LAB # ____ Osmosis in Onion Cells

Lab Instructor_____ Name_____

Date _____ Period_____

Objective: To predict the effects of environmental conditions on osmosis in cells

******Use full sentences when answering all questions.******

Pre-Lab

1. How is osmosis related to diffusion?

2. Why do plants wilt when they have a poor water supply and stand upright when there is sufficient water available?

3. Extra Credit. How does osmosis help plants absorb and transport water?

LAB

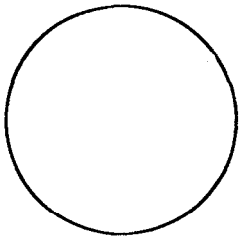
Materials

Red onion sample, 10% salt solution, distilled water, slides, cover slip, lens paper, droppers, forceps, color pencils, compound light microscope.

Procedures and Observations

1. Prepare a slide of a very thin slice of the red onion.
   a. Observe the cells under the microscope. Locate several cells containing red material; center them in the field of view.
   b. Draw and color a diagram of a typical onion cell. Label the cell wall, cell membrane and any other visible structures that you observed.

Wet mount of onion cells:



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Magnification _____ X

2. Write your prediction for the direction of water movement across the onion cell's membrane in the environment indicated in the table below. **Make sure your teacher sees your prediction before moving to step 3:**

Type of Environment	Prediction	Explanation
10% salt solution		
Distilled water		

3. Use the following procedure to adjust the environment of the onion cells.
   a. Put a small piece of paper towel on one side of the cover slip. **Carefully add some drops of the 10% salt solution on the opposite side.** The paper towel should soak up extra liquid, hence pulling through the salt solution. Record the number of drops: _____
   b. Observe one cell for several minutes. If no change is seen, add some more salt solution.
   c. Describe what happens to the onion cell. Why do you think this occurs?

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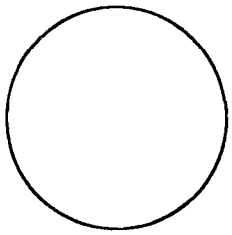
d. Draw and color a diagram of the cell you observed. Label the cell wall and cell membrane.

Onion cells with 10% salt solution:



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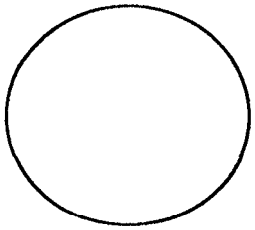
4. **Repeat step #3 using distilled water on the same sample**. Use several drops so that the salt solution is washed away. Record the number of drops you added: _____

a. Observe one cell for several minutes. If no change is seen, add more distilled water.
b. What happened to the cell? Why?

c. Draw and color a diagram of the cell you observed. Label the cell wall and cell membrane.

Onion cells with distilled water:



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Conclusions

1. How did your predictions compare to the results observed in steps 3 and 4?

2. How would the results have been different if animal cells were used? Why?

3. How would salt used to melt ice and snow affect roadside plants?

4. Why isn't distilled water used in cases where emergency IVs are necessary?