



Cell Theory, Structure and Transport

7

Name: _____ Period: _____

Cell Transport Virtual Lab

Go to http://www.phschool.com/science/biology_place/labbench/lab1/intro.html (from the class website). Read the information provided and study the illustrations. Use the arrows at the bottom of each page to move backward and forward through the lab.

1. Molecules are in constant motion and tend to move from regions where they are in _____ concentration to regions where they are _____.

2. _____ is the net movement of molecules down their concentration gradient.

3. Describe an example of diffusion in complete sentences. _____

4. In _____ water moves through a selectively permeable membrane from a region of its higher concentration to a region of its lower concentration.

5. Describe how selectively permeable membranes work in complete sentences. _____

6. Observe the diagram. Where is the solute concentration highest? Circle the correct answer. (BAG BEAKER EQUAL)

7. Click on "Animate". Where does the water move? Circle the correct answer. (BAG BEAKER DOES NOT MOVE)

8. Where does the solute move? Circle the correct answer. (BAG BEAKER DOES NOT MOVE)

9. The motion of each type of molecule is _____ and _____ of other molecules in the solution.

10. Describe in complete sentences how each molecule moves? _____

11. Though the _____ of molecules is down their concentration gradient, at any time molecules can move in _____ as long as the membrane is permeable to the molecule.

12. Click on "Animate". Circle the molecule(s) that are able to cross the membrane. (IODINE WATER STARCH)

13. Where do the iodine molecules move? Circle the correct answer. (BAG BEAKER DO NOT MOVE)

14. Where do the starch molecules move? Circle the correct answer. (BAG BEAKER DO NOT MOVE)

15. Where do the water molecules move? Circle the correct answer. (BAG BEAKER DO NOT MOVE)

16. The terms _____, _____, and _____ are used to compare solutions relative to their solute concentrations.

17. Draw the first illustration below. Make sure to color code the solute and water molecules.



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18. The (BAG/ BEAKER) contains more solute than the solution in the (BAG/ BEAKER).

19. The solution in the bag is (HYPERTONIC/ HYPOTONIC) to the solution in the beaker.

20. Describe in complete sentences the difference between a hypertonic solution and a hypotonic solution. Make sure to include solute concentrations. _____

21. Draw the second illustration below. Make sure to color code the solute and water molecules.



22. The two solutions are _____ in their solute concentrations.

23. When two solutions are equal in their solute concentrations, it is called (HYPERTONIC, HYPOTONIC, ISOTONIC).

24. Will there be a net movement of water between two isotonic solutions? (YES/ NO)

25. Watch both animations, both animal cell and plant cell. Describe in complete sentences the difference between an animal cell and a plant cell being placed in distilled water. _____

26. Why does the animal cell explode, while the plant cell does not? Use complete sentences in your description. (Hint: Think about what a plant cell has, but an animal cell does not)
