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

**Module 3: Biological Aquatic Science**

Name: *Dan VanRavenswaay*

Activity: *Introduction to the TSI – Modes of Inquiry.*

1. Why did you choose to do this activity? *It’s a mandatory lesson.*

2. What are your classroom learning goals?

 *For my students, one of the most important goals for this lesson will be to get*

 *them thinking about their thinking during our science class activities.*

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

 *I’ve not talked about metacognition with students in association with this part*

 *of my marine science course before. They were very involved and focused during our microscope activities last week, and made a point of letting me know how much*

 *fun they were having. I think they’ll be up for a metacognitating if I can make connections to that lesson.*

4. What date do you plan to start this activity? *Monday, March 11, 2013*

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

**Ocean**

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

*Few or no connections during the lesson. In the future we can refer to the modes*

*as we talk about what we are doing, and what scientists we are talking about are doing.*

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

□ 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.)

 *A quick review of what we were doing last week, or it may make more sense to review these things as they build their lists of what we did during the microscope lesson that we are referring to as we define and build understanding of the modes.*

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’ll be spending a fair portion of time helping the students come up with the words and sentences to answer the follow-up questions on the worksheet.*

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

 *I’m sure I’ll be doing a lot of guiding and refocusing.*

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| Use the following table to plan your lesson using TSI. For each phase:* **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
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| **INTERPRETATION** | **INITIATION** |
| Teacher | Review of the difference between our growing understanding of how what we do is not just “The Scientific Method” (In fact, only a little of what we do is that.)Initiate a “side discussion” about metacognition.  | Teacher | Make references to the microscopy lesson we’d been doing – the students really liked this.  |
| Student | Participate in discussions initiated by teacher.  | Student | Students are listening and commenting about the microscopy lesson.  |
| Assess  | Discussion stays on target enough that some new understanding is evident. | Assess  | Students are thinking talking about the microscopy lesson.  |
| **INSTRUCTION** |
| Teacher | Explain the assignment: Make and complete the a table …Guiding questions to help students complete table with meaningful entriesDirections for answering the follow-up questions on the handout.  |
| Student | Make and complete table of actions & modes Write the answers to the follow-up reflection questions.  |
| Assess  | Completion of table. Discussions that take place during the  |
| **INVESTIGATION** | **INVENTION** |
| Teacher | Ask students to remember and record actions that we did several days ago.  | Teacher |  |
| Student | Add actions to a table that begins the lesson.  | Student |  |
| Assess | A large enough list is produced to continue our (re)introduction to the Modes of Inquiry.  | Assess |  |

11. Briefly describe how you will guide your students through the TSI Phases of Inquiry. (You are the research director of your classroom, and thus guide or facilitate the learning in your classroom, even if an activity is very student-directed).

*Initiate the lesson by reminding them of the good times we had last week getting a better look at all the little things growing around our classroom. Give instructions. Use guiding questions to help them complete the initial table of actions, and to add the appropriate modes. Keep the discussions moving forward. Hopefully see some growing understanding of metacognition and metacognitive processes as we interpret the activity.*

12. What *overarching* TSI mode(s) will you focus on for this activity? Why?

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

*I’m thinking induction – as we see how we can label the activities we did last week with associated modes, we may see a pattern at least in how we often do many different things each time do inquiry science.*

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.