Title: Osmosis in Potatoes and Carrots

Purpose: to demonstrate osmosis in plant cells

Materials:

potato cubes, carrot slices, distilled water,
sugar water solutions, salt water solutions,
plastic beakers, forceps, balance, marking pen

Procedure:

Carrot slices in salt solution

1. Obtain 5 small beakers and label each as distilled H_2O, 1.0%, 2.5%, 5.0%, 10.0% salt.
2. Place 25 ml of the appropriate solution in each beaker.
3. Obtain 2 carrot slices for each beaker.
4. Determine mass of 2 carrot slices BEFORE placing in distilled H_2O.
5. Determine mass of 2 carrot slices BEFORE placing in 1.0% salt.
6. Repeat for each solution.
7. After 30 minutes, remove carrot slices from solution, pat dry, and determine mass
8. Record data and determine percent change in mass.

$$\% \text{ change} = \frac{(\text{final mass} - \text{initial mass})}{\text{initial mass}} \times 100$$

9. Graph percent solution (x-axis) vs percent change (y-axis)
   You may use Create a Graph (http://nces.ed.gov/nceskids/graphing/)

Potato cubes in sugar solution

1. Repeat carrot procedure with potato cubes (yams) in sugar water solutions.

Results: (data charts and graphs)

Data Table A: Carrots in Salt Water			
Solution (% NaCl)	Initial Mass (g)	Final Mass (g)	% Change
0.0 %			
1.0%			
2.5%			
5.0%			
10.0%			

Data Table B: Potatoes in Sugar Water			
Solution (% sugar)	Initial Mass (g)	Final Mass (g)	% Change

Discussion: see lab grading guidelines http://www.jdenuno.com/PDFfiles/LabGuide1.PDF

Conclusion: 1 or 2 statements about diffusion in carrots and/or potatoes in salt and/or sugar water.

Reflection: Personal statement