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

**Module 3: Biological Aquatic Science**

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Activity: Scientific Language

1. Why did you choose to do this activity?

*It was a mandatory activity. I actually wanted to do the is it alive activity, but it is optional and I’m super pressed for time right now and was also not sure if it would be accepted as one of my lessons for this module :/*

2. What are your classroom learning goals?

*In science, getting my kids to think critically and scientifically and to use precise accurate language to describe what they discover in the course of our activities.*

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

*It teaches the kids the differences between these scientific terms, gives them practice identifying and using them.*

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

*February 6, 2013*

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

***Standard 1: The Scientific Process: SCIENTIFIC INVESTIGATION: Discover, invent, and investigate using the skills necessary to engage in the scientific process***

**Ocean**

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

*Some of the statements in part 2 of the lesson are ocean based:*

* *If the water in a tidepool is too warm, urchins will move until they*

*are in cooler water.*

* *If a balloon were pulled to the bottom of the ocean, it would*

*decrease in volume, because the pressure at the bottom of the*

*ocean is higher than at the surface.*

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.

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.)

*Pose the question as a pre and post assessment:*

*“Science is a way of learning about the world by…”*

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 modified some of the language and focused th lesson on opinion, hypothesis and theory, leaving out the facts and laws portion.*

*I found while teaching the Phases of science lesson in Module 2, that it was too long and the kids were exhausted when done. I’m going to try to move through the lesson and keep it lively through discussion and debate.*

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

*I will clarify statements and instructions to check for understanding. In addition I will both extending and focusing questions to get the kids to extend their thinking and to bring them back to the facts when they lose focus.*

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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 | Support student efforts at analysis  Pose post assessment question | Teacher | Pose anticipatory set question: Science is a way of learning about the workld by…” |
| Student | Answer Activity Questions at end of lab  Answer pose assessment question | Student | Complete the sentence posed by teacher |
| Assess | Assess quality of responses. | Assess | Assess student responses to determine level of understanding and engagement |
| **INSTRUCTION** | | | |
| Teacher | Introduce, explain and discuss table defining opinion, hypothesis and theory  Read and discuss instructions for part 2. Clarify any misunderstandings | | |
| Student | Ask questions, highlight, annotate.  Read and discuss instructions for part 2. Ask questions about any misunderstandings | | |
| Assess | Level of questions/engagement | | |
| **INVESTIGATION** | | **INVENTION** | |
| Teacher | Support, discuss and redirect students’ efforts at creating opinion and hypothesis statements | Teacher | Model first question in part 1 – “my hypothesis is that if I hear,,,”  Clarify and redirect student efforts in part 2 |
| Student | Create and explain own opinion and hypothesis statements  Explain thinking behind classifications in part 2 | Student | Read each of remaining sentences and correct improperly used term  Decide if statements in Part 2 are opinions, hypotheses or theories |
| Assess | Assess quality of student created assessments | Assess | Students choose more appropriate words for statements |

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).

1. *Pose anticipatory statement: Science is a way of learning about the world by…”*
2. *Discuss responses*
3. *Introduce terms and refer students to table explaining them*
4. *Model first statement with misused term (“My hypothesis is that…”)*
5. *Discuss, support and help redirect student responses as needed*
6. *Ask students to create and explain their own opinion and hypothesis statements*
7. *Introduce Part 2 of lab and clarify*
8. *Monitor and support as students evaluate statements and explain their decisions.*
9. *Pose final Activity Question – clarify, support and extend*

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

*Description – Students must make decisions and explain and describe their thinking while assessing the various statements and questions in the lab.*

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.

*I have to make extensive modifications to lessons to make them appropriate for my students. In addition, this unit is hard to connect to the 6th grade curriculum as there is very little life science in the 6th grade curriculum.*