





## ~ Practical Applications of Osmosis ~

*Osmosis is a process that occurs naturally any time two solutions of different concentrations are separated from each other by a semipermeable membrane. For example, the watery solution inside the root cells of a growing plant normally has a higher concentration than the groundwater that surrounds the roots. The solution inside the cell is hypertonic in comparison to the groundwater. Water passes more rapidly across the cell membrane into the cell than it does out of the cell. This process makes possible the movement of water from the base of a plant upward through its trunk and branches into upper parts of the plant.*

### Directions:

*Humans use the principle of osmosis in a number of practical applications. The table below lists some of those applications. In each case, tell how osmosis explains the process that takes place. Then tell whether the solution in bold is isotonic, hypotonic or hypertonic.*

Application	Water moves...	Cell Will...	Solution Type ____tonic
1) Pickles are made by immersing cucumbers in a <b>concentrated saltwater solution</b> . 	OUT	shrinks	hypertonic solution
2) Spraying plants with a <b>solution</b> that contains too high a concentration of fertilizer might cause them to dry out and die.			
3) Patients undergoing surgery are given a <b>0.9% saline (saltwater) solution</b> . Don't forget that our bodies have some salt in them.			
4) One of the oldest methods of preserving foods is to pack them in <b>saline solutions</b> , which kill the bacteria that cause foods to spoil.			
5) Organisms that live in <b>seawater</b> have specialized mechanisms that prevent them from becoming dehydrated.			
6) Florists store fresh flowers in <b>cold water</b> to help the flowers keep their original appearance 			
7) Although the flowers begin to wilt as soon as they are <b>taken out of the water</b> for a period of time			
8) Raisins are basically <b>dehydrated grapes</b> . 			
9) A person who is exercising and is <b>sweating</b> . 			
10) A person who is <b>drinking a sports drink</b> to rehydrate themselves after exercising. 