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

**Module 3: Biological Aquatic Science**

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Activity: Fish Printing for Form and Function

1. Why did you choose to do this activity?

I choose to do this activity, because it was laid out as one of the activities for this module and I had a good time doing this activity in the workshop and I found the information very interesting.

1. What are your classroom learning goals?

I want the students to develop their observation and inquiry skills with this activity.

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

This activity focus is observation and inquiry skills therefore the activity ties into my learning goals.

1. What date do you plan to start this activity? April 2nd.

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

Standard 1.1. Scientific Inquiry. Formulate a testable hypothesis that can be answered through a controlled experiment

 1.2 Use appropriate tools equipment and techniques safely to collect display and analyze data.

2.1 explain how technology has an impact on society and science

**Ocean**

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

The ocean will be connected to this activity as it supports a great diversity of life and ecosystems and that is is largely unexplored and the possibilities of new discoveries are endless and how exciting is that.

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

X 7. The ocean is largely unexplored

**Preparation**

8. How will you prepare your students for this activity? (For example, review of prior knowledge.)

Ideally I would like to have samples of real fish in the classroom to make those connections, but I am going to have to rely on the student’s prior knowledge and stories to connect them to this activity. I am sure there’s plenty of stories to tell.

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 do not expect any struggles, but there is always surprises. If there is a need to sit and discuss information then that would be the best time to address questions, with questions and group sharing.

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

I will use clarifying questions to help students to use their language skills to explain fully. I would like to extend thoughts by asking them to explain or if their partner can add to the discussion or explanation. Having the students summarize the activity through questions and discussions is toward the closure of the activity.

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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 | I will be asking students questions to extend the art work by using the characteristics of the fish revealed with the printing and comparing to a real fish drawing or photograph. | Teacher | I will display the rubber fish and ask students to predict what they know about the different types of rubber fish, then ask what makes a fish a fish. |
| Student | Students will be able to look at a fish and apply what they know to what changes have occurred and if their criteria developed is adequate | Student | Students will be predicting what the names of the rubber fish are, and what we are to do with them.Students will also create a criteria of what makes a fish a fish. |
| Assess  | I will assess this activity through the activity questions | Assess  | I will note student ideas to refer to again. |
| **INSTRUCTION** |
| Teacher | Bring up the subject of fish, stories students would like to share. Fish stories are the best. |
| Student | Students will be sharing with a partner then asked to share out to the group. |
| Assess  | I will be listening and observing student engagement. |
| **INVESTIGATION** | **INVENTION** |
| Teacher | I will have the materials for students to explore printing a form of a fish or fishes. Art in science, fun fun. | Teacher | I will ask students to define a fish using table 3.1 and compare their criteria to the table  |
| Student | Students will be printing fish using paint | Student | Students will be making comparisons to what the criteria they created  |
| Assess | Looking at student art work on fishes and the attributes of the fish  | Assess | I will be noting student responses and asking questions for clarification |

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 be encouraging student to figure out for themselves what would be a workable criteria on what makes a fish a fish, and through the fish printing, asking them to develop a method that fits their form of expression. I will be using lifting questions to keep the creative thinking and problem solving explorative. I enjoy and therefore my pace will help set their pace.

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

Curiosity, descripting, experimentation, technology, replication, induction

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 will follow the guide set up by the TSI facilitators to inspire and develop naturalists.