

Lesson Overview

How many days are needed to teach this lesson?	3 Days
Grade Level(s)	9th Grade
Subject(s)	AP Human Geography
Lesson Summary	Students compare accounts of lead poisoning in Oakland, CA, to coverage of Chicago's issues with lead. They conduct water tests and use data to develop a lead count map for Chicago.
Standards	AP Human Geography College Board Standards Topic 6.11 Challenges of Urban Sustainability SPS-6.B.1 Challenges to urban sustainability include suburban sprawl, sanitation, climate change, air and water quality, the large ecological footprint of cities, and energy use.
Focus Pulitzer Center news story and news outlet	"It May Be Too Late': How Oakland Addresses Lead Contamination Puts Children at Risk, Medical Experts Say," by Jasmine Aguilera and Cassandra Garibay for El Timpano
Theme/idea/issue connecting the Pulitzer Center article to your community	Chicago has the largest number of lead pipes still in use in the United States. Due to the size of the problem, the Environmental Protection Agency has given Chicago up to forty years to remediate the problem.
Content Advisory	This lesson examines the effects of lead poisoning on children. Many of our students may live in environments where they may have seen these effects firsthand.
Notes on Context	Most of our students live on the South Side of Chicago. This area contains some of the oldest and poorest neighborhoods in the city. As a result, many of them probably live in areas where the water pipes have not been replaced.

Lesson Plan

Essential Question

How widespread are high levels of lead on the South Side of Chicago?

Focus Pulitzer Center News Story/Stories

[“It May Be Too Late’: How Oakland Addresses Lead Contamination Puts Children at Risk, Medical Experts Say.”](#)
by Jasmine Aguilera and Cassandra Garibay for [El Timpano](#)

Introducing the Lesson

This lesson looks at lead exposure in Chicago. Students will begin by reading articles about the lead issue in Oakland, California. Then, students will review materials about lead exposure in the Chicago area and use lead testing strips to test water in different regions of the neighborhood.

The goal of this lesson is to connect themes covered in human geography. Students have studied concepts in urbanization, such as brownfields and industrial pollution. They have also studied inequalities in regions of the Chicago area. They will be able to make connections to these topics by engaging in this project.

Warm-up/Opening

Ask students if they drink tap water. If they do not, ask why.

Preparing to Engage with the Focus Resources

Facilitate a Gallery Walk exploring facts on lead poisoning.

1. Post the following quotes from this [Lead Poisoning Detail Sheet](#) from the World Health Organization website:
 - Harmful impacts of lead exposure are preventable
 - Lead is attributed to 1.5 million deaths a year
 - There is no level of “safe” lead exposure
 - Lead settles in the kidneys, brain, and bones
 - Lead can be found in water pipes, paint, and cables
 - Lead exposure can result in ADHD, developmental delays, and cardiovascular issues

2. Instruct students to add comments and/or questions to the facts with post-it notes.

Exploring the Resources

1. Screen the short documentary, "[Let Them Eat Lead](#)" by Josh Shapiro (15:32). Have students take notes in a [notecatcher](#).
2. After viewing the documentary, have students discuss the history of the use of lead in products using the following questions:
 - What kinds of products contained lead?
 - When did people begin to notice the effects of lead poisoning?
 - What groups of children were particularly prone to lead poisoning? Why do you think that is?
 - What role does the government play in regulating lead in products?
3. Have students read "['It May Be Too Late': How Oakland Addresses Lead Contamination Puts Children at Risk, Medical Experts Say](#)," by Jasmine Aguilera and Cassandra Garibay for [El Timpano](#).
4. After reading the article, students should use the [notecatcher](#) to prepare for discussion on the following questions:
 - Why is the lead issue particularly severe in immigrant communities?
 - Why are many children not tested for lead exposure?
 - What kinds of resources are available for children who test positive for lead?
 - Why do many tenants not report landlords when they suspect lead poisoning?
5. Lead a discussion on the article, encouraging connections to the documentary.

Processing the Resource(s)

Students will examine the issue of lead poisoning in Chicago.

1. As a group, they will read the article: "[Lead in the drinking water is still a problem in the U.S. – especially in Chicago](#)," by Pien Huang for *NPR*, and discuss the following questions
 - Why are there so many lead pipes in Chicago?
 - Who is getting their water tested in Chicago? Why are most residents not getting tested?
 - How long does Chicago have to replace their water pipes? Why is the city allowed this period of time?
2. Jigsaw five articles about lead in Chicago.
 - a. Share the following materials with students:
 - [Advice to Chicago Residents About Lead in Drinking Water](#)

- [Study Estimates Nearly 70 Percent of Children Under Six in Chicago May Be Exposed to Lead-Contaminated Tap Water](#)
- “[Map reveals widespread lead pollution in Chicago backyards, parkways](#)” by Emily Steele
- “[Revealed: the ‘shocking’ levels of toxic lead in Chicago tap water](#)” by Erin McCormick, Aliya Uteuova and Taylor Moore
- [People at Increased Risk for Childhood Lead Poisoning](#)

- b. Split students up into groups and assign one of the five articles to each group to read. Using the [article inquiry sheet](#), have students analyze their article and prepare to present the central and compelling facts to their peers.
- c. Have each group present their article to the class. Listening students should use the article inquiry sheet to demonstrate understanding of the presentations and connect the Chicago articles to the article about Oakland and the documentary about lead.

3. Have students complete the [exit ticket](#) explaining what they learned and suggestions for solutions on local lead problems.

Performance Task(s)

1. Instructs students to conduct lead level tests on water around the Chicago area using drinking water testing kits.

Educator note: My students used these [water test kits](#). Take time to review the directions in advance and walk through them with students.

2. Have students add their testing results to a class [story map](#).
 - a. Blue pins on map-safe levels
 - b. Purple pins on map-lead levels of at least .20/mg

Assessment

Each student should add their data points to the class story map. You may make requirements on how many data points are collected. The assessment is a completed/not completed grade.