

Civics Education: Lesson Plan on the Flint Water Crisis



Unit Overview

Teacher/Program:

Course/Setting: ABE/HSE Course

NRS Level(s): High Adult Basic Education (ABE)/Low Adult Secondary Education (ASE) Students (NRS Level 4–5) **Unit Theme:** Water Crisis in Flint, Michigan

Length of Unit: This unit, from [Analyzing Community Issues Through the Flint, MI Water Contamination Crisis \(REVISED\)](#) (2016) by [Ruth Sugar](#), is made up of three separate 90-minute lessons. The lesson plan presented here is adapted from one of the three lessons to more intentionally foster the skills that matter. The original lesson and the others from this unit can be accessed at <https://www.oercommons.org/authoring/13828-analyzing-community-issues-through-the-flint-mi-wa>

Content Area:

- Civics Education
- Digital Literacy
- Workforce Preparation
- Health Literacy
- Financial Literacy

NOTES on Content Area:

This unit focuses on a topic that is thought provoking, that students may have encountered or could encounter in their community, and that offers an opportunity to learn about safety, health, government, environmental science, and income inequality. Because of this, and because many students already may have read about or heard about this crisis or similar crises, they will find it relevant and engaging, making successful skills development more likely.

Main Standards Addressed:

CCR Level D:

R2: Determine the central ideas of a text and analyze their development; provide an objective summary of a text

R3: Analyze in detail a series of events described in a text; determine causality

W8: Gather relevant information from authoritative sources and assess the usefulness of each; integrate the information without plagiarizing.

SL1: Follow discussion rules, draw on preparation, pose questions that connect ideas, and acknowledge ideas and information shared by others

Additional Standards: N/A

Rationale for This Unit (*Why is this unit important to my students?*):

The students will examine key issues, analyze the problem and its causes, identify approaches to solving this problem and ones like it in other places, and apply this approach to other scenarios that are relevant to their immediate lives.

Unit Objective(s) (*What will my students be able to do at the end of this unit?*):

- Identify key topics and themes in the video and text related to education, health, and government responsibility.
- Summarize key details in the video and text to demonstrate understanding of the issues presented.
- Analyze key points and arguments made in the video and text to use in assessing solutions.
- Reflect on the problem-solving approaches used and evaluate their efficacy, with a focus on how to apply them in other situations.

Lines of Inquiry (LOI) (*What essential question(s) form the thread that holds this unit together?*):

- What does it take to recognize a crisis in a community?
- What are the approaches that are most effective when addressing communities in crisis?

Central Skills of Focus in This Unit (*Check the skills that are most emphasized in this unit*):

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|--|--|
| <input checked="" type="checkbox"/> Critical thinking | <input type="checkbox"/> Navigating systems |
| <input checked="" type="checkbox"/> Communication | <input type="checkbox"/> Adaptability and willingness to learn |
| <input checked="" type="checkbox"/> Processing and analyzing information | <input checked="" type="checkbox"/> Respecting differences and diversity |
| <input checked="" type="checkbox"/> Self-awareness | <input checked="" type="checkbox"/> Interpersonal skills |
| | <input checked="" type="checkbox"/> Problem solving |

NOTES on Central Skills (*Items underlined are explicitly taught and/or practiced*):

Communication: *Initial questions (about community visual), T-chart, lead chart, class discussions, small-group discussions*

Critical Thinking: *Guided ABC research task*

Navigating Systems: *Conducting a Webquest (ABC research task)*

Adaptability and Willingness to Learn: *Vocabulary journals*

Processing and Analyzing Information: T-chart, listening to oral presentation on lead, infographic task, community problem strategy chart task

Respecting Differences and Diversity: *Small-group discussions*

Interpersonal Skills: Lead chart activity, infographic task, small-group discussions

Self-Awareness: Checklist, exit cards

Problem Solving: (first step, identifying/defining the problem) *T-chart, research and technology issues, infographic task*

Common student misconceptions/misunderstandings that may interfere with learning:

At first, the students may not see the relevance of the events in Flint, Michigan, to their own lives.



Lesson Planning Template

<p>Standard(s)</p> <p><i>Indicate which standards from the unit are targeted in this specific lesson.</i></p>	<p>ELA/Mathematics/ELP:</p> <p>CCR Level D:</p> <p>R3: Analyze in detail a series of events described in a text; determine causality.</p> <p>W8: Gather relevant information from authoritative sources and assess the usefulness of each; integrate the information without plagiarizing.</p> <p>SL1: Follow discussion rules, draw on preparation, pose questions that connect ideas, and acknowledge ideas and information shared by others.</p>	
<p>Lesson as Part of the Unit</p>	<p>Where does this lesson fall within the unit? <input checked="" type="checkbox"/> beginning <input type="checkbox"/> middle <input type="checkbox"/> end</p>	
<p>Instructional Objective(s) and Learning Target Statements</p> <p><i>The former are written in teacher language primarily derived from content standards and include evidence of mastery. The latter are written in student-friendly language and help learners reflect on what they are able to do as a result of the lesson.</i></p>	<p>Instructional Objective:</p> <p>After watching video clips or reading the information on lead exposure and then discussing the issues, ABE/ASE students will be able to:</p> <ul style="list-style-type: none"> • Use the key details from the text/video to explain <ul style="list-style-type: none"> – the environmental sources of lead exposure, – how lead gets into drinking water, and – five or more ways lead exposure affects health. • Synthesize information from multiple sources in order to explain the issues that led to water contamination in Flint, Michigan. • Expand their interpersonal skills by collaborating to research and present information on the Flint water crisis. 	<p>Learning Target Statements (for learners' exit tickets, learning logs, or reflection)</p> <p><i>I can explain how lead gets into drinking water and why this is harmful to our health.</i></p> <p><i>Before I could ..., now I can ...</i></p>



<p>Assessing Mastery of the Objective(s)</p> <p><i>Indicate <u>when</u> and <u>how</u> assessment—formative and/or summative—will occur during the lesson.</i></p>	<p>Proof of Learning:</p> <p><input type="checkbox"/> Via observation of a team task (e.g., discussion, work on project)</p> <p><input type="checkbox"/> Via team self-assessment</p> <p><input type="checkbox"/> Via individual self-assessment</p> <p><input checked="" type="checkbox"/> Via team product</p> <p><input type="checkbox"/> Via individual product</p> <p><input type="checkbox"/> Other _____</p> <p>Proof of Learning Tools:</p> <p><input checked="" type="checkbox"/> Rubric <input checked="" type="checkbox"/> Checklist <input type="checkbox"/> Quiz <input type="checkbox"/> Other _____</p>	<p>Ongoing Formative Assessment</p> <p><input type="checkbox"/> Nonverbal responses to comprehension questions (e.g., answer cards, Kahoot)</p> <p><input type="checkbox"/> Peer-to-peer quizzing</p> <p><input type="checkbox"/> Exit/admit tickets</p> <p><input type="checkbox"/> KWL charts</p> <p><input checked="" type="checkbox"/> Other <u>T-charts or team research chart</u></p>
<p>Language Demands</p> <p><i>Include academic language and any language that may affect a student's ability to access the content in directions, examples, tasks, etc.</i></p>	<p>Academic Language Functions:</p> <ul style="list-style-type: none"> • Describing cause and effect • Elaborating on others' ideas <p>Content-Specific Vocabulary:</p> <ul style="list-style-type: none"> • <i>lead</i> • <i>corrosion</i> • <i>leach</i> • <i>solder</i> • <i>toxic and toxins</i> • <i>contamination</i> • <i>emergency manager</i> • <i>public health</i> • <i>infrastructure</i> • <i>stakeholder</i> • <i>community crisis</i> 	



<p>Adaptations and/or Accommodations</p> <p><i>How will EVERY student have access to the content of the lesson? Identify differentiation strategies and consider misconceptions from the unit plan.</i></p>	<p>This sample lesson demonstrates how to engage a multilevel class in the topic. Alternatively, this lesson could be used on its own at a variety of class levels. The tasks in this lesson are open-ended in order to stimulate various levels of responses. Infographics and fact sheets are provided as reading sources.</p>	<p style="text-align: center;">MATERIALS</p> <p>See other materials listed below as well</p> <p>Readings from EPA website:</p> <p>How lead gets into water: https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water#getinto</p> <p>Health effects of exposure to lead in drinking water: https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water#health</p> <p>Timeline of events: http://www.msnbc.com/msnbc/flint-water-crisis-timeline</p> <p>Lasting effects: https://www.washingtonpost.com/news/wonk/wp/2017/09/21/flints-lead-poisoned-water-had-a-horrifyingly-large-effect-on-fetal-deaths-study-finds/?noredirect=on&utm_term=.9025e332850e</p> https://www.michiganradio.org/post/tracking-flint-water-crisis-health-effects
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Introduction

How will you introduce the lesson objective and how it fits into the unit/LOI? Identify its relevance to learners' needs and goals.

Time: 15 minutes

Warm-up

Show pictures of examples of community issues—image of child with measles, homeless tents, graffiti/vandalism, trash dumping, pot holes etc.

Teacher (for each picture): What do you see in this picture? Who has seen or experienced this issue in your own community?

Teacher: Have you been in a situation when city or state services were not provided well? Think about utilities, road and highway maintenance, school systems and school buildings, natural disaster cleanup, and so on.

Small groups with one T-chart per group:

Issue/situation you encountered	Effect on you, your family, or your community

After the students complete the T-charts, the teacher asks the following:

- How did you, your family, or your community try to solve this problem or improve the situation?
- What were the results when you, your family, or your community tried to solve the problem or improve the situation?

Introduction

Teacher: *Today and in other lessons in this unit, we are going to focus on Flint, Michigan, where the city water system was not working properly. Citizens were exposed to lead and other toxins and bacteria in their drinking water. We are going to discuss (1) the reasons this happened, (2) the effects on the citizens, (3) the strategies that are being used to solve the problem, and (4) how we can use this situation in Michigan to think about our own communities.*



The teacher asks the students to record any new vocabulary words in their vocabulary journals. Some terms will be defined together in class; the students may need to look up others on their own.

Teacher: *What do you already know about lead? Work in teams of three to record anything you already know.*

What is lead?	Where does it come from?	What are the ill effects of lead?

What have you heard about lead in the news related to Flint, Michigan, or another location in the United States?

Why is having lead in our water, air, and soil an important issue for Americans to think about?

The teacher provides the following definition of lead from the Agency for Toxic Substances and Disease Registry as a handout or projects it using a PowerPoint slide. The teacher reads the definition aloud, responds to questions and clarifies unfamiliar terms, or asks students who know the terms to explain them.

Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Lead can be found in all parts of our environment. Much of it comes from human activities including burning fossil fuels, mining, and manufacturing. Lead has many different uses. It is used in the production of batteries, ammunition, metal products (solder and pipes), and devices to shield X-rays. Because of health concerns, lead from gasoline, paints and ceramic products, caulking, and pipe solder has been dramatically reduced in recent years.

Source. Centers for Disease Control and Prevention (CDC):
<https://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=22>

Central Skills: Communication, Analyzing and Processing, Critical Thinking



Explanation and Modeling

What type of direct instruction do learners need? Are there ways for learners to access the new content independently? What types of models will you provide and when?

Time: 35 minutes

Teacher: *Is the water coming from the water plant contaminated with lead or does the contamination happen at a different point? Where does the lead in our water come from? What went wrong in Flint? How does lead affect our health? These are questions you will explore through some research.*

Team Topics (see the Research Task handout [Appendix A])

- A. How does lead get into drinking water?
- B. What happened in Flint, Michigan?
- C. What are the ill effects of lead on our health?

Working together, teams explore their resources and make notes in their section of the chart.

Each student team creates its own infographic, capturing the main points of the topic it will present to others in the class. The teacher scans or makes copies of the infographic and distributes one to each team member.

Central Skills: Analyzing and Processing, Critical Thinking

- Research Task handout (Appendix A)

Team A: How does lead get into drinking water?

See available online resources and the information graphic from the Environmental Protection Agency (EPA):
<https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=500025PW.txt>

Team B: What happened in Flint, Michigan?

See available online resources and available videos; use this simple timeline at
<http://www.msnbc.com/msnbc/flint-water-crisis-timeline>

Team C: What are the ill effects of lead on our health?

See available online resources and the fact sheet from the Clean Water Action website:
https://www.cleanwateraction.org/sites/default/files/Lead%20and%20Drinking%20Water%20Fact%20Sheet_0.pdf

Materials

- Paper and markers or an online infographic template (e.g., Visme)
- Student-created infographics



Guided Practice

Which tasks and learning activities will you use to engage learners with the content and skills? How will you structure the tasks or other learning activities to support learners' success?

Time: 25 minutes

Formation of New Groups

Each team presents its infographic while others make notes in the appropriate sections of the Research Task handout (Appendix A). To synthesize what they have learned so far, teams fill in the first four columns of the Community Problem Strategy sheet (Appendix B) for the water crisis in Flint. They can refer to this sheet throughout the unit and add to it as they learn more.

What is the community problem?	Who is most affected by this problem (which stakeholders)? How are they affected?	What caused the problem (which institutions, organizations, people, events, etc.)?	What has been done to solve the problem? (If actions have been taken, who took them? How effective have those actions been?)	Who should be involved in solving the problem (which people, institutions, organizations, etc.)?	Describe two ideas for solving this problem. Give <u>at least</u> one reason that you think each idea will work.

In preparation for the subsequent lessons on what actions the community took, have the students look at both the Research Task chart and this chart to think about how their ideas might compare with what their continuing research will show.

Central Skills: Communication, Interpersonal Skills, Respecting Differences and Diversity

- Research Task handout (Appendix A)
- Community Problem Strategy handout (Appendix B)

Application/Extended Practice

What will learners do to demonstrate their acquisition of content knowledge, basic skills, and key soft skills?

Timing: 5 minutes to preview web pages and assign task.

Have the students visit the following websites for information on lead and its presence in drinking water.

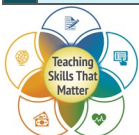
Clean Water Action: <https://www.cleanwateraction.org/features/lead-and-drinking-water>

EPA: <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water#health>

CDC: <https://www.cdc.gov/nceh/lead/>

Have the students investigate lead levels in the drinking water in their community.

Central Skills: Adaptability and Willingness to learn, Analyzing and Processing



Student Reflection on Learning Targets, Closure, and Connection to Future Learning

Timing: 10 minutes

Have the students complete a short checklist based on the questions from the introduction task.

1. I can tell someone what lead is and where it comes from.
Yes No
2. I can describe five ill effects of lead.
Yes No
3. I can explain what happened in Flint, Michigan.
Yes No

Wrap-up Questions on Wall Chart for Exit Cards (if time allows)

The teacher hands out index cards, one to each student. The students write their name on their index card, followed by the question numbers and their responses to the questions.

Teacher: *Write your name on your index card. The questions are on this chart. Write your answers by labeling them 1, 2, and 3.*

- *Why do you think we discussed these topics today?*
- *List three facts that you learned today from the video, reading, and group discussion.*
- *What is one question that you have? Or is there something that you found confusing about the information we read or discussed today?*

The teacher can begin observing and taking notes in preparation for completing the Reading Comprehension rubric over the course of the entire unit.

Central Skills: Self-Awareness, Processing and Analyzing Information



Appendix A. Research Task

Step I: Each team is responsible for gathering information about one aspect of the Flint, Michigan, water crisis. Explore the assigned materials and take notes in your section of the chart below.

Team A: How does lead get into drinking water?	Team B: What happened in Flint, Michigan, to create a crisis?	Team C: What are the ill effects of lead on our health?

Step II: Create a simple infographic representing the key points for your question.

Step III: Present your infographic and enter notes in the chart above as you learn about the two other questions explored by your classmates.



Appendix B. Community Problem Strategy

Complete the chart below based on today's discussion about the Flint, Michigan, water crisis.

What is the community problem?	Who is most affected by this problem (which stakeholders) and how are they affected?	What caused the problem (which institutions, organizations, people, events, etc.)?	What has been done to solve the problem? If actions were taken, who took them and how effective have they been?	Who should be involved in solving the problem (which people, institutions, organizations, etc.)?	Describe two ideas for how to solve this problem. Give <i>at least one</i> reason you think each idea will work.



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