

The scenario

Subject	Osmotic Equilibrium/ Osmotic equilibrium
Length	5:12
Main objectives	To show the effect of osmotic equilibrium on the vegetal cells
Detailed objectives	
Structure and description of experiments:	
1. Introduction	Description: Explain the effect of osmotic equilibrium on membranes and on vegetal cells
2. Main subject	Description: Will the carrots absorb more or less of a certain concentration of water over the course of one day?
Part 1	
Experiment 1 (0:45), (0:40)	<p>Tools: Water, salt, 3 carrots</p> <p>Description: In a beaker add salt and water and mix, in another beaker adds only water.</p> <p>Place a carrot in each of the beakers (with and without salt).</p> <p>After 10 hours, it is observed that the carrot submerged in salt water reduced its size.</p> <p>Carrots contain water inside. Water molecules move across a membrane to higher levels of salt concentration through a process called osmosis.</p> <p>Questions: Why does the water inside the carrot prefer to move out of the carrot in salt water? – Water molecules move across a membrane to higher levels of salt concentration through osmosis. So, if a carrot is placed in very salty water, it will be less salty than the water around it.</p> <p>Conclusions: Vegetables such as Carrots and celery are crisp largely because of water (freshwater) trapped within them. If placed in fresh water, the carrot is saltier than the surrounding water, so the water moves into the carrot. This causes the carrot to stiffen if it was previously limp or preserve its crispness if it was crisp before.</p>
3. Summary, evaluation and notes	<p>Application: By diffusion of water or solutes, osmotic balance ensures that optimal concentrations of electrolytes and non-electrolytes are maintained in cells, body tissues, and in interstitial fluid.</p> <p>Level: primary school (ISCED 2 / 6th, 8th grade)</p>