

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(s):

Carrot slices in salt solution

1. Obtain 5 small beakers and label each as distilled H₂O, 1.0%, 2.5%, 5.0%, 10.0% salt.
2. Make the solutions needed to put into small beakers according to the chart below.

Concentration of Solution	Grams of Solute	mL of Solvent
	Salt {Carrots}	Water
	Sugar {Potatoes}	
0%	0g	100mL
1%	1g	100mL
2.5%	2.5g	100 mL
5%	5g	100mL
10%	10g	100mL

3. Place 25 ml of the **appropriate** solution in each beaker.
4. **Obtain 2 carrot slices** for **EACH** beaker.
5. Determine mass of 2 carrot slices **BEFORE** placing into EACH of the labelled beaker(s).
6. After 30 minutes, remove carrot slices from solution, pat dry, and **determine mass**

7. Record data and determine percent change in mass
 - a. $\% \text{ change} = \frac{(\text{final mass} - \text{initial mass})}{\text{initial mass}} * 100$
8. Graph percent solution (x-axis) vs percent change (y-axis)
 - a. You may use Create a Graph
(<http://nces.ed.gov/nceskids/graphing/>)
9. Students are to have **seven** trials for each concentration!

Potato cubes in sugar solution

1. **Repeat carrot procedure**, with potato cubes (yams) in **sugar water solutions.**
 - a. **Students are to make the sugar solutions similar to that of the salt solutions.**

Results: (data charts and graphs) (See course website for details on results section.)

EXAMPLE of DATA CHART (Students are encouraged to use a different forms of data charts as needed.)

Data Table 1			
Solution	Initial Mass (g)	Final Mass (g)	% Change
% NaCl			
0%			
1%			
2.5%			
5%			
10%			

Data Table 2			
Solution	Initial Mass (g)	Final Mass (g)	% Change
% Sucrose			

0%			
1%			
2.5%			
5%			
10%			

Discussion: See course website for details on discussion section.

Conclusion: See course website for details on conclusion section.

Please see course website for all sections required for lab report!