**Teaching Science as Inquiry (TSI) Lesson Plan**

**Module 1: Physical Aquatic Science**

Name: Leigh Hicks

Activity: Density Bags

Why did you choose to do this activity?

Density Bags is a helpful model to demonstrate temperature vs. salinity, and an appropriate introductory activity leading into global ocean currents.

What are your classroom learning goals?

Students will be able to verbalize effects of temperature and salinity on density and also model density using lab materials in a supplemental activity.

How does this activity tie into your classroom learning goals?

To better understand density and the relationship with global ocean currents

What date do you plan to start this activity? November 7, 2012

*If applicable:* HIDOE standards this lesson will address

Marine Science SC.MS.3.5- Describe how waves and currents move using physical principles.

**Ocean**

1. Describe how you will connect this activity to the ocean:

This activity will be used as an introduction to global ocean currents and the idea that the ocean is an interconnected body of water.

1. Select the Ocean Literacy Principle(s) that you anticipate this activity will address. (check all that apply)

**x** 1. The Earth has one big ocean with many features.

□ 2. The ocean and life in the ocean shape the features of the Earth.

**x** 3. The ocean is a major influence on weather and climate.

□ 4. The ocean makes earth habitable

□ 5. The ocean supports a great diversity of life and ecosystems.

**x** 6. The ocean and humans are inextricably interconnected

□ 7. The ocean is largely unexplored

**Preparation**

1. How will you prepare your students for this activity? (For example, review of prior knowledge.) Students will review concepts of density, how to solve for density, and review effects of salinity and temperature on density. Students have done previous density related activities this semester.
2. Explain any instructional struggles that you foresee and how you will address these issues. (For example, student misconceptions, classroom discussion, aspects most difficult for students to grasp, etc.)

Since my students have worked with density doing hands-on labs previously this semester, I feel strongly that they will be successful in implementing this lab activity. The should not have too many misconceptions at this point.

1. Select the TSI Mode(s) of Inquiry that you will focus on for this activity. (check all that apply)

**x** Curiosity

**x** Description

**x** Authoritative knowledge

**x** Experimentation

□ Product evaluation

□ Technology

**x** Replication

**x** Induction

x Deduction

x Transitive Knowledge

**Questioning and Assessment Strategies**

1. What *questioning strategies* will you use to help your students meet your learning goals? Students will work in lab groups of 3. They will make predictions as a group and then experiment for actual data. After each task is completed, the class will review predictions vs. data together. Misconceptions can be addressed at this time.
2. What *assessment strategies* will you use to help your students meet your learning goals and monitor their progress? Students will be assessed based upon their ability to answer density related questions and solve for density (or explain how to solve for density).