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

**Module 1: Physical Aquatic Science**

Name: Dan Spitler

Activity: Density Bags

Why did you choose to do this activity?

It was a required activity, but it also aligns with 6th grade standards.

What are your classroom learning goals?

Our goals are to start to think like scientists and to develop a better understanding of the processes of the natural world.

How does this activity tie into your classroom learning goals?

Density is a basic physical property that students must know to develop a good understanding of the physical world and how things interact in the environment.

What date do you plan to start this activity? 10/30/12

*If applicable:* HIDOE standards this lesson will address

SC.6.6.6. - Describe and compare the physical and chemical properties of different substances

**Ocean**

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

Both my anticipatory set (compare density of salt vs fresh and different temperature water) and my closure (river flowing into the ocean) connect activity to the ocean.

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.

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

 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

□ 7. The ocean is largely unexplored

**Preparation**

1. How will you prepare your students for this activity? (For example, review of prior knowledge.)

Several labs previous to this will improve their ability to measure mass and volume, determine density and compare density of different objects. Discussion and activities will further explore density.

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.)

Overcoming the misconception of weight = density. I will provide many opportunities to examine and analyze the concept of density in different modes and methods.

Students struggle to make and record accurate observations and then to analyze those observations. I will provide opportunities to do these things with a gradual release of control and responsibility so students develop these skills.

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

X Replication

X Induction

X Deduction

□ Transitive Knowledge

**Questioning and Assessment Strategies**

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

Variety of questioning levels in the lab itself from literal and basic (which is more dense – salt or fresh water?) to more complex (what is the effect of salinity and temperature on buoyancy) to analytical (would fresh water from a river sink or float after entering the ocean) would help students get into the lab, focus their thinking on the concepts being investigated and to apply their understanding to the real world.

1. What *assessment strategies* will you use to help your students meet your learning goals and monitor their progress?

Lab write up will provide an overall assessment of their understanding of the concept being investigated.

In class observations will provide formative data for the modification for present and future implementation of the lab.

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.