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

**Module 1: Physical Aquatic Science**

Name: Paul Crowe

Activity: Kinesthetic Moon Model

Why did you choose to do this activity?

I wanted students to have a deeper understanding of the mechanics of the rotation and position of the moon and earth relative to each other and to the sun. The cause of phases of the moon visible at various times from the earth and the relationship between Earth’s moon and Earth’s tides.

What are your classroom learning goals?

One of our classroom learning goals is to describe causes and characteristics of tides.

How does this activity tie into your classroom learning goals?

Understanding how the moon orbits the earth is key to understanding the causes and characteristics of tides.

What date do you plan to start this activity? Oct 31 2012

*If applicable:* HIDOE standards this lesson will address

Marine Science standard 3 : Understand the physical features of the ocean and its influences on weather and climate.

**Ocean**

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

Students will understand that the motion of the earth, moon and sun affects the tides which in turn govern many physical and biological processes in 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.

X 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**

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

Students will make a list of vocabulary words pertaining to the lesson.

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.)

I foresee students having misconceptions about the moon rotating as it spins around the earth. I will have students watch other pairs of students as they model the motion of the earth and moon. I will ask them to think about when they see the X and when they don’t see the X marked on the moon.

I can tell it will be a challenge to keep all students on task and engaged for the entire 30 minutes.

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

X Curiosity

X Description

X Authoritative knowledge

X Experimentation

□ Product evaluation

□ Technology

X Replication

X Induction

X 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 ask students to discuss questions with a partner. I will then ask students to share what their partner said.

I will randomly pick names and ask guiding questions.

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

Students will be assessed during the activity according to their participation and level of understanding during the activity.

Students will answer a series of questions post-activity to determine if they have met the learning goals.