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

**Module 3: Biological Aquatic Science**

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Activity: Attributes of Fish

1. Why did you choose to do this activity?

This is one of the mandatory TSI lessons.

2. What are your classroom learning goals?

Students will be able to label the external anatomy of the fish. Students will use the terms fish and fishes correctly. Students will begin to be able to define what is a fish.

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

Students will draw and label the parts of a fish.

4. What date do you plan to start this activity? February 25, 2012

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

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| **Topic** | Structure And Function |
| **Benchmark** [**SC.MS.5.1**](http://165.248.30.40/hcpsv3/imr/report_by_code.jsp?code=SC.MS.5.1) | Explain how adaptations help animals survive in a marine environment |

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| **Topic** | Structure And Function |
| **Benchmark** [**SC.MS.5.2**](http://165.248.30.40/hcpsv3/imr/report_by_code.jsp?code=SC.MS.5.2) | Compare the characteristics of marine organisms (e.g., planktonic, invertebrate, vertebrate) |

**Ocean**

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

We will discuss how fish are adapted to their environment

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.

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.) Students will first draw, from memory, what they think a fish looks like and label the fish features.

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 not be clear on which animals are fish and which animals are in different phyla. I will discuss classification and the major differences of fish and crustaceans, cnaridia, and echinoderms

10. What ***TSI inquiry*** *questioning strategies* will you use to help your students meet your learning goals? At this point in the unit I will use clarifying questioning strategies.

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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 | Lead whole class discussion on fish definition | Teacher | Direct students to draw and label a fish from memory |
| Student | Will think about and discuss different types of fish | Student | Will work in small groups to draw and discuss their fish drawings |
| Assess | Look for student understanding of what defines a fish | Assess | Look for student participation and completion of their drawings |
| **INSTRUCTION** | | | |
| Teacher | Demonstrate how to label the fish drawing. Show how to create a fish print | | |
| Student | Will complete their drawings with correct anatomical labels | | |
| Assess | Look for completed drawings with labels of the fish external anatomy | | |
| **INVESTIGATION** | | **INVENTION** | |
| Teacher | Walk among students groups and give small group or one-on-one instruction on fish printing techniques | Teacher | Show students how to make a fish printing |
| Student | Creates a fish print and shares with their small group | Student | Carries out the procedures for making a fish printing |
| Assess | Look for completed projects. Listen for student sharing | Assess | Look for students to gather needed supplies for fish printing |

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).

Students will be introduced to the concept of fish and will define a fish in Initiation. In Instruction I will guide them through labeling the parts of a fish. In Invention I will show them how to make a fish print and in Investigation they will create their own fish print. In Interpretation students will analyze what makes fish different from other animals

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 will focus on Curiosity and Description. Students will need clarification on what animals are fish and which are not from their misconception. Students will also practice creativity because it will help them in their learning.

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 ask students the week before to bring in fish. I plan to do this on Monday so they have the week-end to collect fish.