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

**Module 1: Physical Aquatic Science**

Name: Selene M.

Activity: Density Bags

Why did you choose to do this activity?

I chose this activity to enhance students’ understanding of density, plus the supplies were given to us. I also learned so many different ways to teach and learn about density at the workshops.

What are your classroom learning goals?

My classroom learning goals are that density is a main subject in chemistry and scientific inquiry is to be practiced as much as possible in class, as long as content is covered. Other goals include working together cooperatively and practicing safety.

How does this activity tie into your classroom learning goals?

This activity ties into my goals of working together cooperatively and learning more about density in the chemistry unit of my physical science class.

What date do you plan to start this activity?

Start on Thursday, October 11, 2012, so if I need more time I can finish up on Friday.

*If applicable:* HIDOE standards this lesson will address

Standards SC.PS.1.1, 1.4, 1.7, and 6.4

Revising a hypothesis, determine the connections among hypothesis, scientific evidence, or conclusion. Revise conclusions based on evidence. Thermal energy.

**Ocean**

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

I will connect this activity to the ocean by talking about fresh water from streams going into the ocean and how it layers. I will also talk about the currents in the ocean and how they are related to density, temperature, and salinity.

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

□ 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.

□ 6. The ocean and humans are inextricably interconnected

X 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 have had a lot of practice with the concept of density as well as calculating for density by this point. So this is a review with a different twist. This is also the last density activity we will do. I will do this activity right after the Practices of Scientists lesson.

1. 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.)

Students will have had some practice with density concepts and if they have misconceptions, I anticipate that they will be brought up while they are hypothesizing about the different combinations of water and what will float or sink. Since I have some logistical issues and may need to do this as a class with me putting the bags in the water in the front of the room, there may be a little bit of a problem keeping everyone on the same page together.

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

X Curiosity

X Description

□ Authoritative knowledge

X Experimentation

□ Product evaluation

□ Technology

□ Replication

□ Induction

□ Deduction

□ Transitive Knowledge

**Questioning and Assessment Strategies**

1. What *questioning strategies* will you use to help your students meet your learning goals?

What do you predict will happen to the bag? What if it is put into the salt water? What if the salt water is heated? Why do you think this happened? How does this relate to the ocean or other common things that you have seen?

1. What *assessment strategies* will you use to help your students meet your learning goals and monitor their progress? I will ask them to fill out the tables before and after the experiment so we can compare how they predicted. I will also ask them to fill out a phase diagram if they can remember their thought processes. After the activity I will administer the Module 1 Post Questionnaire.

Please provide any additional comments that will help you prepare to teach this activity or help the TSI facilitators understand how you plan to teach this activity.

I was going to have about six groups and prepare the bags for them. On the morning of the activity, I realized that I did not have a way to make enough of the hot and cold baths for each group especially with fresh and salt of each temperature. So unfortunately I will go through the activity as a class and gather input from the students as we do the activity together.