

## Key for "Maintaining Homeostasis in a Cell"

1. A cell membrane lets certain things in and out, allowing cells to maintain a stable internal environment.
2. Small molecules such as water, carbon dioxide and oxygen, and molecules that dissolve easily in fats such as alcohols can easily pass through the cell membrane.
3. Molecules are constantly in motion.
4. Diffusion is the movement of molecules along their concentration gradient (from high concentration to low).
5. Diffusion allows important molecules to enter the cell without requiring energy and allows cells to release wastes in the same fashion.
6. Diffusion will occur as long as there is a concentration gradient.
7. An equilibrium is established when the amount of a particular type of molecule moving in, is equivalent the amount of the molecule moving out.
8. The carbon dioxide will move out of the cell because there is more carbon dioxide in the cell than out, and in diffusion particles move from high to low concentration.
9. The oxygen will move into the cell from high to low and the carbon dioxide will move out of the cell in the same fashion, until an equilibrium is reached.
10. Facilitated diffusion is used to transport glucose because although it is small enough to pass through, it is repelled by the lipid portion of the cell membrane.
11. As ions have charges, if they are identical to that of the lipid portion of the membrane, they will also be repelled and require the protein channel to pass across the membrane.
12. In beaker A, the water concentration is low.
13. In beaker B, the water concentration is high.
14. The solution in beaker A is hypotonic as there is more water in comparison to the cell.
15. As water moves from high to low into the cell by osmosis, the cell will swell and could eventually burst.
16. The solution in beaker B is hypertonic in comparison to the cell as there are more particles than the cell.

17. The animal cell will shrivel \* Salt was added to the plant cell below question 17 (the cell membrane shrivels away from cell wall, but cell wall remains intact)