

Signature Assignment

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EDSE CLASS

Dr Morales

LESSON PLAN: Health and Life Skills Hiroshima

GRADE LEVEL: 9th

CONTENT AREA: Health and Life Skills

STUDENT PROFICIENCY: Beginning and Intermediate English Learners

THEME: Health Effects on Radioactivity

TIME FRAME: One week, 5 days and 56 minutes per day

STANDARD ADDRESSED: From California Curriculum Matrix for Science, California Science/Bench marks.

High School Health and Life Skills: (1) Scientific Progress is made by asking meaningful questions and conducting careful investigations.

Students will: Investigate a science-based societal issue by researching the literature, analyzing data, and communicating the findings.

OBJECTIVES:

1) Content Objectives

- a. 80% of the students will be able to name and describe 3 radiation effects.
- b. 80% of the students will know the effects of at least three different levels of radiation exposure ranging from 600R to 30R.
- c. 80% of the students will be able to research and discuss societal issues with respect to the use of atomic weapons.

2) Language Objectives: Beginning EL Students

- a. 80% of the students will be able to match important vocabulary terms to their definition (for example: 600R means 100% chance of fatality is expected.
- b. 80 % of students will be able to fill in blanks in a sentence frame based on article Nuclear Radiation (for example: elements are unstable and give off highly energetic charged particles called radioactive elements).

3) Intermediate EL Students:

- a. 80% of students will define important terms: (radiation is: _____)
- b. 80% of students will be able to read passages from the book, Hiroshima, in English and verbally summarize what they read in English or their native (L1) language.

Resources and Materials: Book: Hiroshima, by John Hersy

Internet Article: Health effects of Radiation Exposure and Radioactive Contamination: (Questions about the Atomic Bomb Survival Research Program).

4) Vocabulary

1. Content: radiation, nucleus, proton, neutron, gamma rays, atomic energy, cancer, genetic disorder.
2. Support: Atomic, emission, energy, biological, effect, cancer, inheritance.

Body of the Lesson:

Note: This will be a cooperative lesson between the English/ELD class and the Health/Life Skills class. In addition the Health /Life Skills lessons will include the reading of the book, Hiroshima, and a final essay that will receive credit in both their Health/Life Skills Class and their English class.

Their Health/Life Skills Lesson will include

- 1) Introductory lecture/discussion on atomic structure and the source of nuclear energy.
- 2) Students will then work in small groups to discuss five radiation levels 600R, 400R, 200R, 50R and 30R and how it affects human life (a simple pictorial one for beginning EL groups and one that requires formulating sentences for Intermediates.
- 3) Students will be assigned to answer two to three questions per group of the 12 questions about Atomic Bomb Survivors Research Program Article. The teacher will guide and assist when students need it.
- 4) Homework: reading in Hiroshima, looking for page numbers to support heat damage to people and structures when the bomb was dropped and the effect of distance away from the blast on severity of burns.

Day 2 Radioactivity

- 5) Lecture on the effects of radiation levels on the human life and health.
- 6) A student speaker will answer the questions that were assigned to their group and teacher will assist or clarify in answering the answer correctly.
- 7) Students who are not presenting should takes notes from students who are presenting the answers.
- 8) Homework: Reading in Hiroshima, citing page numbers to support conclusions about radiation sickness soon after the blast and its effect on families and the area's economy.

Day 3 Societal Issues

- 9) Video: Einstein's Letter (development of the atom bomb and ethical issues).
- 10) Small group discussions of the ethics of the bomb. Discussion questions will include whether the first bomb was necessary and whether using the second bomb was warranted. Was it merely nuclear weapons experimentation with live subjects?
- 11) Internet search for information about the long term effects of radiation on human beings, including the genetic damage that may influence future generations.

- 12) Small group discussions and report to the class on effects of the use of the atomic bomb on both Japanese and American cultures. Discussion questions will ask students to examine how ethical considerations may have led to cultural bias here and in Japan.
- 13) Homework: complete reading of Hiroshima, then write a reflection about how the book may have made them reconsider any of their former opinions about the Japanese, their role in WWII, and how Americans conducted the war. This reflection should also address the Plight of the Japanese civilians during all this, and the concept of “collateral damage” to civilians in any war or conflict.

The English/ELD lesson will include:

- 1) Student reading of the book, Hiroshima (for Beginning EL students, this may have to be read to them, or as assisted reading where an aide can provide translation into L1)
- 2) Small group discussions of pertinent sections of the book. “Reaction” writings to various parts of the book (for Beginning EL students, this may have to be on the order of identifying key descriptive phrases).
- 3) Final “essay” on consequences of nuclear research and development of the atom bomb on society and our cultures (both Japanese and American). This should include consideration of:
 - Humanitarian questions (the biological effects).
 - Ethical questions (Did the use of the bomb save lives, or was it unethical experimentation on human subjects?).
 - Cultural questions (Has the use of the bomb led to animosity, cultural bias, and discrimination in Japan and in the United States?)

Learning Activities: Teacher talk

Formal discussion will be limited to the scientific terminology/core concepts needed to do the lesson activities. Throughout group work, the teacher will circulate among the groups and conduct question/answer evaluation. Questions during group discussions will focus on the development of cultural bias and examples of discrimination. On Day 1, types of radioactive particles will be introduced and rate of decay $\frac{1}{2}$ life will be defined (prior to their activity). Also, the teacher will circulate and ask questions as needed to ensure that students are discussing the questions with enough depth of thought and honesty.

Cultural background and experience of the student:

Discussion questions on each day will ask students to apply their background and their own experiences in their culture to questions of the effects of the bomb dropped on Hiroshima.