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

**Module 1: Physical Aquatic Science**

Name: Paul Crowe

Activity: Density Bags

Why did you choose to do this activity?

I wanted students to have a solid understanding of density and how salinity and temperature can affect the density of water.

What are your classroom learning goals?

One classroom learning goal is for students to understand thermohaline circulation.

How does this activity tie into your classroom learning goals?

Through the density bags experiment, students will become familiar with how temperature and salinity of water affects density.

What date do you plan to start this activity? 11/7/12

*If applicable:* HIDOE standards this lesson will address

**Standard 3: Oceanography —Understand the physical features of the ocean and its influences on weather and climate.**

**Ocean**

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

We will talk about deep ocean currents and the phenomenon known as the global conveyor belt.

We will discuss how global warming might impact ocean circulation.

We will simulate formation of ocean currents using a demo.

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.

X 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.

X 4. The ocean makes earth habitable

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

X 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 have studied density in physical science in 9th grade. We will conduct a short review of how to calculate 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.)

I foresee the bags being quite a problem to make correctly and keep from leaking.

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

X Curiosity

□ 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 need to make predictions and then answer a series of questions based on their results.

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

We will have a table of class results at the front of the room. I will monitor it to make sure that student results make sense.

I will have the students complete an exit card which will test their understanding of basic concepts.

Students will turn in a lab report with results and answers to questions.

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.