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

**Module 1: Physical Aquatic Science**

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Activity: **Practices of Scientists**

Why did you choose to do this activity?

*I chose to do this activity as a good way to end or recap the first quarter and a good way to start the second quarter.*

What are your classroom learning goals?

*My classroom goals are safety and scientific thinking/inquiry as part of everyday life.*

How does this activity tie into your classroom learning goals?

*Scientific demeanors and inquiry are a way of thinking that most students don’t realize that they do. The aim is to point out the human aspects of scientists and that the students themselves can be scientists when they do scientific thinking. I will also point out that as they think and do scientific inquiry they are covering a very important standard that is emphasized throughout the year.*

What date do you plan to start this activity?

*The second to the last day of the first quarter the students will be given a homework assignment to draw a scientist and the next day we will discuss it. We will start on 9/28/2012 for parts A and B, and continue and wrapped up on 10/10/2012.*

*If applicable:* HIDOE standards this lesson will address

*This lesson addresses HCPS III SC.PS.1 The Scientific Process and Scientific Investigation. This is a general lesson to talk about each of the benchmarks as part of what a scientist does, namely designing and safely implementing an experiment, revising the hypothesis if needed, defending and supporting conclusions based on logic, evidence and data, determining the connections among the hypothesis, scientific evidence, or conclusions, communicating the components of the scientific investigation, peer review, revising the conclusion based on evidence, ethics and integrity in science. The last benchmark in this standard, “explain how scientific explanations must meet a set of established criteria to be considered valid,” is also something that scientists are expected to know.*

**Ocean**

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

*I will give the students a worksheet or problem on the board to match the different kinds of scientists with the name that describes their discipline. Oceanographer will be one of them and marine geologist. I will also show some pictures of scientists studying various aspects of the ocean.*

1. Select the Ocean Literacy Principle(s) that you anticipate this activity will address. (check all that apply)

X 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**

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

*Students did “What is science?” at the beginning of the year. They will draw a scientist for homework to prepare. I will start by showing them a couple of videos from NOVA: The Secret Lives of Scientists and Engineers and then I will do part A and B with them. The first day back from break I will continue the lesson with a scientific field matching exercise, then do part C and D as outlined in the lesson given to us.*

1. 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.)

*The first discussion will occur on the last day of the first quarter and some students might give me a hard time about this and not want to participate in the discussion.*

1. Select the TSI Mode(s) of Inquiry that you will focus on for this activity. (check all that apply)

x Curiosity

x Description

□ Authoritative knowledge

□ Experimentation

□ Product evaluation

□ Technology

□ Replication

□ Induction

□ Deduction

x Transitive Knowledge

**Questioning and Assessment Strategies**

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

*I will start by showing them a couple of videos from NOVA: The Secret Lives of Scientists and Engineers and start it off by telling them these are some scientists that do interesting things in their lives not related to science. Then I will have them exchange scientist pictures and write words that describe the other person’s drawing.*

*What words describe the scientist that you see? What words describe what the scientist is doing? What describes what the scientist is using? What are the most common words that we come up with as a class?*

*What TV shows do you know of that portray scientists? What kind of words can you use to describe them? Are there any particular shows or TV scientists that you can relate to or see yourself as? Why?*

*What kind of characteristics for the scientists’ jobs can you come up with?*

*What kind of habits or characteristics do the scientists have to have to be able to do their jobs well?*

*What is a demeanor? What is a characteristic? What is a practice?*

*What kind of list can we as a class come up with to describe the demeanors and practices of science? Can you list some examples?*

*Which words on this list are part of what you do when you are doing experiments or lab activities in science class? What can you conclude from this discussion about scientists and scientific habits of mind? How has your view of what a scientist is changed by participating in this discussion?*

1. What *assessment strategies* will you use to help your students meet your learning goals and monitor their progress?

*I will have the students either do a reflection of what they thought a scientist was before the discussion and what they now think a scientist is or I will have them do an exit pass if time is a factor.*