

## CHEM 001A GENERAL CHEMISTRY I

**Outcome 2:** Describe, explain, and model chemical and physical processes at the molecular level in order to explain macroscopic properties.

### PLAN:

**Description of Assessment Method (Task) :** Students will be asked to explain why the temperature of a sample decreases when water molecules evaporate from a sample.

**Criteria for Success:** There are three primary concepts which students must discuss: 1) molecules with a high velocity will escape liquid phase, 2) distribution changes as fast molecules leave the sample, and 3) the kinetic energy is proportional to the temperature. Students who fully explain two of the three topics will be considered successful.

**Timeline for Implementation:** The question will be given on the final exam in December, 2011.

### RESULTS:

**Summary of Results:** Out of 35 students who took the exam, 11 got this question completely correct and 10 got this question completely incorrect. Of the remaining students, 11 students understood that escaping particles needed sufficient energy, 9 students understood that the Boltzmann distribution shifts as fast particles leave, and 7 students understood that there is a connection between kinetic energy and temperature.

**Results:** Acceptable Criteria for Success Achievement: Met

**Reflection/Analysis of Results:** There is not one clear aspect of this problem that students are getting wrong. Students mostly understand the principles that govern evaporation but are not able to piece together all of the different aspects of the problem into one complete answer.

**Planned Use of Results for Continuous Improvement:** This topic is not covered in the textbook at all and is covered in a single lecture period. Students obviously need more exposure to this topic. A handout or lab activity needs to be provided in order to provide a framework for all of the layers of this complex topic.

**Action details and description:** A handout will be prepared for students which describes the temperature distribution. This handout will augment the lecture material since the topic is not covered in the textbook.

**Implementation Plan (timeline):** December 2012

**Expected outcome of this action:** Students will have more than just the lecture as a source for this inform effectively. This should improve their comprehension and retention of the concepts.

**Budget request amount:** \$0.00

**Priority:** Medium

NOTES: I have no notes since this is my assessment. I welcome any feedback!!! – Jennifer ☺