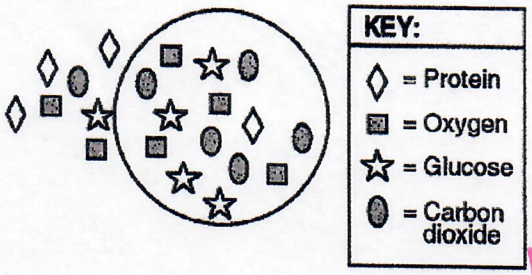
*Please return to Ms. Campbell!

Station 3

State Lab Review

1. The diagram below shows the relative concentration of molecules inside and outside of a cell.

B



high → low concentration, no energy

Which of the following statements *best* describes the general direction of diffusion across the membrane of this cell?

A) Protein would diffuse out of the cell.
B) Carbon dioxide would diffuse out of the cell.
C) Oxygen would diffuse into the cell.
D) Glucose would diffuse into the cell.

2. In the *Diffusion Through a Membrane* lab, the model cell membranes allowed certain substances to pass through based on which characteristic of the diffusing substance?

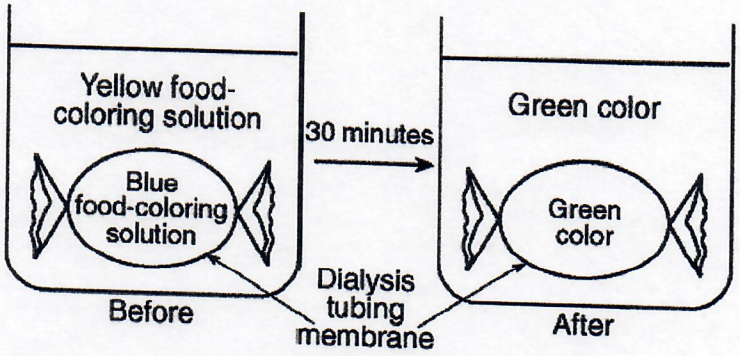
A) temperature B) color C) size D) shape

3. A student fills a dialysis membrane bag with a mixture of red dye, yellow dye, and water. He soaks the bag in pure water for 24 hours and then observes that the water outside the bag turns yellow. Which statement *best* explains the results of this experiment?

A) The dialysis membrane actively transported yellow dye molecules.
B) The yellow dye molecules are smaller than the red dye molecules.
C) Only red dye diffused through the membrane.
D) Water diffused into the membrane bag.

yellow dye diffused from inside bag to outside, meaning these molecules were small enough to pass through membrane. Red dye was too large.

4. The diagram below shows the changes that occurred in a beaker after 30 minutes. The beaker contained water, food coloring, and a bag made from dialysis tubing membrane.



When the colors yellow and blue are combined, they produce a green color. Which of the following statements most likely describes the relative sizes of the yellow and blue food-coloring molecules in the diagram?

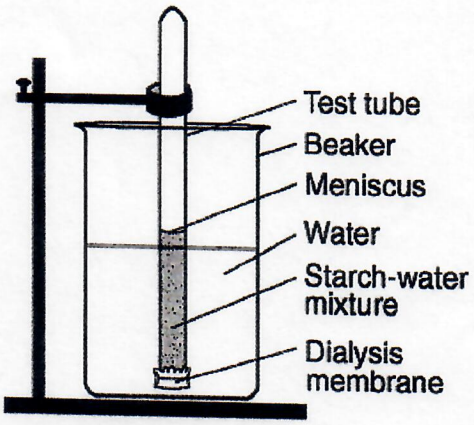
A) The yellow food-coloring molecules are small, while the blue food-coloring molecules are large.
B) Both the yellow food-coloring molecules and the blue food-coloring molecules are large.
C) The yellow food-coloring molecules are large, while the blue food-coloring molecules are small.
D) Both the yellow food-coloring molecules and the blue food-coloring molecules are small.

Why? Both could pass through the membrane.

5. State *one* factor that influences which molecules can pass through the cell membrane of a human cell.

- Size
- polarity

(6) A laboratory setup for a demonstration is represented in the diagram below.

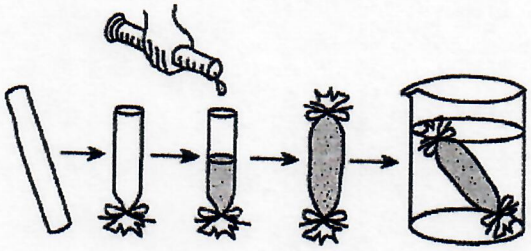


Describe how an indicator can be used to determine if starch diffuses through the membrane into the beaker. In your answer, be sure to include:

(1) the procedure used
(2) how to interpret the results

Drop iodine into water surrounding beaker. Iodine will stay amber if starch is absent, but turn bile-black if starch is present.

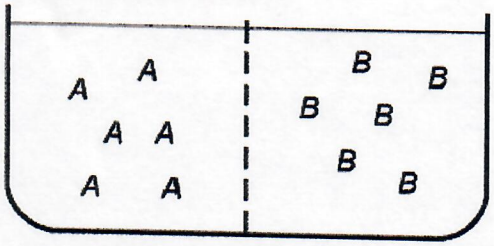
(7) A solution containing both starch and glucose was placed inside the model cell represented below. The model cell was then placed in a beaker containing distilled water.



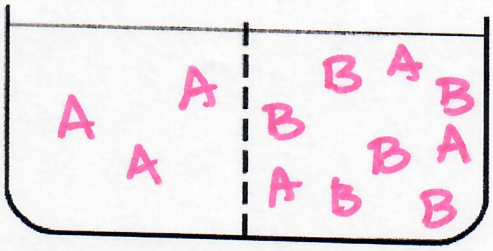
Identify *one* specific substance that should have been added to the distilled water so that observations regarding movement of starch could be made.

Starch indicator

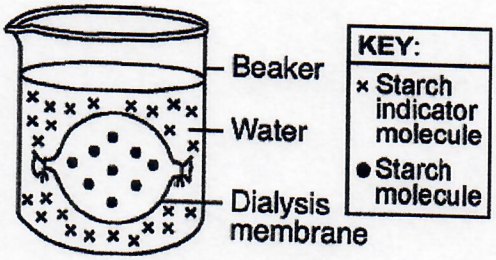
(8) The diagram below represents a container of water and two different kinds of molecules, *A* and *B*, separated into two chambers by a membrane through which only water and molecule *A* can pass.



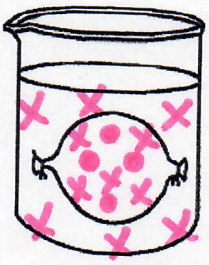
On the diagram of the container below, indicate the distribution of molecules *A* and *B* after the net movement of these molecules stops.



(9) The diagram below shows an experimental setup.



On the diagram below, draw in the expected locations of the molecules in the given experiment after a period of one hour.



- only starch indicator outside bag b/c starch is too big to pass through the membrane

- starch indicator is small enough to diffuse from outside of bag into bag