3/18/09 1
Lesson Plan: Osmosis – Text-based case study

1. Topic and content:
Topic: The topic for this lesson is osmosis, or movement of water across as semi-permeable membrane. This will be introduced using a text-based case study that focuses on the development of dehydration in a vomiting patient.
Key vocabulary: osmosis, osmotic pressure, membrane, semi permeable, water movement, dehydration, loss of body water, vomiting, hydrogen and chloride ion loss (possibly), alkalosis (possibly)

2. Goals, objectives and materials
a. Goals: The overall aim of this lesson will be for the students to grasp the concept of movement of water from within and around cells resulting in dehydration. The text-based case study is used in an effort to maintain the students' attention, and make the concepts presented relevant to their every day lives.
b. Objectives: At the completion of this lesson, the students should be able to explain: 1) the short-term effects of losses of body water, 2) the site(s) within the body from which the water is lost, and 3) the process by which dehydration occurs.
Performance/behavioral indicators
c. Materials: A text-based case study will be provided, with associated questions that the students must address. Additional information will be available through online resources and still images that explain the concepts of dehydration and osmosis.

3. Methods
a. Introduction – The topic will be introduced with the text-based case study, and its associated questions.
b. Development – I'm not exactly sure what they're seeking here, but we could propose that the teacher incorporate his/her usual teaching materials regarding osmosis after the students have had a chance to work through the case study.
c. Practice – The students first could be assigned to small groups, with each group being responsible for addressing the questions that accompany the case study. Once this is done, a member of each group will contribute the group's conclusions to a Wiki that will address various aspects of osmosis and dehydration.
d. Independent practice – Interested students could have access to more complex laboratory data and diagnostic images, with normals for comparison.
e. Accommodations –
f. Checking for understanding – The teacher will administer a quiz/test that addresses the students' understanding of osmosis as a concept, and its application to the development of dehydration and over-hydration.
g. Closure – The focus on the topic will conclude by having the students evaluate the Wiki they have created, specifically by identifying areas that could have been improved/expanded/eliminated.

4. Evaluation – The teacher will summarize his/her opinion regarding the degree to which the students were engaged, and how the lesson could be improved.
3/18/09 2
Dehydration Case - Draft

A 16-year old Caucasian male was presented at 9:15 AM to the Emergency Room at the Harborview Medical Center in Seattle, Washington with a 10-hour history of vomiting and abdominal pain. The teenager, his sister and his parents had flown the previous day from Atlanta, Georgia. The patient was the only family member affected by the illness, and nobody in the family had been sick during the month prior to the trip.

On the day preceding admission to the Emergency Room, the family had eaten breakfast at home and the mother had purchased 4 salads at the Atlanta Airport for the family to eat on the plane: Caesar salads for the parents, fruit salad for the sister, and a chicken Caesar salad for the boy. After arriving in Seattle and settling into their hotel, the family walked downtown and ate dinner at a seafood restaurant near the wharf. All four family members had salmon for dinner. After dinner, the boy and his sister had ice cream at the