

Lesson: El Dorado: The Toxic Residue - Arsenic

Class Periods: 1-2

Date:

Objectives

- Identify a variety of ways in which humans may come into contact with arsenic from old gold mining sites.
- Describe the correlation between arsenic levels in California counties and the presence of gold mining sites.
- Compare and contrast the relationship between arsenic levels in California counties and the incidence of various types of cancer.

Materials/Equipment

- video projector
- class access to computers

Lesson Outline

- *Introduction* -read intro to [El Dorado: The Toxic Residue - Arsenic](#)
- *Article describes the use of arsenic laden fill in a housing development in Nevada City, California.*
- *Does the presence of arsenic in California counties correlate with historic gold mining activity?*
- *Discuss the article and other means by which arsenic from old mines becomes a contaminant.*
- *Group GIS activity - for the epidemiologists in class*
- *Use questions #1-4 on the [El Dorado: The Toxic Residue - Arsenic](#) page to introduce the GIS activity.*
- *Students should be assigned to groups of 2-3. One member of each group needs to be responsible for taking notes about specifics related to the use of the software; other(s) should take notes about the content to be addressed.*
- *Put a student in charge of operating the GIS. You can talk through process steps involved and ask questions, modeling the use of the software as an inquiry tool.*
- *The remaining questions (#5 - 7) on the [El Dorado: The Toxic Residue - Arsenic](#) page form the basis for student lab work. Assign each group the job of examining the correlation between the general cancer rate and arsenic in California counties and the same correlation for one of the specific types of cancer. Each group member should be ready to explain the group's conclusions to the whole class and to field questions.*
- *Have groups post their pairs of maps around the room organized by type of cancer.*
- *Select a random member from each group to briefly report the group's conclusions and field questions from the class.*

Assessment

Write a short summary comparing and contrasting the conclusions of your group regarding the correlation of the presence of arsenic in California counties and the type of cancer you were assigned with the conclusions of other groups.

