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

**Module 2: Chemical Aquatic Science**

Name: Jeffrey

Activity: Conductivity

1. Why did you choose to do this activity? This activity allows students to investigate and design an experiment

2. What are your classroom learning goals? Students will understand that electrical current can “pass” or be conducted through some liquids. They will compare different liquids for conductivity.

3. How does this activity tie into your classroom learning goals? This activity gives students a hands-on observation of conductivity through different liquids

4. What date do you plan to start this activity? January 7, 2013

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

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| **Benchmark**[**SC.PS.1.2**](http://165.248.30.40/hcpsv3/imr/report_by_code.jsp?code=SC.PS.1.2) | Design and safely implement an experiment, including the appropriate use of tools and techniques to organize, analyze, and validate data |

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| **Topic** | Scientific Knowledge |
| **Benchmark**[**SC.PS.1.7**](http://165.248.30.40/hcpsv3/imr/report_by_code.jsp?code=SC.PS.1.7) | Revise, as needed, conclusions and explanations based on new evidence |

**Ocean**

6. Describe how you will connect this activity to the ocean: Students will compare conductivity of ocean water with fresh water and respond to the activity questions.

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 will give a short lecture of background information on conductivity and electrical current

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.). Student will not “believe” that electrical current can go through liquids and not just touching wires, or solid metals.

**Questioning and Assessment Strategies**

10. What *questioning strategies* will you use to help your students meet your learning goals? I will ask them if they think they can get “electrocuted” by touching water. I will monitor them as they test the different liquids for conductivity

11. What *assessment strategies* will you use to help your students meet your learning goals and monitor their progress? Students will be responsible for answering the activity questions.

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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) | Authoritative Knowledge |
| Teacher | Instruct students to answer the Activity Question, with a focus on question #5. | Teacher | Ask students if they think they can get electrocuted by touching water. Why? |
| Student | Students will work together to answer the activity questions | Student | Students will share prior knowledge and respond verbally to the whole class about the question |
| Assess (look for) | Student understanding of conductivity in Sea water and Fresh water. | Assess (look for) | Misconceptions and confusion in prior knowledge. |
| **INSTRUCTION** | | | |
| Mode(s) | Authoritative Knowledge | | |
| Teacher | Discuss with the whole class the differences between tap water, distilled water and sea water and conductivity. | | |
| Student | Students will discuss among their selves knowledge about different kinds of water | | |
| Assess (look for) | Student understanding of the differences between tap water, distilled water and sea water | | |
| **INVESTIGATION** | | **INVENTION** | |
| Mode(s) | Experimentation | Mode(s) | Curiosity, authoritative knowledge |
| Teacher | Help students with the set ups and carrying out the investigation | Teacher | Give students the supplies to carry out the investigation. |
| Student | Carry out investigation as described in the TSI handout. | Student | Students will make predictions about conductivity in different kinds of water |
| Assess (look for) | Students making observations and recording observations in an organized data table. | Assess (look for) | Student use of scientific vocabulary |

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

Instruction will be ongoing as students work through the Conductivity Activity. Students will be reminded to try the set ups again if they don’t work the first time.

13. What will be the *overarching* mode(s) of this activity? Why? Students will be in in investigation. They lean most from experimentation and observation.

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.