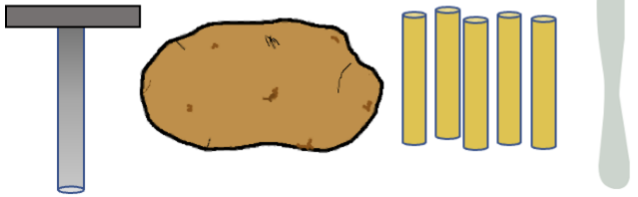
Integrated Instructions

Aim: To investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue

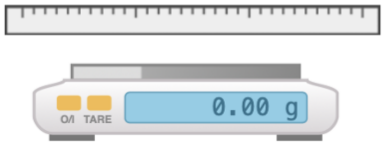
START

1. Cut five cylinders from a potato using the cork borer.



2. Use the knife to cut off the skin and to trim each cylinder to the same length.

3. Measure the mass and length of each potato cylinder and record these measurements on your table.



4. Fill four boiling tubes with 10 ml of salt solution at concentrations of 1 M, 0.75 M, 0.5 M, 0.25 M. Add 10 ml of water to the fifth. *(See note.)*

NOTE - ratios for diluting the salt solution:

10 ml salt solution = 1 M

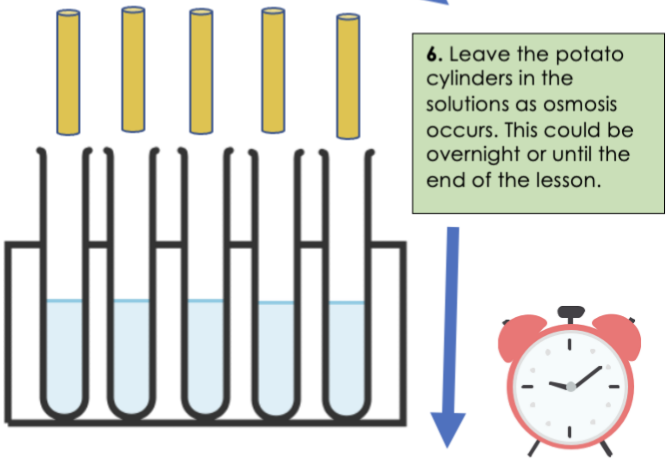
7.5 ml salt solution plus 2.5 ml water = 0.75 M

5 ml salt solution plus 5 ml water = 0.5 M

2.5 ml salt solution plus 7.5 ml water = 0.25 M

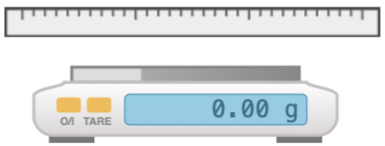
5. Put one potato cylinder into each boiling tube.

6. Leave the potato cylinders in the solutions as osmosis occurs. This could be overnight or until the end of the lesson.



7. Carefully remove the potato cylinders from the boiling tubes using forceps if necessary. Blot them dry with paper towel.

8. Measure the new mass and length of each potato cylinder and record these measurements on your table.



END

9. Calculate the change in mass and length.
Calculate the percentage change.
Write a paragraph explaining what has happened that references the theory of osmosis in cells.

Salt Solution ->	1M	0.75M	0.5M	0.25M	Water
Initial mass (g)					
Final mass (g)					
Change in mass (g)					
Percentage change in mass (%)					
Initial length (cm)					
Final length (cm)					
Change in length (cm)					
Percentage change in length (%)					