Lesson Plan I:

**Grade**: Sophomore Biology

**GLE**: 3-2-F-a, b, c, d- Characteristics and Interactions of Organisms, Living Organisms carry out processes to survive, Cellular activities and responses to maintain stability

**Topic of Lesson**
To begin carrot and celery lab, hypotonic, hypertonic, osmosis

**Objective of Lesson**
Begin lab, make predictions and observations

**Steps in order of lesson**
1. Daily Journal Entry, Science Talk ™ “Scientists follow a detailed system of problem solving in experimentation…”
2. Pass out lab sheets for carrot and celery lab, make predictions
3. Go into lab, begin setup, weigh carrots and celery (plastic cups, tap water, distilled water, salt stirring rods)
4. Tie strings around carrots and celery
5. Place carrots and celery into specific water cups
6. Make observations, provide explanations for predictions

**Materials being used in lesson**
Balance, strings, carrots, celery, salt, tap water, distilled water, plastic cups, lab sheets, Biology book, notes, vocab

**Assessment to check for comprehension**
“What are some of your predictions?” “Why did you make that prediction?”
(These are for my information on how well the students are grasping information and what prior information or misconceptions they have)

**Closure**
“What do you think this lab is measuring?” “When would this occur outside the lab, in the world?”
Lesson Plan II:

Grade: Sophomore Biology

GLE: 3-2-F-a, b, c, d- Characteristics and Interactions of Organisms, Living Organisms carry out processes to survive, Cellular activities and responses to maintain stability

Topic of Lesson: To start Mind Maps in class, include membrane structure, molecule movement, water movement

Objective of Lesson: To begin Mind Maps, initiate students in linking of information together and building on previous information, include vocabulary words and notes in the creating of Maps

Steps in order of lesson:
1. Daily Journal Entry, Science Talk™ “In the 1600’s, Anton van Leeuwenhoek discovered how to make microscopes….”
2. Hand out materials to begin Mind Map
3. Show students an example of Mind Map and initiate connections between the plasma membrane, structures, functions, transports
4. Begin Mind Maps, students take home to finish

Materials being used in lesson
Paper, tape, markers, colored pencils, rulers, Biology book, notes, vocabulary sheets, document camera (journal entry and Map example)

Assessment to check for comprehension
Review carrot and celery lab, review vocabulary and notes
“What happened during the carrot lab?” “What is that process called?” “How does the structure of the plasma membrane aid in that lab?” “How are some of the vocabulary words related to one another?” “What are some of your non-linguistic examples on your vocab page?”

Closure
“What are some connections you made today?” “How did mapping information help you?”
Lesson Plan III:

Grade: Sophomore Biology

GLE: 3-2-F-a, b, c, d- Characteristics and Interactions of Organisms, Living Organisms carry out processes to survive, Cellular activities and responses to maintain stability

Topic of Lesson: To complete starch and iodine lab, movement of molecules across a selectively permeable membrane

Objective of Lesson: Complete lab including predictions, observations, clean up, and begin explanations on movement of substances

Steps in order of lesson:
1. Daily Journal Entry, Science Talk tm “Acid rain starts when sulfur and nitrogen oxide gases are released from cars, refineries, and power plants…”
2. Go into lab and record predictions
3. Begin lab, setup, weigh starch bags
4. Make observations
5. Clean up
6. Begin explanation and finishing lab questions

Materials being used in lesson
Balance, corn starch, iodine, water, beaker, plastic bag, rubber band, funnel, lab sheets, Biology book, notes, vocab

Assessment to check for comprehension
“What are some of your predictions?” “Why did you make that prediction?” (these are for my information on how well the students are grasping information and what prior information or misconceptions they have)

Closure
“What are explanations for your observations?” “How does this lab apply to the selectively permeable membrane of a cell?”