

Monday, November 26th, 2012

Unit: Cells Topic: Osmosis	Date: 11/26/2012 Class: Biology
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Michigan Objectives:

B2.5h Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).

Illinois Objectives:

12.11.05 Understand how the semi-permeable membranes regulate the flow of substances in and out of the cell body.

My Lesson Objectives:

- Explain how water travels through a semipermeable membrane from hypotonic to hypertonic.

Activities:	Materials/Equipment:
<ul style="list-style-type: none">• Case Study 1: Students read and discuss an example where too much fertilizer was added to a farmers field. (25 minutes)• Case Study 2: Students read and discuss an example where distilled water was added to a patient's blood stream instead of saline solution. (25 minutes)	<ul style="list-style-type: none">• Copies of the case studies

Assessment: (Embedded, Formal)

Formal:

Case Study 1: Example with too much fertilizer

- 1 What sort of environment (hypotonic, hypertonic, isotonic) did the extra fertilizer create around the roots of the corn?
- 2 Keeping in mind your answers to the previous question, what do you believe caused the corn plants to wilt and eventually die?
- 3 If Michael's mistake had been caught earlier, is there anything that could have been done to prevent the corn from dying?
- 4 Generally, people water their plants with 100% H₂O -- no solutes added. What sort of environment does this create around the roots of the plant?

- 5 Briefly explain why plants generally thrive in this sort of environment.

Case Study 2: Example of the distilled water in a person's veins.

- 1 What problem did the distilled water in the patient's bloodstream create?
- 2 What happened to the patient's blood cells as a result?
- 3 Considering the function of red blood cells, why did the patient's oxygen levels fall?
- 4 After Tom made his error, is there anything that could have been done to save the patient's life?