

Gummy Bear Osmosis: Exploring Tonicity

VIDEO GUIDE

NAME _____

1) If you sprayed air freshener in a room for 30 secs (don't do this, haha) would someone be able to smell it in another room eventually? Explain why or why not.

NOTE! **HOMEOSTASIS** is a self regulating process to maintain _____ (0:33)

2) When you run outside, what is a response that occurs in your body to maintain homeostasis?

NOTE! **CELL TRANSPORT** the _____ of matter _____ the cell _____ (plasma membrane)



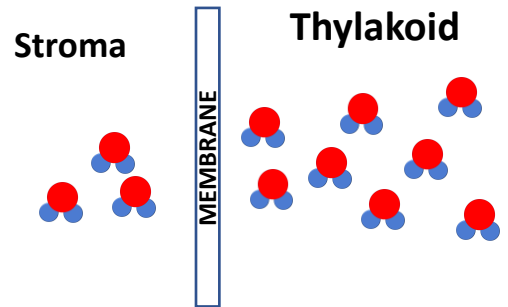
3) Which of the following can easily move across a cell membrane? (Not in the video, but THINK!)

- a) Polar (charged) molecules b) very large molecules c) small nonpolar molecules

NOTE! **SELECTIVELY PERMEABLE** to _____ substances through and _____

4) The hydrophobic tails and hydrophilic heads of the phospholipid cell membrane control is ONE factor that controls what passes through the membrane, but it also depends on _____ which is **the amount of substance in an area.** (1:06)

5) **Diffusion & Osmosis** involves the movement of molecules from _____ to _____ concentrations.



It doesn't matter whether you recognize what STROMA or THYLAKOID is...use your knowledge of concentration and osmosis to answer questions 6-8

6) Which location has a **HIGH CONCENTRATION**?

7) **LOW** Concentration?

8) **WHERE** would the molecules move to?

SOLUTION	Mass Before (g)	Mass After (g)	Change in Mass (g)	Observations
Distilled Water	5	8	3	swollen
saltwater	5	3.8	-1.2	thin
Tap Water	5	5.1	0.1	A little swelling

9) A **SOLUTION** is composed of a **SOLUTE** dissolved into a **SOLVENT**. Someone brings you a cup of kool-aid.

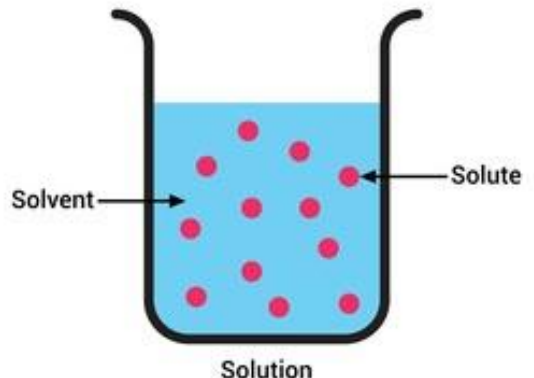
What would the **SOLUTES** be in a glass of kool-aid?

What is the **SOLVENT**?

10) The cytoplasm in cells is made of many proteins: nucleolin & parvin, carbs: glucose, and other molecules like salt...all dissolved into water.

What are the **SOLUTES** be in cytoplasm?

What is the **SOLVENT**?



The fluid in your cells are SOLUTIONS...and they have a normal state they prefer to maintain. Therefore cells use OSMOSIS to maintain that state...BUT

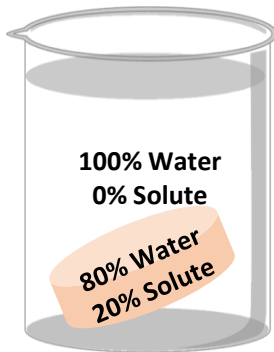
11) TONICITY controls WHERE water will move across a membrane and there are THREE tonicities:

HYPOTonic	HYPERtonic	ISOtonic
_____ amount of solute	_____ amount of solute	_____ amount of solute
COMPARED to the inside of the cell!		

The tonicity of a solution is determined by comparing the amount of solute OUTSIDE of the cell to the amount INSIDE of the cell.

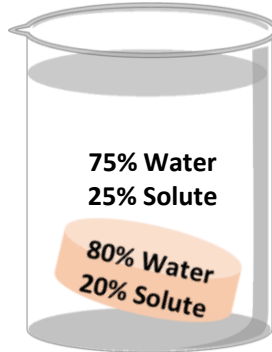
A cell has been placed in THREE solutions below...determine the tonicities below

12) _____ tonic



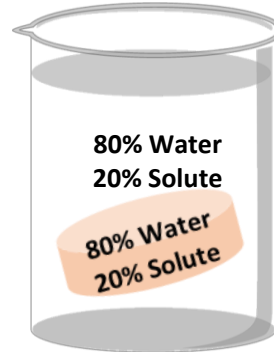
DISTILLED WATER

13) _____ tonic



SALTWATER

14) _____ tonic



TAP WATER

Water moves from HIGH to LOW concentrations...THEREFORE in the...

15) **DISTILLED** solution the cell would (SWELL/ SHRINK/ N/A)

16) **SALTWATER** solution the cell would (SWELL/ SHRINK/ N/A)

17) **TAPWATER** solution the cell would (SWELL/ SHRINK/ N/A)

18) A shriveled cell that contains 40% salt and 60% water is on its last leg, Meagan decides to restore it by putting it into a solution, **which solution to the right should she use to help the cell GAIN water? Why?**

19) What was the tonicity of solution was the cell most likely exposed to that caused it to shrivel? How do you know?

20) Why is it bad idea to drink saltwater to survive?

