Name:

Homeostasis “AKA \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”- Maintaining a constant \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ controls what enters and leaves.

Functions of the membrane:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- regulates what comes into and out of the cell.

 - Selective = Permeable =

2.

3.

Phospholipids- make up the cell membrane.

* The head of the phospholipid is \_\_\_\_\_\_\_\_\_\_ and the 2 fatty acid tails are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Phospholipid bilayer

Fluid Mosaic Model- The cell membrane has many parts and can move around.

* Fluid = Mosaic=

What passes through the cell membrane?

* Small, polar particles (Oxygen, carbon dioxide, and water) and larger nonpolar particles too.
* Hydrophilic ‘water loving’ particles (proteins, carbohydrates) cannot pass through the membrane.

Parts of the cell membrane:

1. Phospholipid bilayer
2. Cholesterol – for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Peripheral proteins – don’t pass all the way through (structural support)
4. Integral proteins – pass all the way though (transport)
5. Carbohydrate chains- cell communication and recognition

Solute =

Solvent=

Solution=

**Passive transport = no \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1**. Simple diffusion**- Molecules go from high to low concentration.

**2. Osmosis=** a special type of diffusion involving \_\_\_\_\_\_\_\_\_\_\_\_\_movement through a ­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 -From \_\_\_\_\_\_ water concentration to \_\_\_\_\_\_\_ water concentration.

-From \_\_\_\_\_ solute to \_\_\_\_\_\_ solute concentration.

Three types of solutions-

1. Hypertonic-

- Water moves \_\_\_\_\_\_\_\_\_

 \*HypER = highER
2. Hypotonic-

- Water moves \_\_\_\_\_\_\_\_\_

\*hypO = lOwer

3. Isotonic-

- Water moves \_\_\_\_\_\_\_\_\_

No net movement of water =

Cytolysis- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – due to being in a \_\_\_\_\_\_\_\_\_\_environment (ex. Distilled water)

Plasmolysis- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Due to being in a \_\_\_\_\_\_\_\_ environment (ex. Salt water)

2 ways cells can prevent over swelling:

1. Cell wall (plants)
2. Contractile Vacuole (protists) -

**How do organisms deal with osmotic pressure?**

Bacteria and Plants-

 Turgor pressure-

Protists (eukaryotes)- have Contractile vacuoles-

Salt water fish (eukaryotes) –pump salt out of their specialized gills so they do not dehydrate.

Humans-

**3. Facilitated Diffusion** – third type of passive transport. (doesn’t require energy)

- Uses \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to move things from HIGH to LOW concentration. Remember: Proteins are SPECIFIC for one or two different molecules only.

 Ex.

* Two types of transport proteins:
1. Channel proteins – (random movement)
2. Carrier proteins- Change \_\_\_\_\_\_\_\_\_\_

**Active Transport**: Requires \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Moves things from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ concentration against the concentration gradient.

3 types of active transport:

1. Protein Pumps
2. Exocytosis
3. Endoytosis

**1. Protein Pumps-** Use membrane proteins to move things from low to high concentration.

Ex . Sodium Potassium Pump – Pump sodium \_\_\_\_\_\_\_\_\_ and potassium \_\_\_\_\_\_\_\_.

* Very important for nerve cell functioning in humans.

**2. Exocytosis** – Moving large things \_\_\_\_\_\_\_\_\_\_\_\_ of the cell.

 - Uses Vesicles – Made by the Golgi. Fuse with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and release their contents out of the cell. The vesicle then becomes part of the cell membrane.

Ex. Hormones are secreted out of the cell and nerve cells release ions to communicate with each other.

**3. Endocytosis-** Movement of large materials IN TO the cell. Three different forms of it.

1. **Pinocytosis**- “ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_” – most common type.

- Forms a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ around dissolved molecules.

- NONSPECIFIC

**2. Receptor – Mediated Endocytosis**- The protein in the cell membrane requires a specific molecule to bind to begin the endocytosis process.

 - SPECIFIC for the molecules it wants to bring in.

 - Used for the transport of things like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3. Phagocytosis- “Cell Eating” –** Used to bring inlarge particles like food, bacteria, etc. into the cells in vesicles.

 - NONSPECIFIC

EXTRA NOTES: