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

**Module 3: Biological Aquatic Science**

Name: Andrea Bell

Activity: Scientific Language

1. Why did you choose to do this activity?

Scientific literacy is fundamental to studying science and being an educated member of society

2. What are your classroom learning goals? Students will be able to understand scientific terms and use science vocabulary correctly.

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

This activity defines the terms we will study. It has students classify the terms and identify the usage of the terms in a reading passage.

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

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

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| **Benchmark** [**SC.MS.1.1**](http://165.248.30.40/hcpsv3/imr/report_by_code.jsp?code=SC.MS.1.1) | Describe how a testable hypothesis may need to be revised to guide a scientific investigation |

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| **Topic** | Scientific Inquiry |
| **Benchmark** [**SC.MS.1.2**](http://165.248.30.40/hcpsv3/imr/report_by_code.jsp?code=SC.MS.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 Inquiry |
| **Benchmark** [**SC.MS.1.3**](http://165.248.30.40/hcpsv3/imr/report_by_code.jsp?code=SC.MS.1.3) | Defend and support conclusions, explanations, and arguments based on logic, scientific knowledge, and evidence from data |

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| **Topic** | Scientific Inquiry |
| **Benchmark** [**SC.MS.1.4**](http://165.248.30.40/hcpsv3/imr/report_by_code.jsp?code=SC.MS.1.4) | Determine the connection(s) among hypotheses, scientific evidence, and conclusions |

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| **Benchmark** [**SC.MS.1.9**](http://165.248.30.40/hcpsv3/imr/report_by_code.jsp?code=SC.MS.1.9) | Explain how scientific explanations must meet a set of established criteria to be considered valid |

**Ocean**

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

We will use the terms as we investigate fish, evolution, and marine science investigations

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

x□ 7. The ocean is largely unexplored

**Preparation**

8. How will you prepare your students for this activity? (For example, review of prior knowledge.) We will go through the activity Scientific Questions in Your Daily Life with a discussion of why we ask questions.

 I will ask students about words with different meaning in different disciplines and help them with examples

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.) Students will have misconceptions about the terms “Theory, Law, Hypothesis, Fact, Opinion” I will go over the definitions and use of the terms through the activity worksheets.

10. What ***TSI inquiry*** *questioning strategies* will you use to help your students meet your learning goals? The questioning strategies I will use are” Accepting and Clarifying” and “Focusing discussion”.

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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 | Read the Activity Questions to whole class for understanding | Teacher | I will ask students about words with different meanings in different disciplines and help them with examples |
| Student | Answer the Activity Questions | Student | Will respond to prompt and listen to peers responses for discussion |
| Assess  | Look for thoughtful complete and accurate answers | Assess  | Look for focusing and paying attention |
| **INSTRUCTION** |
| Teacher | Will write down and clarify the terms of the Activity |
| Student | Will read the terms with definitions and clarify with small group |
| Assess  | Look for understanding of the terms |
| **INVESTIGATION** | **INVENTION** |
| Teacher | Guide students in the Classification on terms | Teacher | Pass out worksheets |
| Student | Will compare statements in Tables 1.2 and 1.4 | Student | Will complete Tables 1.2 and 1.4  |
| Assess | Look for students completion of the worksheets. | Assess | Look for students writing and reading |

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).

I will ask guiding questions in Initiation and record definitions in Instruction. I will direct students in Invention and help them in Investigation. I will lead whole class discussion on Interpretation.

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

Students will use Transitive Knowledge as they analyze word usage in different disciplines. They will use Description as they define the words and use Authoritative Knowledge to help understand the terms.

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.