Reading and Literary Response in a Science Unit Curriculum

**Content Area**: Nuclear Physics

**Grade**: 11th grade

**Unit goal**: The students will understand the devastation and the pain from one small nuclear reaction.

**Academic Content Standards (Science 11-12)**:

1) Describe how atoms and molecules can gain or lose energy only in discrete amounts.

2) Summarize the historical development of scientific theories and ideas with in the study of physical science.

**Introduction**

Think back to your last physical science class in high school. How often do the students in the class read materials other than the textbook? How often do the students write papers or respond to literature? From my experience, I did not once have to do any of the above in my high school chemistry or high school physics class. One of the latest trends that have been appearing in science curriculum is the idea of reading and writing across the curriculum. This gave me the idea to implement this into my classroom. For my project, I am creating a unit plan that will incorporate reading and literary response in a nuclear physics unit with a book club being the main focus.
Book Club and Read Aloud Summary

Students in a physical science class are used to the usual grind of formulas, theories, and applied mathematics. How often in a classroom do students experience reading for an aesthetic stance? From my experience and due to lack of time, there was not one class I read, in a physics or chemistry class, for feeling, but it was only for the efferent stance (information). In order for students to not only gain an efferent stance out of reading, I designed a book club around the content area of nuclear physics so the students can also gain an aesthetic (feeling) stance of reading.

The book choices will be centering around one of the most amazing yet devastating aspects of war, the atomic bomb which the laws of nuclear physics govern. Students will learn about what reactions take place and the energy that is released by a nuclear bomb. However, these will just be formulas and numbers to them, no real meaning. The books chosen in the book club will be based around the bombing of Hiroshima, Japan at the end of World War II. Then the students will be “encouraged to draw on their own resources to make “live” meanings (Rosenblatt, 2005, 27).” This will let students read for the aesthetic stance while using their prior knowledge of physics. Along with the book club, there will also be five teacher read alouds and 10 independent books for individual reading that will go along with the bombing of Hiroshima.

With the book clubs, read alouds, and independent reading, several response activities will be developed for students to connect with the texts. These are reading response activities. This is very important. Louise Rosenblatt supports this point by saying, “This is what the reader starts reacting or responding to during the reading event. Later, there will be a recall of the
experience, remembering of, and reflection on, the evocation, and the reactions” (Rosenblatt, 2005, p.45).

**Other Activities:**

Even though the book club template will be the key to getting reading across the curriculum, I want to implement other sources around the unit in order for the students to get a clearer perspective. One of these activities will be the introduction of a student centered activity involving a webquest. This is for students to evaluate and read different sources on the internet, and take an efferent and an aesthetic stance on the literature.

The next project that will take place is a group of students will then be given a scientific problem of the atomic age. Each group will read resources about their specific problem they will encounter. They will then have to come together as a group and respond to their issue in a literary response. Finally, the group will present their issue and findings to the class.

The culminating literary response project will be a research paper behind the social responsibility of a scientist. The students have learned about the atomic bomb through the book clubs, the read aloud, webquest, and scientific issue project. They will use facts and stories from all these combined to answer the question: If you were someone who knew about the destruction that would occur in August of 1945, would you still recommend President Truman to use the atomic bomb. Then they will cite evidence from what they have gathered in the unit to write a 3-5 page research paper.

**Reference**

Annotated bibliography for the books in the book club selection.

**Book Club Selections** In the following book club book selections, I have selected two fiction titles: *Menu: Seeking the Corn Mother’s Wisdom* and *Hiroshima Joe*. The other selections in the book club are non-fiction works which include: *Shockwave: Countdown to Hiroshima*, *The Hiroshima Maidens: A Story of Courage, Compassion, and Survival*, and *Encounter with Disaster: A Medical Diary of Hiroshima, 1945*.


Marilou Awiakta was raised outside a nuclear research laboratory. It was December of 1945, and the world was obsessed with the atom bomb. Marilou tries to figure out what atoms are and if they can harm her. The book relates to the unit because she deals with what the atom bomb is.


In this book, Barker tells the story of 25 young Japanese girls who recall the blast that changed their life forever. Then, the 25 girls travel to the US for reconstructive surgery and to live in there forever. It relates to the unit topic because it describes the young women suffrage do to the bomb.

Joe who is the protagonists in the story is haunted by the memories of Hiroshima. He is now stuck in a POW camp, and his thoughts of the torment of war are the only thing he lives with. It relates to the unit by talking about the horrors which are faced and the pain that is felt do to the bomb.


This is a true account of a Japanese doctor encountering different ailments of survivors of the atomic bomb. The pain and suffering of his patients will make students who read this book ponder about the power of the bomb. It relates to the unit objective by the fact it deals with a first hand account of the devastation the bomb causes.


Walker starts off the book talking about the site of the first atomic bomb test in New Mexico. Then he continues to tell the story of a Japanese solider looking for his wife and child after the bomb fell. This is a breath taking story which both describes the bomb and the people who were affected by it.