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

**Module 1: Physical Aquatic Science**

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Activity: Soda and Scientific Reasoning

Why did you choose to do this activity?

I chose this activity because in class the students have been exploring density, mass, matter, buoyancy, gravity beginning with boats and finishing with submarine model. I am interested in using different means to develop content concepts.

What are your classroom learning goals?

My classroom learning goals are focused on all students having fun learning simultaneously, using a variety of resources, thinking critically to solve real life problems.

How does this activity tie into your classroom learning goals?

This activity tied into my classroom learning goals, of all students were engaged, working together, trying to solve a real life problem, using one another’s skills and knowledge base to solve problems. It is great to see all students working together and learning.

What date do you plan to start this activity?

This activity is completed, we are finishing the writing of the lab report and summarizing of the reading article I brought in for the connection of density of some common substances.

*If applicable:* HIDOE standards this lesson will address

1.1, scientific process: scientific investigation

**Ocean**

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

I connected this activity to the ocean by asking the students what do they think would happen if these same cans were put into salt water, would they have the same results? The students were already creating their predictions.

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.

□ 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.)

We followed the boat and submarine activity, and we did several small labs on objects floating and sinking or floating in the middle. I began the activity by asking the students what they thought would happen when the two sodas were placed into the water. Several students shared that they saw this before. What was great was that not all the cans behaved the same, and then they were stumped. I let them be stumped so they could explore.

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.)

The students had the hardest struggle with the math portion. It seems out of the math classroom they are not too sure about doing just simple division problems as we did the D = m/v. They were confused as to which number is divided by which.

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

X Product evaluation

□ Technology

□ 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?

I ask for evidence and clarification from students, previous experiences, and encourage students to explain in their own words what they are learning and how that does learning apply to them.

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

Students have been assigned a summary/conclusion for the activity. Their writing will be read and responded to.

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 created a power point following the TSI lesson design.
* Each day we began with a review of what was covered the day prior before we began the next section.
* The students worked through the lesson slow, but the day ended with this soda activity and the students looked forward to getting involved with the testing.
* The students put their data discovered on the board.
* I had to break down the division process for most of the students so that they knew which number are divided by which. Students used calculators.
* I changed the method of weighing objects by using the tri-balance scale.
* I added to the end a reading article called ‘What’s going on here?’ The article assignment was to read and underline and highlight main ideas and details and create a summary of the article. The article focused on mass, weight, density, and density formula, and density of substances.
* Students were assigned to write in their notebooks as the investigation preceded a lab report that will show what they learned.