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

**Module 2: Chemical Aquatic Science**

Name: Kevin Johnson

Activity: Cohesion-Adhesion

1. Why did you choose to do this activity? I thought it will work well with the level of students I have. They enjoyed Electrolysis so this seemed like the logical next activity.

2. What are your classroom learning goals? I want my students to understand the chemical properties of water, in particular the concepts of polar molecules, hydrogen bonding, and well... adhesion and cohesion in water.

3. How does this activity tie into your classroom learning goals? I want my students to understand the concepts of polar molecules, hydrogen bonding, and adhesion and cohesion in water. This activity addresses those topics.

4. What date do you plan to start this activity? January 14th, 2013.

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

**Benchmark** [**SC.CH.4.10**](http://165.248.30.40/hcpsv3/imr/report_by_code.jsp?code=SC.CH.4.10)**.** Identify and explain physical properties of substances based on the strength of molecular attractions.

**Benchmark** [**SC.CH.4.8**](http://165.248.30.40/hcpsv3/imr/report_by_code.jsp?code=SC.CH.4.8)**,** Explain the movement and properties of atoms and molecules in liquids.

**Ocean**

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

In all the TSI activities I ask the students to think about how the particular activity relates to the ocean and their experience with it.

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.

x 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 plan to have a short discussion regarding the properties of water, in particular surface tension and photosynthesis.

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.)

Mostly I am worried that it wont work. That the capillary tubes wont draw, or something

else unforseen happens.

**Questioning and Assessment Strategies**

* 10. What *questioning strategies* will you use to help your students meet your learning goals?
* Characteristic, Qualification, Example, Definition, Cause/Effect.

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

I intend to ask them questions as we proceed and there will be an end of unit exam with some questions concerning the topic covered.

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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) |  | Mode(s) |  |
| Teacher | Authoritative knowledge, Transitive knowledge, | Teacher | Description, Authoritative knowledge. |
| Student | Description, Authoritative knowledge, Induction, Deduction, Transitive knowledge | Student | Curiosity, Experimentation, Product evaluation, Replication. |
| Assess (look for) | Transitive knowledge, Deduction, Description. | Assess (look for) | Transitive knowledge, Deduction, Description. |
| **INSTRUCTION** |
| Mode(s) |  |
| Teacher | Description, Authoritative knowledge,  |
| Student |  |
| Assess (look for) | Curiosity, Authoritative knowledge, Technology, Induction, Deduction, Transitive knowledge |
| **INVESTIGATION** | **INVENTION** |
| Mode(s) |  | Mode(s) |  |
| Teacher | Description, Authoritative knowledge, Induction, Deduction, Transitive knowledge | Teacher | Technology, Replication, Induction, Deduction, Transitive knowledge |
| Student | Curiosity, Description, Authoritative knowledge, Induction, Deduction, Transitive knowledge | Student | Curiosity, Description, Product evaluation, Authoritative knowledge, Induction, Deduction, Transitive knowledge |
| Assess (look for) | Transitive knowledge | Assess (look for) | Curiosity, Description, Product evaluation, Authoritative knowledge, Induction, Deduction, Transitive knowledge |

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

I am going to introduce the subject of the activity, then I will hand out the information that I made copies of from the folder. I will have them read the information. Then we'll have a brisk discussion of adhesion-cohesion, then we'll do the activity. After they have completed the activity they will answer the questions. Awesome!

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

Curiosity, because we voted that as our class mode of the year.

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.