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

**Module 3: Biological Aquatic Science**

Name: Brittney Driggs

Activity: Fish Form and Function

1. Why did you choose to do this activity?

I choose to do this activity because it fits in perfectly with my curriculum. We just went over invertebrates and I did the project that was provided in the workshop for invertebrates. So now we are moving on to invertebrates and starting off with the phylum chordata, so I think this will be a fun activity to do after introducing them to the form and function of fish. Also I don’t get a chance to incorporate art as much as I would like to, so I wanted to do this activity for my choice option.

2. What are your classroom learning goals?

Students need to experiment with different procedures to find out what works best to create a good fish printing.

Students will demonstrate their understanding of parts of a fish by labeling their printing.

Students will be actively engaged in the activity and be creative.

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

This activity ties into my classroom learning goals because it requires students to creative in their process of determining a good method to fish print while demonstrating their understanding of parts of a fish but labeling and identify the form of a fish in their printing.

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

Thursday, March 7, 2013

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

**Standard 1: Scientific Investigation—Discover, invent, and investigate using the skills necessary to engage in the scientific process**

**Standard 5: Structure, Function, and Interdependence—Understand the structure, function, and interdependence of marine organisms.**

**Ocean**

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

I will connect this activity to the ocean by asking students what they know about fish and have ever seen them in their natural habitat such as snorkeling and scuba diving. I will ask what they know about different types of fish living in the ocean.

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.)

This will be a fun activity to review the form and function of fish that we have been previously discussing. I have already showed the class my fish print after the workshop and have it hanging in the classroom to use as a model. On the day of the lesson, we will talk about fish and what they know about fish. I will also ask about the variety of fish in the ocean and why they think there are so many different types. I will show them examples and then follow the lab. I will also use this as an assessment because they will be required to label one of their printings.

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 think students might have difficulty with the techniques involved in making a good fish print. Also having students take their time and not just rush through it. I can also foresee some difficulties with a limited amount of fish that students will have access and that some students might have to start off with the “plastic” fish provided by the workshop before moving on to the real fish.

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

Clarifying Questions

Extending Questions

Focusing Questions

Summarizing Questions

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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 | Using questioning strategies to have students share thought process behind their method of fish printing  Talk to individual students about their fish and question why their fish is shaped the way it is and verbally identify parts of the fish  Require students to label the parts of their fish | Teacher | Spark discussion by asking students what they know about fish, review what we have discussed, and why scientist might use fish printing to study fish |
| Student | Orally reflect on their process of fish printing and share their method. Ask questions and share their thoughts while fish printing.  Demonstrate their understanding of form and function | Student | Activate prior knowledge on form and function of fish. Participate in group discussion by sharing experiences and descriptions. |
| Assess | Student understanding of techniques used and modifications made in their process of printing | Assess | Participation in discussion, sharing ideas and thoughts |
| **INSTRUCTION** | | | |
| Teacher | Pass out activity procedure worksheet. Review with whole class set them up with activity.  -spark discussion using questioning strategies and stop activity to bring attention to good techniques. | | |
| Student | Read along while going over procedures. Ask questions when needed and participate in discussion. | | |
| Assess | Student paying attention as we go over the procedures as a class. | | |
| **INVESTIGATION** | | **INVENTION** | |
| Teacher | Monitor students as the go through the procedures, ask questions as to why they are using a certain method or doing something specifically.  Pass out materials needed for activity | Teacher | Pass out materials and fish to students.  Walk around and monitor students while fish printing. |
| Student | Paint their fish several time using different methods. Improve and/or modify techniques. Make fish prints and label the parts | Student | Student chooses a fish and brainstorm ways and techniques to creating a good fish printing. Students share their techniques with class. |
| Assess | Students participating and following directions. Using different procedures to determine which is most effective. Complete fish prints. | Assess | Creativity, trail and error of methods and sharing their ideas with class. |

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 initiate the lesson with questions to activate prior knowledge about fish, different types of fish and the function behind their form. Also have students brainstorm why scientist study fish and why they would use fish printing. Following that I will review with them the procedures and different ways to do a fish printing. I will then allow students to begin fish printing. I will monitor them during the activity and use questioning strategies to spark discussion. Students will be allowed to do more than one fish printing and be required to label the parts of a fish on one of their printings. They will be going in and out of the phases as they try different methods to figure out which is most efficient. Finally students will share their fish printing, hang them to dry, clean up, and work on questions on their worksheets.

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

Overarching mode for this activity will be experimentation and description because they will be able to try different ways to fish print and share their methods with the class. Also I will be using questioning strategies to have students discuss what they are doing and thinking which will require them to be descriptive.

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.