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

**Module 3: Biological Aquatic Science**

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**Activity:**

1. **Why did you choose to do this activity?** I chose to do this activity because I did not teach “modes” in Mod 2, so it became a mandatory activity this module. I thought it would be interesting to see how much my students remembered from the phases activity we did for water properties.

**2. What are your classroom learning goals?** I want students to be able to think critically about the world around them and investigate their questions in a search to learn new things. I want students to understand the different modes or ways we gain knowledge.

**3. How does this activity tie into your classroom learning goals?** This activity will introduce my students to the different modes scientists use while learning new information and help them to understand the different ways they learn.

**4. What date do you plan to start this activity?** Monday 3/4/13

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

Standard 1: Scientific Investigation

**Ocean**

**6. Describe how you will connect this activity to the ocean:** I will use the scenario provided to walk my students through the modes of inquiry. Prior to that I will pose questions about the different fish in the ocean and aquariums.

**7. 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

x 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 will review the activity we did with the phases and review each phase with my students. I will also discuss the demeanors of scientists again with my students and lead them into a discussion about how scientists learn next. I will ask my class how they think scientists learn and assess their prior knowledge first.

**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 some of my students may have difficulty with some of the vocabulary (induction, deduction, transitive knowledge). I will give students an opportunity to build their own definitions first and then as we go over each definition, we will give examples from a previous lab.

**Questioning and Assessment Strategies**

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

* Clarifying
* Focusing
* Summarizing

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

Assessment strategies will include classroom discussion, proper examples, and completion of worksheet.

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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 | Facilitates discussion where students share out their thoughts on the various modes that were hit in the scenario. Brings up examples from prior labs to facilitate more understanding. | Teacher | Review Phases activity and diagram from previous quarter. Review demeanors of a scientists. Ask students how they think scientists learn new information. |
| Student | Teams share with class the conclusions they came up with – the different modes they assigned to each step. | Student | Share thoughts and reflections. Work with partners to brainstorm list of ways scientists learn new information. |
| Assess (look for) | Understanding of the modes and the correct placement of modes at each step in the scenario. | Assess (look for) | Prior knowledge from prior activity about phases. List of ways scientist learn… |
| **INSTRUCTION** | | | |
| Mode(s) |  | | |
| Teacher | Show students mode cards and tell them that these are some of the ways scientists learn new information.  Teacher presents/clarifies definitions for students | | |
| Student | Students take notes on different modes and write examples for each | | |
| Assess (look for) | Correct definitions, understanding and example of each.  Engagement | | |
| **INVESTIGATION** | | **INVENTION** | |
| Mode(s) |  | Mode(s) |  |
| Teacher | Teacher monitors students and uses questioning strategies to guide students through the scenario and assign modes to each step. | Teacher | Ask students to define the various modes with a partner  Use the scenario to assess S understanding of the various steps and modes. |
| Student | Students discuss with one another the steps of the scenario and what mode would fit each step. | Student | List definitions for each mode and share with class.  Students listen to the scenario and start brainstorming about the different steps. |
| Assess (look for) | Students working with partners and making conclusions about the different modes at each step. | Assess (look for) | Students engaged in the scenario and discussing the steps of the activity with their partner. |

**12. Briefly describe how you will direct your students through the Phases of Inquiry.** I will begin in the initiation phase to review their prior knowledge of demeanors, phases and ideas about how scientists learn new information. Then I will show students the mode cards in the instruction phase and ask them to invent definitions and examples for each one. Continuing in the invention phase, I will read the students the scenario and allow them to investigate each step to assign a mode to it. Students will interpret their ideas by sharing with the class and describing other examples that fit each mode.

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

Authoritative knowledge will be the authoritative knowledge because they will be learning from their teacher and their peers.

**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.**