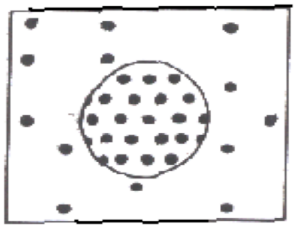
Name: _____ **Date:** _____ **Block:** _____

Passive Transport Worksheet

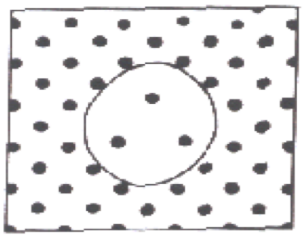
Part 1: *Complete the table below by placing an "X" in the correct column(s) next to each description.*

Statement	Isotonic	Hypotonic	Hypertonic
1. Causes an animal cell to burst/lyse		X	
2. Causes a plant cell to become wilted			X
3. When the solute concentration is lower outside the cell than inside the cell.		X	
4. Doesn't change the shape or volume of a cell.	X		
5. When the solute concentration is higher outside the cell than inside the cell			X
6. Causes the movement of water molecules	X	X	X
7. When the solute concentration outside the cell matches the solute concentration inside the cell	X		
8. Causes an animal cell to shrink/dehydrate			X

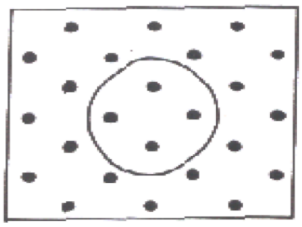
Part 2: *Write the correct type of solution (isotonic, hypertonic, or hypotonic) underneath the picture.*



1. hypotonic



2. hypertonic



3. isotonic

Part 3: *Define the following terms. Use the picture in the above section to help you, if you need.*

1. hypertonic There is a greater concentration of solute molecules OUTSIDE the cell than inside the cell.
2. hypotonic There is a LOWER concentration of solute molecules OUTSIDE the cell than inside the cell.
3. isotonic There is the SAME concentration of solute molecules outside the cell as inside the cell.

Part 4: *Match the definition to the terms in the word bank. Words may be used more than once!*

1. D The *swelling and bursting* of animal cells when water enters is called?
2. C A cell bursts happens when the cell is placed in this type of tonic solution?
3. E The shrinking of plant cells when water leaves causing the membrane to pull away is called
4. B The membrane in #3 happens when the cell is placed into this type of tonic solution?
5. E The shrinking of animal cells that are placed in a hypertonic solution is called?
6. A Cells will stay the same size when they are placed into this type of solution?

Word Bank
A) Isotonic B) Hypertonic C) Hypotonic
D) Lyse E) Plasmolysis

Part 5: *Multiple Choice.*

1. C _____ The substance that dissolves to make a solution is called _____?
   a. Diffuser b. Solvent c. Solute d. Concentrate
2. B _____ During diffusion molecules tend to move _____.
   a. Up the concentration gradient
   b. Down the concentration gradient
   c. From an area of lower concentration to an area of higher concentration
   d. In a direction that doesn't depend on concentration
3. D _____ When the concentration of a solute inside and outside a cell is the same, the cell has reached?
   a. Maximum concentration
   b. Homeostasis
   c. Osmotic Pressure
   d. Equilibrium
4. C _____ The diffusion of water across a selectively permeable membrane is called?
   a. Active transport
   b. Facilitated diffusion
   c. Osmosis
   d. Phagocytosis
5. C _____ Energy for active transport comes from a cell's _____?
   a. Golgi complex
   b. Nucleus
   c. Mitochondria
   d. Lysosomes
6. D _____ All of the following are kinds of passive transport EXCEPT _____?
   a. Diffusion
   b. Facilitated diffusion
   c. Osmosis
   d. Ion Channels

7. B When molecules move DOWN the concentration gradient it means they are moving from _____?
   a. An area of low concentration to an area of higher concentration
   b. An area of high concentration to an area of lower concentration

8. C The pressure exerted by water moving during osmosis is called _____ pressure?
   a. Tonic
   b. Diffusion
   c. Osmotic

9. B Gases like oxygen and carbon dioxide move across cell membranes using?
   a. Ion channels
   b. Diffusion
   c. Facilitated diffusion

Part 6: *Complete the transport terms. Some letters have already been filled in for you!*

1. Active transport requires _E_ N E R G Y to move molecules across membranes.

2. _A_ T P is the molecule that provides the energy for active transport.

3. _D_ i f f u s i o n moves oxygen and carbon dioxide molecules from a high concentration to a low concentration across membranes.

4. The cell organelles that burns glucose and provides ATP for active transport are the _M_ i t o c h o n d r i a,

5. Water moves across membranes by _O_ s m o s i s.

6. A small membrane sac used to transport substances out of the cell = _V_ e s i c l e

7. _P_ a s s i v e transport does NOT REQUIRE energy.

8. A cell placed in an _I_ s o t o n i c solution neither swells or shrinks because the concentration of molecules outside the cell is the same as inside.

9. A solution in which there is a HIGHER concentration of molecules OUTSIDE the cell than inside = _H_ y p e r t o n i c.

10. A CONCENTRATION _G_ r a d i e n t forms whenever there is a difference in concentration between one place and another.

11. A solution in which the concentration of molecules outside the cell is LOWER than inside = _H_ y p o t o n i c.

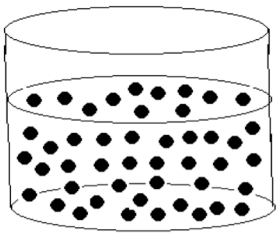
12. When molecules move from high to low along a concentration gradient we say they are moving "_D_ o w n" the gradient.

13. _O_ s m o t i c pressure is caused by water inside a plant cell pushing against the cell wall.

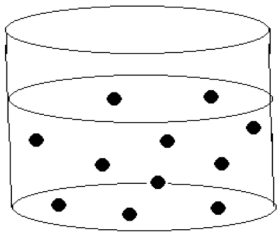
14. The shrinking of a plant cell membrane away from the cell wall when placed in a hypertonic solution is called _P_ l a s m o l y s i s.

Part 7: *Diagrams*

- Look at the diagrams below. The black dots represent solute molecules dissolved in water.
- In which beaker is the concentration of solute the GREATEST? **A** or **B**



A



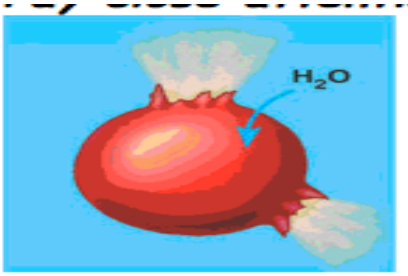
B

Part 8: *Matching*

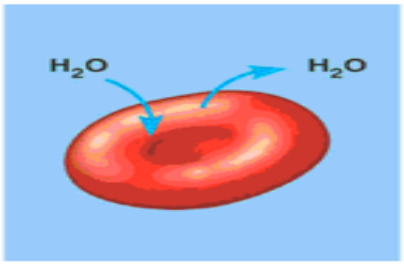
1. B Solution with a lower solute concentration (more water)
2. A Solution in which the solute concentration is the same
3. A Condition plant cells require
4. A Condition that animal cells require
5. D Red blood cells bursts (cytolysis)
6. E Plasmolysis
7. C Solution with a higher solute concentration (less water)

Word Bank
A) Isotonic
B) Hypertonic
C) Hypotonic
D) Lyse
E) Plasmolysis

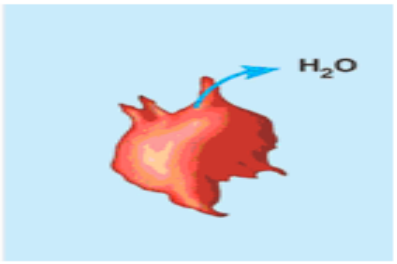
Part 9: *Label each picture as isotonic, hypotonic, or hypertonic. Pay attention to the arrows!*



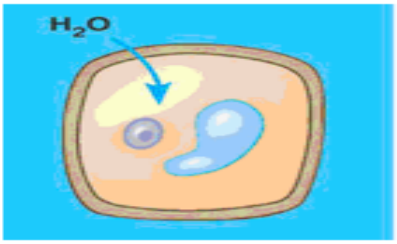
hypotonic



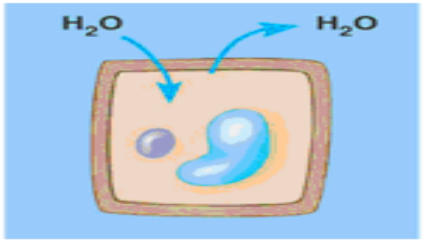
isotonic



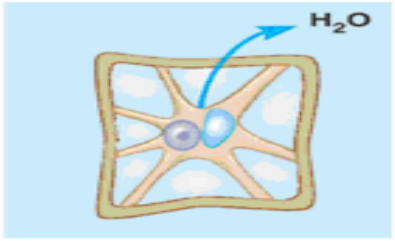
hypertonic



hypotonic



istonic



hypertonic