Lab report on osmosis assignment

The other is called passive process, which does not require TAP energy and the transport process is driven by concentration or erasure differences between the interior and exterior of the cell. All molecules are in constant motion, ergo, possessing kinetic energy. This kinetic energy is the motivating force in diffusion. During diffusion, molecules that are small enough to pass through a membrane's pores or molecules that can dissolve in the lipid bilateral of a membrane move from an area of higher concentration to an area of lower concentration.

Facilitated diffusion occurs when molecules are too large to pass through a membrane or are lipid insoluble. Thus, in the process, carrier rotten molecules located in the membrane combine with solutes and transport them down the concentration gradient. Hypothesis Activity One: Simple Diffusion- Simulating Dialysis Simple diffusion will occur between different concentrations until equilibrium is reached. Activity Two: Simulating Facilitated Diffusion Facilitated diffusion will occur between different concentrations. Material and Methods * Two beakers * Membrane holder * Four Dialysis membranes: 20 (MOOCOW), 50 (MOOCOW), 100 (MOOCOW), 200 (MOOCOW). Membrane barrier * Four solutes: NCAA, Urea, Albumin, Glucose Solution dispenser * Denizen Water * Beaker Flush * Timer * Computerized Simulator Using the computerized simulator, the first step of the first experiment, you must place the 20 (MOOCOW) dialysis membrane into the membrane holder. The membrane holder is joined between two glass beakers; one on the left, the other to the right. Next, 9. 00 (mm) of NCAA concentration is dispensed into the left beaker and denizen water is dispensed in the right beaker.

As the timer begins, the barrier that surrounds the membrane holder lowers to allow the contents f each beaker to come into contact with the membrane. After 60 minutes of compressed time elapsed, results were shown and recorded. Final step requires the beakers to be flushed for preparation of the next experiments. The exact steps were followed using each dialysis membrane size 20 (MOOCOW), 50 (MOOCOW), 100 (MOOCOW) and 200 (MOOCOW); as well as with each solute; NCAA, Urea, Albumin, and Glucose. There were a total of sixteen runs in the experiment.

Activity Two: Simulating Facilitated Diffusion Material and Methods: * Two glass beakers * Membrane builders * Membrane holders Glucose concentration * Denizen water Using the computerized simulator for this experiment, the first step is to adjust the glucose carrier to 500 so to correctly build the membrane. Next, the membrane is built in the membrane builder by inserting 500 glucose carrier proteins. Then, the newly built membrane is placed into the membrane holder that joins between the two beakers. 2. 00 (mm) of glucose concentration is dispensed into the left beaker and denizen water is filled in the right beaker.

After 60 minutes of compressed time, results were shown and recorded. Final tepee requires the beakers to be flushed for preparation of the next experiments. The exact steps were followed and repeated by increasing the glucose concentration to 8. 00. Both the 2. 00 (mm) and 8. 00 (mm) glucose concentration solution were tested using membranes with 500, 700, and 900 glucose carrier proteins. There were a total of six experimental runs. Results Activity l- Simple Diffusion (Table 1) Solutes that diffused into the right beaker are indicated by a +.

Solutes that did not diffuse into the right beaker are indicated by a -. Membrane (MOOCOW) Solutes (9. Mm M) Pore Size I NCAA I Urea I Albumin Glucose I 201-1-1 1 501 +1 _ I I 100 -1+1 Activity 2 (Table 2): Facilitated Diffusion Rates (glucose transport rate, mm/ min) Facilitated Diffusion (Glucose Transport rate, mm/min) and Conclusions Discussion In the first lab experiment (refer to Table 1), Simulating Dialysis (Simple Diffusion), the computerized simulation demonstrated the passage of water and solutes through semi permeable membranes in cells down its concentration gradient.

The four membranes used in the experiment consisted of different pore sizes (MOOCOW). They ranged (from smallest to largest) at 20 (MOOCOW), 50 (MOOCOW), 100 (MOOCOW) and 200 (MOOCOW). The solutes that were tested were NCAA, Urea, Albumin, and Glucose. The first solute tested, NCAA, showed with a 20 MOOCOW membrane, no diffusion occurred into the denizen filled beaker on the right. The Niacin molecules were too large to pass through the 20 MOOCOW membrane because its pores were too small.

Membranes 50 (MOOCOW), 100 (MOOCOW) and 200 (MOOCOW) did allow NCAA to permeate through and the reason being is because the pores in these membranes were large enough to permit passage of the NCAA molecules. The other reason diffusion occurred is because the NCAA molecules moved down its concentration gradient and into the beaker filled with denizen water. For all three experiments, equilibrium was reached in ten minutes at an average diffusion rate of 0. 015 rim/min. As for the solute Urea, the experiment showed no diffusion in membranes 20 (MOOCOW) and 50 (MOOCOW).

However, Urea did pass through membranes 100 (MOOCOW) and 200 (MOOCOW) because the molecules were small enough and soluble. Equilibrium was reached at sixteen minutes tat diffusion rate of 0. Mamma/min. The next experiment tit the solute Albumin showed no diffusion in any of the four membranes tested. This is because the Albumin molecules were too large to pass through the pores of all four. Glucose, the final solute tested in the experiment, showed that the molecules only diffused through the 200 (MOOCOW) membrane.