

**Plant Cells-Plasmolysis**

**Topic or Concept**

Osmosis is a process in which water moves through a membrane from an area of higher water into an area of lower concentration. What happens to the protoplasm of a cell, which is placed in a salt solution?

**Object**

In addition to demonstrating osmosis, showing that living things are affected by the environment.

<p align="center"><b>Materials</b></p> <p align="center">Available from Region 20 Living Science Materials Center</p>	<p align="center"><b>Enrichment Activity</b></p>
<p>Lm-61 Elodea Lm-67 Distilled Water</p>	<p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Place an Elodea leaf under a cover slip on a microscope slide.</li> <li>2. Make a saltwater solution by stirring one teaspoon of salt into 1/3 glass of water.</li> <li>3. With the dropper, place three or four drops of salt water at the edge of the cover slip.</li> <li>4. Observe the leaf under the microscope over a period of an hour.</li> <li>5. Wash the Elodea leaf with water and put it on another slide.</li> <li>6. Add several drops of plain water and cover with a cover slip.</li> <li>7. Observe the Elodea under the microscope</li> </ol> <p><b>Questions</b></p> <ol style="list-style-type: none"> <li>1. On a separate sheet of paper record what you observed. What happened to the contents of the cells after the saltwater was added?</li> <li>2. Where was the concentration of water higher, inside the cells or inside the saltwater?</li> <li>3. Did the cell walls change shape?</li> <li>4. What happened to the cell contents when the leaf was put back into plain water? Base your conclusions on the information gained during your experiment.</li> </ol> <p><b>Conclusions</b></p> <p>When the leaf was placed in the salt solution, the contents of the cell, called protoplasm, shrank but the cell walls did not change their shape.</p> <p>The concentration of water was greater inside the cell, than in the salt solution, so the molecules moved out of the cells and into the saltwater.</p> <p>This shrinking of protoplasm is called plasmolysis. When the leaf was returned to fresh water, the concentration of water was greater outside the cell and water moved back into protoplasm, restoring the original conditions.</p>
<p>Not Available from Region 20 Living Science Materials Center</p> <p>Microscope Slides and Cover Slips Salt Dropper Glass Teaspoon</p>	

Elodea is a plant, which grows in fresh water and will not grow in saltwater. Some plants do grow in saltwater. The concentration of water in their cells is about the same as the concentration in the saltwater outside their

**Living Science Enrichment Activity**

LM-61b

cells.

This experiment, in addition to demonstrating osmosis, shows that the environment affects living things.