



Instructor: Janet Sienko

School: Diocese of Metuchen – Our Lady of Victories School

Lesson Title: Hiroshima, Chernobyl, and Three Mile Island – A comparison

Grades: 7,8

Subjects: General Science and Social Studies

Overview: Lesson will introduce students to three nuclear disasters and will explore the historic and scientific significance and aftermath of these events.

Objectives: Students will acquire knowledge of three historic events that are linked by a common scientific thread – nuclear radiation. Student will further learn the hazards of exposure to radiation.

Materials and Resources: Internet, social studies text, atlas, PowerPoint software.

Introduction: Teacher opens discussion with a question: “What was the reason for the war in Iraq – Operation Iraqi Freedom?”

Discussion concludes: Fear of weapons of mass destruction in the hands of an unstable dictator or terrorist group. One of the weapons in questions is nuclear weapons. In our history, the only intentional use of nuclear weapons took place at Hiroshima, Japan on August 6, 1945 in order to bring about a swift end to World War II. Japan surrendered very shortly afterward; however, the aftermath was catastrophic. A city was destroyed and huge amounts of dangerous radiation exposed a large population to far-reaching biological effects. In more recent times, there were two other disastrous nuclear events, neither intentional, which also exposed large populations to dangerous levels of radiation: Three Mile Island in Pennsylvania and Chernobyl in Russia. Both were meltdowns of reactors in nuclear power plants that resulted in radiation release.

Procedure: Students will be divided into three groups. Each group will conduct a symposium or exchange of information and will research each of these events in light of historical and scientific data. Members of each group will divide the retrieval of research in a team approach and present their findings in a PowerPoint presentation. The following areas will be addressed:

- What is the historical/political background of the event?
- Design a map of the geographical region affected, designating areas in the path of the radioactive fallout.
- Extent of damage and destruction of the affected area.
- Sources of exposure and doses of radiation.
- Biological Effects: a) short term, b) long term.

- Estimated loss of life and illness due to exposure.
- What have scientists learned as a result of these events?

Each group will have one class period to present research, followed by teacher-directed discussion on the fourth day. Students will be encouraged to understand the interconnection of the three events, the need for non-proliferation of nuclear weapons and absolute security of nuclear power plants due to mortal dangers of radiation exposure.

Evaluation: Students will write a 250 word essay commenting on the following quote: "Those who do not learn from history are condemned to repeat it." Statements must be supported by historic and scientific information acquired from symposium discussions.