



Reconstructing Environmental (In)Justice

Lesson Plan for Grades: High School
Length of Lesson: 90 min
Authored by: UT Environmental Science Institute Date created: 09/18/2022
Subject area/course: Environmental Science
Materials: <ul style="list-style-type: none">- Laptops (or preferred internet-capable device for research)- Poster boards or large poster paper- Post-its- Markers or writing utensils- <i>Exploration: Student Handout</i> (attached)- Whiteboard or SMART board (for teacher)
TEKS/SEs: §112.37 Environmental Systems, Beginning with School Year 2010-2011 (9) Science concepts. The student knows the impact of human activities on the environment. The student is expected to: <ul style="list-style-type: none">• (A) identify causes of air, soil, and water pollution, including point and nonpoint sources;• (B) investigate the types of air, soil, and water pollution such as chlorofluorocarbons, carbon dioxide, pH, pesticide runoff, thermal variations, metallic ions, heavy metals, and nuclear waste;• (C) examine the concentrations of air, soil, and water pollutants using appropriate units
Lesson objective(s): <ul style="list-style-type: none">• Students will be able to define and explain environmental justice and environmental injustice• Students will be able to identify community health risks based upon the Environmental Justice Index• Students will be able to evaluate and discuss relationships between different community characteristics and conditions in the scope of environmental justice.
Differentiation strategies to meet diverse learner needs: <ul style="list-style-type: none">• The teacher should ask students whether they prefer to read or watch videos to learn about concepts; then have students learn in their preferred learning style. However, the teacher may assign students certain methods to improve their skills. For example, if a student prefers reading, teachers may have them watch a video and take notes to improve their listening skills.• ELL students and students with learning disabilities should have multiple forms of instruction including visual and written instruction sheets as well as verbal instruction and demonstration.



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ENGAGEMENT (20 minutes)

- The teacher will begin the lesson by asking the class to define “environment,” specifically the terms they believe describe what is environment. Teacher should write the terms on the whiteboard for students to see.
- The teacher will then write “Environmental Justice” and “Environmental Injustice” on the board to engage students in thinking about what the terms might mean.
- The class will now engage in a think-pair-share. Instruct students to take 1 minute to think about what the two terms mean. Once the minute is up the teacher will instruct their students to turn to the person nearest to them (or preferred grouping method in the classroom). The students will be given 2 minutes to discuss with their partners their own definitions and create working definitions for the two terms.
- When the 2 minutes are over, the teacher will then ask groups to volunteer to share their working definition of environmental justice with the class, asking students to observe similarities and differences in their answers to further their working definition.
- The teacher will now play part of Hot Science At Home “Reconstructing Environmental (In)Justice” video from 0:43 to 8:50 at <https://youtu.be/qO52uWUub1YU>.
- After watching the video ask the class what they might change about their working definitions now having learned more about environmental injustice and environmental justice.

Transition: Now that we have a working definition and understanding of what environmental injustice and justice are, let’s explore more about these communities that are impacted.

EXPLORATION (25 minutes)

- The teacher will pair students into groups of four (or the preferred grouping method in the classroom) and ask each group to pick a city or county to research.
- The teacher shows the class the EJI website (<https://www.atsdr.cdc.gov/placeandhealth/eji/index.html>) and has a brief discussion about the ATSDR definition of environmental justice and environmental justice index.
- The teacher should highlight where to find the “Indicators” (<https://www.atsdr.cdc.gov/placeandhealth/eji/indicators.html>) which have overall characteristics describing each EJI indicator.
- The teacher shows the class how to access the EJI explorer. (Note: from the previous link, select “Explore the Environmental Justice Index” and follow the prompts to launch the EJI Explorer). The teacher will scroll to the bottom of the page to show areas showcased in the “EJI Highlights” and have each group pick one to integrate in their research.
- Once groups have their locations, groups will get one large poster and a set of markers, and an *Exploration: Student Handout*.
- Students should read through “Quick Start” on the left-hand side of the tool to discover how to navigate the page and “About EJI” to understand what domain rankings are.
- Groups can start filling their *Exploration: Student Handout*, by adding characteristics for each EJI indicator (from the “Indicators” link above), and the EJI Explorer to fill in the information for their chosen location and the highlighted county. Students should explore the breakdowns of these rankings by clicking on locations on the map.



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- Groups will complete the first three columns of the table and all the questions. Groups should use this information to create a poster summarizing their findings for their chosen community. A poster check list is included in the *Exploration: Student Handout*.
- The teacher should continue to walk around the room, prompting groups to have conversations on how what they are seeing through the EJI Explorer lines up with what they learned in the video, what their working definition of environmental justice and injustice are, and what they notice in their own communities.

Transition: I have been hearing a lot of good conversations and it looks like our posters are starting to really define the current state of our cities. Let's go ahead and start to explore some other communities as well.

EXPLANATION (20 minutes)

- Posters are displayed in different areas of the classroom.
- Each group will go on a gallery walk, taking with them their *Exploration: Student Handout*, Post-its and a writing utensil.
- Each group spends 1-2 minutes visiting the other posters. For each poster, each visiting group should write down a question they still have about the community they are reading about, related to the EJI indicators or findings shared. Questions should be written in the post-it and left with the poster.
- As groups do the gallery walk, teams need to select one more community (from those displayed in the posters) that they want to add to their *Exploration: Student Handout*. This information will be added in the last column of the handout.
- As groups continue to walk around the room and explore each location and learn about new locations, the teacher should continue to prompt conversations around the classroom about what students are noticing as they continue to dive deeper into the ideas of environmental justice and injustice.

Transition: I have been hearing some great conversations going on while we have explored other groups' locations. Let's head back to our tables so we can solidify what we have learned today about environmental justice and injustice.

ELABORATION (20 minutes)

- The teacher will review the contents of what was learned through exploration and conversations throughout the class, by asking questions and linking answers back to the terms describing the environment written on the whiteboard from the beginning of the lesson to tie in to tie into the class understanding of "environment" and continue to build on the idea of human activity contributing to environmental conditions.
 1. What are some observations we made while observing other locations?
 2. What are some characteristics of the communities you researched that seemed to be correlated with other issues they had shown in the expanded domain ranking facts?
 3. Many of the communities we saw with increased pollution levels also had an increased prevalence of chronic diseases. Having learned about pollution before how do we think they are linked and knowing about environmental injustice do we think it's linked to anything else?



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4. What are some questions you still have?

EVALUATION (throughout the entire lesson)

- Formative assessment will be performed throughout the lesson. As the students are working in their groups during the Explore and Elaboration stages, the teacher will be walking around assessing the students and the connections they continue to make to the content. The teacher can take note of intriguing connections made by students to bring up during the elaboration section.
- A summative assessment can be implemented at the end of the class, having students write down what Environmental (In)Justice means to them after going through the day's lesson as an exit-ticket activity. Additionally, all materials written on can be collected to assess student learning and overall acquisition of knowledge.

SOURCES AND RESOURCES

- **Dr. Tianna Bruno *Hot Science at Home* #1.14, "Reconstructing Environmental (In)Justice"**, <https://youtu.be/qO52uWUb1YU> or at <https://www.esi.utexas.edu/talk/reconstructing-environmental-injustice/>
- **ATSDR Environmental Justice Index**, <https://www.atsdr.cdc.gov/placeandhealth/eji/index.html>
- **ATSDR Environmental Justice Indicators**, <https://www.atsdr.cdc.gov/placeandhealth/eji/indicators.html>



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Exploration: Student Handout

Ranking Category: (Characteristics defining each category)	Chosen Location:	Highlighted County:	Selection from Gallery Walk:
Air Pollution			
Toxic Site			
Built Environment			
Transportation Infrastructure			
Water Pollution			
Minority Status			
Socioeconomic Status			
Household Characteristics			
Housing Type			
Chronic Disease			



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Exploration: Student Handout (cont.)

What do these rankings mean according to the EJI and how do they help us understand the state of these communities?

What are some similarities and differences between these locations in terms of rankings?

What do these rankings have to do with environmental justice and injustice?

What other observations did you make if any?



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Exploration: Poster Checklist

Use the information from the table and the exploration questions to create your poster describing the location selected by your group.

Make your poster visually appealing. Be as creative as you want in developing your poster but make sure the information is organized and easy to understand. Your team should include the following information:

- [] Location name and map
- [] Names of team members
- [] Overall EJI score
- [] Key EJI Domain Rankings for your location:

Select 2-3 domains that rank very high or low compared to other locations. Include the characteristics that help define the ranking (first column of your table) or other information that can help you provide additional information for your selected location (demographics, economic status, etc.).

- [] Determination of whether the community is facing environmental injustices (or not) and a brief explanation supporting your conclusion.

