



Objective: On April 20, 2010 the Gulf of Mexico was subjected to what is considered by many, as the worst environmental disaster of all time, the BP oil spill, also known as Deepwater Horizon. The goal of this lesson is educate students and to generate inquiry about the largest oil spill in history through a variety of lessons utilizing arts infusion.

Florida Standards:

SC.912.L.14.6- Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.

SC.912.L.17.16- Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.

SC.912.L.17.8- Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.

SC.912.L.17.9- Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.

Part 1 Activating Prior Knowledge through Group Discussion and Collaboration- The students will generate a KWL focused around the BP oil spill. What do they already know, what do they want to know, and what did they learn? Students can generate their ideas individually or in groups. After they have completed the K and W, students will watch the National Geographic documentary “*Can the Gulf Survive?*” During the video the students are to take notes and generate at least five questions that they have regarding the aftermath of this disaster. After the video the students will get back into their groups, discuss the video, and compile what they learned. The students will present their findings to the class.

Part 2- Creating an Emotional Connection through Analyzing Art and Photographs. The students will look at a series of photos and paintings presented via PowerPoint of the disaster. The students will view each piece of artwork several times; choosing two that connect with them and complete the art reflection (make two copies per student). After the students have analyzed the artwork, open the floor up for discussion, ask the students to share their thoughts.

Art Reflection in Science

Turn your attention to the piece as a whole, observe it, and analyze it.

1. Is the picture abstract or realistic? Explain.
2. How are the details in the piece used to express its meaning?
3. Describe the initial emotion you feel as you view this piece, and then list any adjectives that describe how you feel while looking at it.
4. Take a closer look; divide the piece into four sections. Study each section intently and record any symbols that you might see. What do you think the symbols mean?

Part 3- The Deepwater Horizon in the Eyes of a Student- Students are to create a painting representing the oil spill, how they see it. The painting must be on a large canvas (11 X 18 is optimal, but any size could work). The goal is to allow the students to express themselves in how they see the oil spill after being exposed to a variety of mediums. The rubric below will be used to grade the piece.

Creating a Painting: Deepwater Horizon

Student Name: _____

CATEGORY	25	21.5	18.5	16
Design/ Composition	Student applies design principles (such as unity, contrast, balance, movement, direction, emphasis, and center of interest) with great skill.	Student applies design principles (such as unity, contrast, balance, movement, direction, emphasis, and center of interest) with fair skill.	Student tries to apply design principles (such as unity, contrast, balance, movement, direction, emphasis, and center of interest) but the overall result is not pleasing.	The student does not appear to be able to apply most design principles to his/her own work.
Drawing	Drawing is expressive and detailed. Shapes, patterns, shading and/or texture are used to add interest to the painting. Student has great control and is able to experiment a little.	Drawing is expressive and somewhat detailed. Little use has been made of pattern, shading, or texture. Student has basics, but had not "branched" out.	Drawing has few details. It is primarily representational with very little use of pattern, shading or texture. Student needs to improve control.	The drawing lacks almost all detail OR it is unclear what the drawing is intended to be. Student needs to work on control.
Creativity	Student has taken the topic being discussed and applied it in a way that is totally his/her own. The student's personality/voice comes through.	Student has taken the topic being studied and has used source material as a starting place. The student's personality comes through in parts of the painting.	Student has copied some painting from the source material. There is little evidence of creativity, but the student has done the assignment.	Student has not made much attempt to meet the requirements of the assignment.
Time/Effort	Class time was used wisely. Much time and effort went into the planning and design of the mask. It is clear the student worked at home as well as at school.	Class time was used wisely. Student could have put in more time and effort at home.	Class time was not always used wisely, but student did do some additional work at home.	Class time was not used wisely and the student put in no additional effort.

Part 4- Act like a scientist and respond to the spill. The students will use the lab created by NOAA at http://www.education.noaa.gov/Ocean_and_Coasts/Oil_Spill.html. This comprehensive lab will take students through all aspects of an oil spill.

Pre-lab: Students will read all seven one page articles related to the BP oil spill and will generate two higher order thinking questions and answers for their peers to answer later.

Part 5- Post –lab: What now? What are scientists doing to find out more information? How can I help? The students are to utilize the DEEPEND website, www.deependconsortium.com, and research and answer the following questions.

1. What is the scope of work of the DEEPEND research team?
2. When conducting research you never know what unique organisms you may come across and discover. Did any DEEPEND scientists discover any new species? If so what was it and describe the organism in detail.
3. Describe the ocean layers in which DEEPEND is observing and recording.
4. What three adaptations are important when you live past 200 meters in the ocean? Describe each one and provide an example of an organism that efficiently uses each one.
5. What is vertical migration, why is it so important for a deep sea organism, and how does this process contribute to the “biological pump?”
6. There are many scientists involved in DEEPEND’s research and many different topics being studied. Choose three scientists and describe their area of work, their education, and what their contribution is to the DEEPEND team.
7. Go to the tab that says research and then go to deep sea fauna. Look through all of the exclusive organisms found in the deep. Choose ten fauna and complete the following on each organism:
 - a. Scientific Name
 - b. How big is it, provide a specific measurement.
 - c. Where it is located in the water column.
 - d. List three characteristics of the fauna.
 - e. Adaptations that allow it to successfully survive in the deep.
8. Go to the Adult Blog tab and write a one paragraph summary of your favorite blog!