Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block\_\_\_\_\_\_

DIFFUSION, OSMOSIS, AND ACTIVE TRANSPORT

1. **Transport Systems: Movement of Body Systems**

Go to this link: <http://www.people.vcu.edu/~elmiles/FluidMovement/player.html>

**Click the play button**.

* **Click on Diffusion**

Answer the following questions:

1. Fluids and solutes move continually throughout the body in order to maintain\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Diffusion is passive. Does movement that is passive require energy? Circle one.

YES NO

* **Click on the Diffusion Animation**

1. In the animation, which direction are the particles (such as salt or sugar molecules) moving? Circle one.

HIGH TO LOW CONCENTRATION LOW TO HIGH CONCENTRATION

1. Fill in the chart below for Diffusion.

* **Click on Osmosis**

Answer the following questions:

1. Osmosis is passive. Does osmosis require energy? Circle one.

YES NO

1. Osmosis is the movement of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* **Click on the Osmosis Animation**

1. In the animal, which direction are the fluids (water molecules) moving? Circle one.

HIGH TO LOW CONCENTRATION LOW TO HIGH CONCENTRATION

1. Fill in the chart below for Osmosis.

* **Click on Active Transport**

Answer the following questions:

1. Active Transport is active. Does movement that is active require energy? Circle one.

YES NO

* **Click on the Active Transport Animation**

1. In the animation, which direction are the particles (such as salt or sugar molecules) moving? Circle one.

HIGH TO LOW CONCENTRATION LOW TO HIGH CONCENTRATION

1. Fill in the chart below for Active Transport

* **Take the quiz. Record your score.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Chart for Diffusion, Osmosis, and Active Transport**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Movement from high to low concentration?** | **Movement from low to high concentration?** | **Energy (ATP)**  **Required?** | **Movement of particles or fluids (water)?** |
| **Diffusion** |  |  |  |  |
| **Osmosis** |  |  |  |  |
| **Active Transport** |  |  |  |  |

1. **OSMOSIS: VIRTUAL LAB**

Go to this link:

[**http://www.glencoe.com/sites/common\_assets/science/virtual\_labs/LS03/LS03.html**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS03/LS03.html)

Read *Under what conditions do cells gain or lose water* and answer the following questions:

1. A cell membrane that allows only some materials to pass through while keeping others out is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. The diffusion of water through a selectively permeable membrane is called\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Equilibrium is reached when there is an \_\_\_\_\_\_\_\_\_\_\_\_\_\_amount of water inside and outside the cell.
4. Too much water moving **inside** a cell will cause it to \_\_\_\_\_\_­\_\_\_\_\_\_\_\_\_\_\_.
5. Too much water moving **out** of a cell will cause it to\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. List the three types of cells that you will be looking at in this lab.

1.

2.

3.

A **hypotonic** solution means that there is more water than particles (i.e., sugar and salt) outside the cell. The water moves from high concentration (outside the cell) to low concentration (inside the cell). This can cause the cell to burst.

An **isotonic** solution means that there is an equal amount of water and particles (i.e., sugar and salt) inside and outside the cell.

A **hypertonic** solution means that there are more particles (i.e., sugar and salt) outside the cell. The water moves from high concentration (inside the cell) to low concentration (outside the cell). This can cause the cell to shrivel (dehydrate).

Drag each of the three cells into each of the three types of solutions. Record your observations on the chart below.

**\*Bonus question: Circle the cell/solution combination that shows plasmolysis in the animation.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Hypotonic** | **Isotonic** | **Hypertonic** |
| **Red Blood Cell** |  |  |  |
| **Elodea** |  |  |  |
| **Paramecium** |  |  |  |