**Guided Notes: Cell Membrane and Cell Transport**

1. Cell membrane is also known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Cell membranes of unicellular organisms are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ so the organism can move.
3. Cell membrane controls what \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and leaves the cell.
4. What does selectively permeable mean?
5. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bilayer makes up most of the cell membrane.
6. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ describes the appearance of the cell membrane.
7. Are phospholipid heads polar or nonpolar?
8. What is the phospholipid head made out of?
9. Are phospholipid tails polar or nonpolar?
10. What is the phospholipid tail made out of?
11. What is the difference between hydrophobic and hydrophilic?

Hydrophobic –

Hydrophilic –

1. Label the following picture to the right using phospholipid head, tail, phosphate/glycerol, and fatty acid.
2. What does homeostasis mean?
3. Homeostasis is also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. How does the plasma membrane help maintain homeostasis?
5. Give 7 functions of the plasma membrane.
	1. Protective \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Regulates \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Allows cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	4. Provides \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for filaments of the cytoskeleton
	5. Provides a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for enzymes
	6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bind cell together (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
	7. Contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Sketch and label phospholipid bilayer.
7. What are the other 2 components in a phospholipid bilayer?
8. What do cholesterol and carbohydrates do?
9. What do proteins do?
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ how particles pass
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Why is the cell membrane fluid?
11. What causes the mosaic pattern of the cell membrane when viewed from above?
12. The cell membrane is made of \_\_\_\_\_\_\_\_\_\_ layers of phospholipids call a lipid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
13. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules pass easily, while \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules DO NOT.
14. Materials soluble in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can pass easily through the cell membrane.
15. List 3 substances that pass easily through the cell membrane.
16. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules larger than water, and large

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ do NOT move easily through the phospholipids of the cell membrane.

*Movement through the Membrane*

1. Two major types of movement occur through a cell membrane.
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ transport b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ transport
		1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ i. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ii. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Passive transport is when particles pass through a membrane \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy;

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_ concentration.

1. Name the 3 types of passive transport:
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - movement of O2, CO2, and alcohol
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - movement of water only
	3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - movement of larger molecules; needs a facilitator protein.
2. Simple \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ requires NO energy to move things across the cell membrane.
3. With simple diffusion, molecules move from an area of \_\_\_\_\_\_\_\_\_\_ concentration to an area of \_\_\_\_\_\_ concentration.
4. Why is diffusion considered a passive process?
5. With diffusion, molecules move by their own natural \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy or energy of motion.
6. Explain what happens to a drop of food coloring put into a beaker of water.
7. When solutes diffuse through a membrane, they move from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_ concentration.
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the diffusion of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ across a cell membrane.
9. If water potential is HIGH, solute concentration is \_\_\_\_\_\_\_\_\_\_.
10. If water potential is LOW, solute concentration is \_\_\_\_\_\_\_\_\_\_\_.
11. An isotonic solution is when the concentration is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ inside and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ outside.
12. Sketch a picture of a cell in an isotonic environment & show the direction of water movement.
13. A hypertonic solution is a solution that has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ solute concentration than the cell.
14. Sketch a picture of a cell in a hypertonic environment & show the direction of water movement.
15. A hypotonic solution is a solution that has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ solute concentration than the cell.
16. Sketch a picture of a cell in a hypotonic environment & show the direction of water movement.
17. Complete the following table:

|  |
| --- |
| Direction of Osmosis |
| Environmental Condition | Net Movement of water | What happens to cell |
| Isotonic |   | Nothing  |
| Hypotonic |  Water Goes In |   |
| Hypertonic |   | Plasmolysis  |

1. Explain what happens to a red blood cell placed in:
	1. distilled water – cell swells and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. a concentrated salt solution – cell shrinks and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs whenever water moves into the cells causing them to swell and burst.
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs whenever water moves out of a cell & the cell shrinks in size.
4. Facilitated diffusion is the movement of specific molecules across cell membranes through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Facilitated diffusion needs a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is when particles pass through a cell membrane WITH energy, but go from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ concentration.
7. Active transport uses cellular energy known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
8. Moves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the concentration gradient.
9. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pump is an example of active transport.
10. Moving very large particles out of the cell is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. In exocytosis, wastes are moved out of the cell in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that fuse with the cell membrane.
12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ involves moving large particles into the cell.
13. Taking in large liquid droplets is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or "cell drinking".
14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ endocytosis involves protein \_\_\_\_\_\_\_\_\_\_\_\_ recognizing hormones to help move them into the cell.
15. "Cell eating" is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.