Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_ # \_\_\_\_\_\_\_

**Cell and Transport Webquest**

***Part 1- Cell membrane***

<http://www.wisc-online.com/objects/index_tj.asp?objid=AP1101>

1. Why does the cell membrane have transport proteins?
2. Draw a diagram of the phospholipid bilayer and **explain** what it means.
3. Why is cholesterol in the membrane?

Answer the questions on the website.

***Part 2: Fluid Mosaic Model***

***Go to*** [***http://www.susanahalpine.com/anim/Life/memb.htm***](http://www.susanahalpine.com/anim/Life/memb.htm) ***and view animation.***

1. What do you notice about the proteins that are imbedded in the phospholipid bi-layer? (Hint: think about their relative position to each other!)

***Part 3 Solutions***   
<http://www.chem4kids.com/files/matter_solution.html>  
  
1. What is a solution?

2. Explain the difference between the solute and solvent.

3. Explain how solutions are related to the cell.

***Part 4 Diffusion and Osmosis***

Go to the website:  
[**http://bcs.whfreeman.com/thelifewire/content/chp05/0502001.html**](http://bcs.whfreeman.com/thelifewire/content/chp05/0502001.html)

**Read the intro:**

1. What is the difference between passive and active transport? (include both the energy requirement and the direction of movement)
2. What is equilibrium?
3. What happens to the movement of molecules when they reach equilibrium?

**Click on options at lower left corner of animation window to return to the menu. Select Facilitated diffusion: Channel Proteins**

**Once you read the opening info, click play and continue until you’ve watched the whole animation.**

1. How does facilitated diffusion differ from regular diffusion?
2. How are facilitated diffusion and regular diffusion the same?

***Part 5- How stuff moves through the cell membrane.***

**Go to** [**http://www.teachersdomain.org/asset/tdc02\_int\_membraneweb/**](http://www.teachersdomain.org/asset/tdc02_int_membraneweb/)

**After clicking on each type of molecule and viewing how they move, list how the following molecules enter/exit the cell membrane. If needed, indicate what type of membrane protein allows the molecule to enter/exit the cell.**

Water

Oxygen

Carbon Dioxide

Glucose

Sodium/Potassium Ions

***Part 6- Osmosis***

**Go to** [**http://www.stolaf.edu/people/giannini/flashanimat/transport/osmosis.swf**](http://www.stolaf.edu/people/giannini/flashanimat/transport/osmosis.swf) **(“Cell biology animations”) and select “osmosis” under** “cell transport”.

1. In the basic animation, describe the movement of the water molecules across the membrane. Consider the volume of fluid on each side.

***Now click on “Add salt” and observe what happens.***

1. After salt (in reality there would be many Na+ and Cl- ions) is added, how do the water molecules move across the membrane? Is there an overall direction of movement (where do most of the molecules end up?)

***Part 7- Plant cells***

**Now go to** [**http://www.kscience.co.uk/animations/turgor.htm**](http://www.kscience.co.uk/animations/turgor.htm) **Watch the animation loop to understand what happens with plant cells**

1. Plant cells depend on being in hypotonic solutions to build turgor pressure, which helps them to stand up. What is turgor pressure?
2. What structure in a plant cell allows it to take in a great deal of water without diluting materials in the cytoplasm too much?
3. What structure keeps a plant cell from exploding due to being in a hypotonic solution?

***Part 8 Osmosis***   
<http://biologyjunction.com/tonicity%20animations.htm>

1. Look at the first diagram.

What type of solution is the cell in (hypertonic, hypotonic, or isotonic)?\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Run the animation)   
Which way does the water move? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What happens to the cell? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Look at the second diagram.

What type of solution is the cell in (hypertonic, hypotonic, or isotonic)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Run the animation)  
Which way does the water move? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
What happens to the cell? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Look at the third diagram.

What type of solution is the cell in (hypertonic, hypotonic, or isotonic)?\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Run the animation)  
Which way does the water move? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
What happens to the cell? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_