**Appendix S1**

**Membrane Transport Pretest**

I am confident in my knowledge of the different types of membrane transport.

1. Not confident

2. Somewhat confident

3. Confident

4. Very confident

5. Extremely confident

1. Molecules that move passively through the membrane down their concentration gradient use the process of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

a. pinocytosis

b. active transport

c. simple diffusion

d. antiport

2. Osmosis is the \_\_\_\_\_\_.

1. when the smell of the neighbors trash moves through the neighborhood
2. smell of cookies moving through the kitchen
3. movement of water down its gradient across a semi-permeable membrane
4. movement of water against its gradient across a semi-permeable membrane

3. What is another term for “selectively permeable”?

1. porous
2. completely permeable
3. permanent
4. semipermeable

4. What is the difference between active and passive transport?

1. Active does not need energy and passive uses ATP (energy)
2. Active uses ATP (energy) and passive does not need energy
3. Active stores transport proteins and passive releases
4. Active uses hormones and passive does not

5. The Na+–K+ Pump moves \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ every cycle.

a. 1 Na+ in, 1 K+ in

b. 1 K+ out, 2 Na+ out

c. 3 Na+ out, 2 K+ in

d. 3 K+ out, 2 Na+ in

6. Facilitated Diffusion moves substrates \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

a. against its concentration gradient through the membrane.

b. against is concentration gradient via ferry boat proteins.

c. no gradient needed to pass through the membrane.

d. down its concentration gradient via ferry boat proteins

7. Oxygen is transported from the \_\_\_\_\_\_\_\_\_\_ to the \_\_\_\_\_\_\_\_\_\_\_\_ via\_\_\_\_\_\_\_\_\_\_.

a. capillary, alveolus, diffusion

b. alveolus, capillary, osmosis

c. capillary, alveolus, osmosis

d. alveolus, capillary, diffusion

8. Carbon dioxide is transported from the \_\_\_\_\_\_\_\_\_\_ to the \_\_\_\_\_\_\_\_\_\_\_\_ via\_\_\_\_\_\_\_\_\_\_.

a. capillary, alveolus, diffusion

b. alveolus, capillary, osmosis

c. capillary, alveolus, osmosis

d. alveolus, capillary, diffusion

9. In an isotonic solution there would be:

a. no net movement of water

b. net movement of water into the cell

c. net movement of water out of the cell

d. bursting of the cell

10. When a cell bursts due to osmosis, it is in a solution that is:

a. hypertonic

b. isotonic

c. hypotonic

d. either A or C

**Membrane Transport Posttest**

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11. Did performing the activities in class help you learn the material?

a. Yes

b. No

12. If you answered yes to question 11 explain.