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

**Module 2: Chemical Aquatic Science**

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Activity: Cohesion and Adhesion

1. Why did you choose to do this activity?

I chose this activity to engaged my students and spark their interest. I wanted them to see first hand how amazing water is and how it adheres to itself and other substances.

2. What are your classroom learning goals?

My goals are the same goals TSI has listed in the module 2:

1. Observe and describe the phenomena related to adhesion and cohesion of water
2. Interpret evidence of adhesion and cohesion to infer how water molecules behave.
3. Make connections to other applications of adhesion and cohesion.

3. How does this activity tie into your classroom learning goals?

 I want my students to understand that water is a very unique property not only can it convert to the three states but it’s the most

4. What date do you plan to start this activity?

11/19/2012

*5. If applicable:* HIDOE standards this lesson will address

**Ocean**

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

I connected this activity by having my students write down the Ocean Literacy essential principals and fundamental concepts #1a. The earth has one big ocean with many features.

7. 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.

□ 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**

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

 I prepared my students for this activity by talking about the three states of matter that makes water a very special chemical on the periodic table of elements.

9. 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 my students not being able to understanding the Hydrogen bonds and intermolecular forces that are at work. While reading the background and Introduction to my students their facial expression were that of confusion.

**Questioning and Assessment Strategies**

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

We reviewed the hydrological cycle, the three states of matter of water, the atom and its subatomic particles.

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

The question set: water properties, activity prompts, and a teacher made quiz.

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| Use the following table to plan your lesson using TSI. For each phase:* **Mode(s):** List the Mode(s) of Inquiry you will incorporate
* **Teacher:** Describe what you will be doing
* **Student:** Describe what your students will be doing
* **Assess:** Describe how you will assess your students in this phase so you can monitor their progress through the activity

\*Modes: Curiosity, Description, Authoritative knowledge, Experimentation, Product evaluation, Technology, Replication, Induction, Deduction, Transitive knowledge |

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| **INTERPRETATION** | **INITIATION** |
| Mode(s) | Description | Mode(s) | Curiosity |
| Teacher | I will be circulating and answering any questions. | Teacher | Asking why is water so sticky? |
| Student | Students will be doing their experiment. | Student | Answering their questions and conducting their experiment. |
| Assess (look for) | Confused students | Assess (look for) | Students not completing activity correctly. |
| **INSTRUCTION** |
| Mode(s) | Replication |
| Teacher | Reading and writing instructions. Following lesson plans. |
| Student | Attentative listening, reading instructions. |
| Assess (look for) | Students not engaged |
| **INVESTIGATION** | **INVENTION** |
| Mode(s) | Experimentation | Mode(s) | Replication  |
| Teacher | I will help students and answer their questions. | Teacher | I demonstrated the activities |
| Student | Students are completing the activity | Student | Completes the activity |
| Assess (look for) | Students who need assistance | Assess (look for) | Students who need help |

12. Briefly describe how you will direct your students through the Phases of Inquiry.

I will remain enthustheic, laugh with my students because of their frustration when they are not successful with their predications. I will let them try and try again until they think they have found the right technique. All my students are competitive, this is why this activity is a great work of inquiry. I will continually walk around to each table, keep smiling and ask a lot of questions.

13. What will be the *overarching* mode(s) of this activity? Why?

The overreaching goal is experimentation. My students love to be competitive. Also, they believe they’re always right and enjoy proving it. The experimental activities s on cohesion and adhesion, surface tension, rulers and paperclip were highly stimulating hands-on activities. All my students were 100% engaged with these inquiry-based lessons.

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.