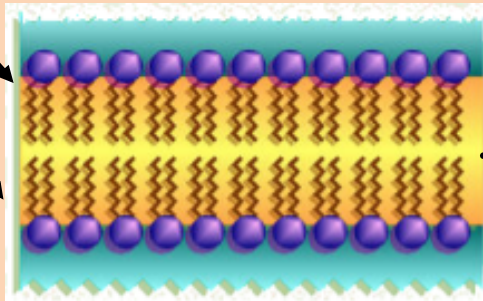
The cell membrane is made of up of many molecules, with difference textures and patterns much like a mosaic

Fluid Mosaic Model

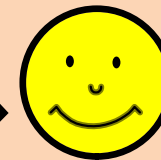
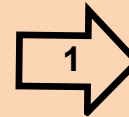


***Cell Membrane:* made of a PHOSPHOLIPID BIYLAR**

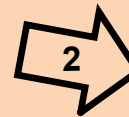
2 LAYERS
OF LIPIDS



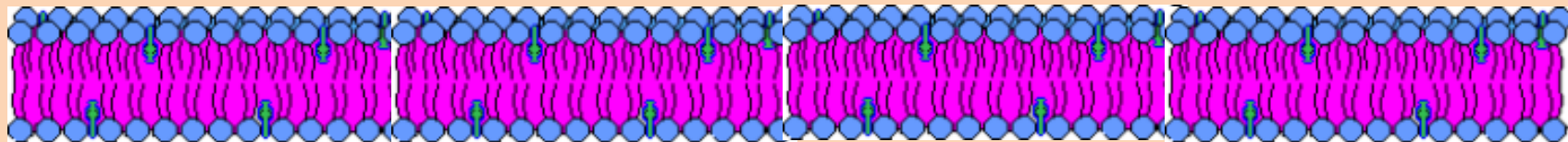
A phospholipid has
2 parts:



head = **HYDROPHILIC**
("likes" water)



tail = **HYDROPHOBIC**
("doesn't" like water)





How much knowledge of the Cell Membrane has "permeated" your brain???

Q.1

The cell membrane's job includes all of the following except?

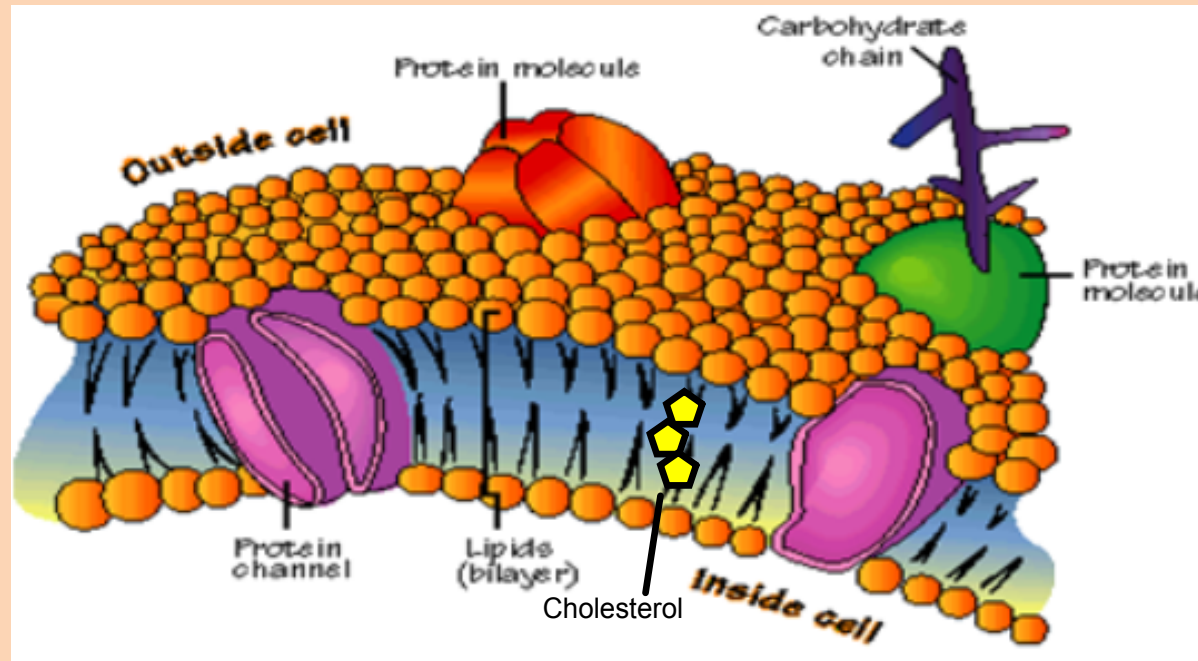
A Allows materials to enter and exit the cell

B Protects the cell

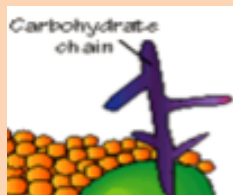
C Keeps the cell safe by not allowing any materials to enter the cell

D Separates the inside of the cell from the outside environment

Scattered throughout the Cell Membrane:



Proteins that form a channel to allow for ions and big molecules like glucose to pass through the membrane

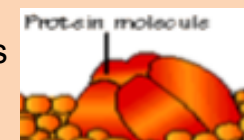


used for molecule identification



used to strengthen membrane

A protein molecule that binds specific molecules
(Ex: **Hormones**-trigger a cell to respond to a change in its external environment)

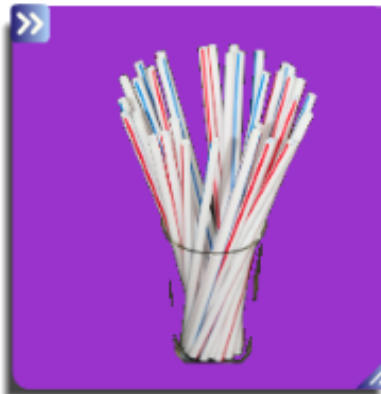




Structure

The _____ is like the _____

that is found in the cell membrane



Function

The _____ job is like the _____

that is found in the cell membrane



Surface Area



What happened to the balloon? Why?

As cells grow, their internal volume gets larger than their surface area can handle (like a balloon).

The cell membrane may not be able to get all the materials needed inside the cell.

