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School: St. Thomas the Apostle, Old Bridge

Lesson Title: Radiation Poster Projects

Grade: 8

Subject: Physical Science

Overview: Students will work in groups to research various aspects of radiation, make posters and give oral reports on their findings.

Objectives:

- Describe radioactive decay and the emissions produced during decay
- Identify the uses and dangers of radioactive isotopes
- Explain half life and how it is useful in fossil dating
- Explain food and mail irradiation and their uses and dangers
- Build research and reporting skills

Materials:

- Poster Board
- Index Cards
- Markers
- Encyclopedias
- Internet Access for Research Purposes (at home or in school)

Advance Preparation: Arrange for class time in the library.

Time: 3-4 class periods

1. Separate the students into groups of 3 or 4 (depending on class size)
2. Assign each group a topic. Hand out topic worksheets with subtopics. (See Below)
3. In class students break up into groups. Each person in the group picks a sub topic for which they will be responsible.
4. Students proceed to the library to research their topics. Students are permitted to do further research at home, however the posters and oral reports must be completed in class.
5. After completing their research, students work in groups to prepare their posters. Each student then uses the index cards to write notes for their oral reports. Each student must report on their particular subtopic.

Poster Topics and Subtopics -Student Copy

Instructions:

1. Check off the group project listed below that your group has been assigned.
2. Discuss the subtopics with your group. Each student in the group must pick a subtopic that they must research.
3. You will be given class time in the library to do the research. You may research the topic at home. All research must be brought back to the classroom and shared with the group.

4. After completing your research you must make a poster and give an oral report following the guidelines below.

Poster Guidelines

1. The Main Topic and Subtopics must be written on the poster
2. Subtopics must be described
3. Illustrations must be used
4. It must be neatly done. Don't forget to be creative
5. The names of all students in the group must be on the poster

Oral Report Guidelines:

1. Each person in the group must speak on their topic
2. Use index cards to refer to during your speech but do not read from the index cards. You may also refer to your poster during your speech as well.
3. Face the class, speak clearly and be accurate.
4. Each student should talk for about 1 minute but not more than 3.

Poster # 1 Topic: What Is Radiation?

Research the following subtopics:

1. How does the atom structure change when affected by radiation
2. What is Non-ionizing Radiation and its sources?
3. What is Ionizing Radiation and its sources
4. Describe the types of Ionizing Radiation.

Poster # 2 Topic: What Is A Half-Life?

Research the following subtopics:

1. Describe an element's half-life. Use examples of various isotopes.
2. What is the process of radioactive dating? Why is it called absolute dating?
3. Discuss the isotopes used in radioactive dating and why they are used.
4. How has radioactive dating been used in creating the Geologic Time Scale.

Poster #3 Topic: What are the Risks of Ionizing Radiation?

Research the following subtopics:

1. What are the risks involved in being exposed to ionizing radiation?
2. What are some ways in which a person can be exposed to ionizing radiation?
3. What are the ways in which we can reduce the risk of being exposed?
4. What kinds of radiation are we exposed to on a daily basis?

Poster #4 Topic: What are the Uses of Radiation?

Research the following subtopics:

1. Medical Uses
2. Industrial Uses
3. Chemical Tracers
4. Nuclear Power
5. Nuclear Warfare

Poster # 5 Topic: Irradiation

Research the following topics:

1. What is the process of food irradiation and why would it be used?
2. What are the pros and cons of food irradiation?
3. What is the process of mail irradiation and why would it be used?
4. What are the pros and cons of mail irradiation?