



# *GETTING TO*

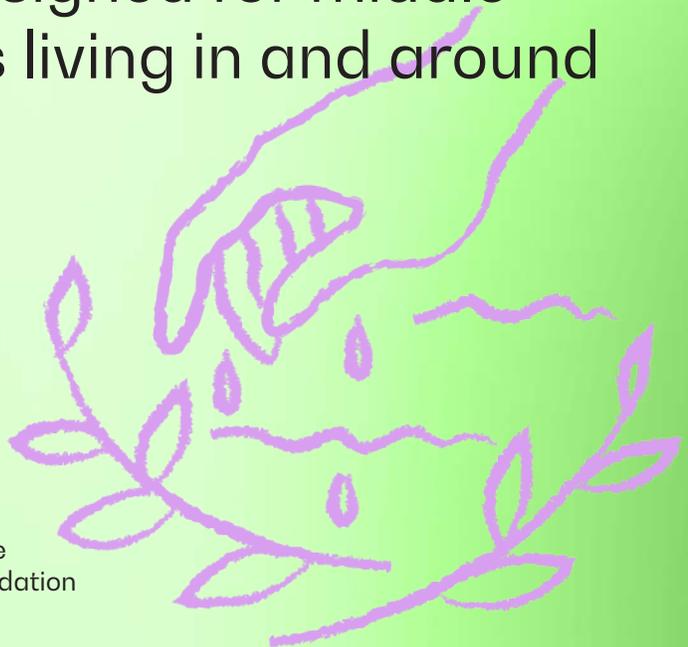
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# THE ROOTS

An interdisciplinary, project-based learning unit designed for middle school students living in and around Philadelphia.

Written by Jonathan Lebovic  
Designed by Gamar Markarian  
Project Management Shari Hersh

Major support for the Climate Justice Initiative is provided by the PTS Foundation





# *GETTING TO*

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# THE ROOTS

An interdisciplinary, project-based learning unit designed for middle school students living in and around Philadelphia.

“Getting to the Roots” is a product of the Climate Justice Initiative, a regional network of community artists, activists and organizers working for climate and environmental justice in Lenapehoking (the Delaware River watershed, and the traditional homelands of the indigenous Lenape people). The Climate Justice Initiative is sponsored by Mural Arts Philadelphia.

A special thanks to Shira Cohen, Katrina Clark, Roxanne Parker, Alexandra Sasso, and Indrayudh Shome for their generous, thoughtful, and critical feedback.



“**Getting to the Roots**” combines art, science, communication skills, and service learning to maximize young people’s engagement in local community problems and solutions. It is designed to take place over two weeks, or ten 45-minute instructional periods.

## WEEK 01

The primary purpose of Week 1 is to get students interested and invested in their local environment, and to appreciate the connections between their neighborhood and the rest of the city and watershed.

P. 05 - 51

P. 05

Lesson

01

In “**You Live on Turtle Island,**” students will be able to identify and interpret images and themes from art and literature, in order to tell the meaning of climate justice in their own words.

In “**Climate Justice in Lenapehoking,**” students work in groups to analyze one panel of the Climate Justice Initiative infographic, in order to share concrete local examples of humans changing the environment for better and for worse.

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Lesson

02

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Lesson

03

In “**Our Environment, Our Home,**” students participate in an environmental scavenger hunt in the neighborhood surrounding their school, in order to draw connections between the imagery in the CJI mural and their own community.

## WEEK 02

The primary purpose of Week 2 is to mobilize students to learn about a local environmental problem and generate a creative solution to address it.

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In “**Getting to the Roots,**” students select one local environmental problem to focus on, then conduct research into its root causes and possible solutions.

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Lesson

04

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Lesson

05

In “**Project Development,**” Students will plan and develop a creative product (such as a skit, poster, social media post, video, song/rap/spoken word piece, letter to the editor, etc) that communicates to their peers about a local environmental problem, its root causes, a possible solution, and an action step.

In “**Project Feedback,**” Students share their creative product with the class, and provide feedback to their classmates. They make a plan to improve their products in order to share with the broader community.

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Lesson

06

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Glossary

# Unit Guiding Questions



## What is climate justice, why does it matter?

Students unpack the concept of climate justice, first through art and storytelling in lesson 1, and then through data collection and analysis in lesson 3.

Focus standards:

PA Core - English Language Arts - E08.B-K.1.2: Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.

PA Integrated Standards for Science, Environment, and Ecology - Sustainability and Stewardship: Construct an explanation that describes regional environmental conditions and their implications on environmental justice and social equity.



## How are local communities already using language, history, art, and science to advance climate justice?

Students learn about the work of local climate justice champions in lessons 2 and 4, with the help of the Climate Justice Initiative's multimedia digital resources.

Focus standards:

PA Core - English Language Arts - E08.B-C.2.1.1: Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.

PA Integrated Standards for Science, Environment, and Ecology - Sustainability and Stewardship: Obtain and communicate information that best describes how management practices and environmental laws are designed to achieve environmental sustainability.



## What roles can young people play in these movements?.

Students grapple with this question as they develop and present their unit projects in lessons 5 and 6.

Focus standards:

PA Integrated Standards for Science, Environment, and Ecology - Sustainability and Stewardship: Design a solution to an environmental issue in which individuals and societies can engage as stewards of the environment.

PA Core - English Language Arts - CC.1.4.7.J: Organize claim(s) with clear reasons and evidence clearly; clarify relationships among claim(s) and reasons by using words, phrases, and clauses to create cohesion; provide a concluding statement or section that follows from and supports the argument presented.



Lesson 01

# You Live on Turtle Island

45 min lesson



## Objectives

Students will be able to identify and interpret images and themes from art and literature, in order to tell the meaning of climate justice in their own words.



## Key Terms

**Symbol:** A word, image, character, or object that has multiple layers of meaning

**Interpretation:** One person's explanation of the overall meaning of a work of art or literature

**Turtle Island:** Native American name for the continent of North America (including Canada, Mexico, the United States, and other countries)

**Lenape:** The original inhabitants of Lenapehoking before European colonization, and their descendants. Today, there are many different Lenape communities, including the Ramapough Lenape, the Nanticoke Lenni-Lenape, the Delaware Lenape Nation, and more

**Lenapehoking:** Native American name for the Delaware River watershed (including parts of Pennsylvania, Delaware, New Jersey, New York, and Maryland)



## Teacher Materials

[Climate Justice Initiative Mural](#)

[Nanticoke and Lenape Creation Stories](#)

[Change for Climate is Here](#) animated video (10:50)

[Glossary](#)

## Student Materials

[You Live on Turtle Island exit ticket](#)



## Standards

### **PA Core: English Language Arts**

CC.1.2.7.G: Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium's portrayal of the subject (e.g., how the delivery of a speech affects the impact of the words).

E08.B-K.1.1.2: Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text." (under PA Core: English Language Arts)

### **New PA Integrated Standards for Science, Environment, and Ecology:**

Environmental Literacy Skills - Environmental Justice - Construct an explanation that describes regional environmental conditions and their implications on environmental justice and social equity.

# Lesson plan

## Before the lesson

1. Display this lesson's objective, key terms, and definitions in a highly visible location.
2. Print one exit ticket for each student.
3. Prepare to project the [Climate Justice Initiative mural](#) and the [Change for Climate is Here](#) animated video. Watch the video in its entirety before showing it to the class, to anticipate the best points to pause for comprehension checks.
4. Read the [Nanticoke and Lenape Creation Stories](#), paying attention to the pronunciation of the word "Lenape" and the description of the Lenape Elder's drawing of a tortoise.

## Activity & Purpose

## Facilitation Suggestions

20 min

### Observe and interpret the [Climate Justice Initiative mural](#) imagery.

Use the "Think, Pair, Share" structure to support writing and conversation about the image.

"Think": Project the image. Invite students to observe silently for 2 minutes.

Say: "There is a lot happening in this picture, and it might bring up different feelings and different questions for different people. For the next two minutes, please observe this picture quietly. Just look and notice. Then, after 2 minutes, we will discuss what we've seen with a partner."

Pose the questions: "What symbols do you see in this image? How do you feel when you see these symbols, and why?"

Display the questions in text and have a student read them aloud. A suggested sentence structure is "A symbol I saw in this image is \_\_\_\_\_, and when I look at it, I feel \_\_\_\_\_ (because \_\_\_\_\_)."

"Pair": Students discuss in pairs. Each student takes 1 minute to speak while the other student listens. Then, students switch roles for the second minute.

"Share": Each pair has an opportunity to briefly share with the class.

Have each pair decide who will speak on behalf of the pair. Then, in a lightning round, call on each pair, and have their representative answer in 1 sentence.

Repeat the "Pair and Share" steps with the following questions: What questions do you have about this image? What do you think the artists who designed this image were trying to communicate?

You can keep pairs consistent throughout this activity, or have students choose a new partner each round.

## Activity & Purpose

## Facilitation Suggestions

5  
min

### Tell the story of Turtle Island.

Read the [Nanticoke and Lenape Creation Stories](#) aloud to the class.

Draw the turtle diagram as described in the story.

Ask: How does this story impact your interpretation of the image? Have students raise their hands if they want to share a response with the class.

20  
min

### Watch the animated video “[Change for Climate Is Here](#)” with guided questions.

Distribute exit tickets to each student.

Call on one student to read each question aloud before starting the video.

Show the Change for Climate is Here video.

Pause the video periodically to check for students’ comprehension.

Have students complete the [exit ticket](#) independently.

Have a plan for early finishers. For example, you could give them options to read independently, take a break, or do a classroom chore.

## Notes

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## Climate Justice Initiative Mural

<https://www.climatejusticeinitiative.com/mural>



Change for Climate is Here © 2021 City of Philadelphia Mural Arts Program / Eurhi Jones, Gamar Markarian, Denise Bright Dove Ashton-Dunkley, and Dolores Stanford.

[CJI Collaborators' teach-ins](#) and design review feedback contributed to the design of the mural.

## Nanticoke and Lenape Creation Stories

Source: [Nanticoke Lenape Museum](#)

It must be stated that there are differing Nanticoke and Lenape creation stories that are well documented to the 17th and 18th centuries. Sadly, some that are being widely circulated today in modern publications are not historic, but are the modern invention of cultural enthusiasts and not the product of an authentic tribal community's tradition. Those collected here are from historically well documented tribal communities... Of the historically documented accounts, one of the earliest recorded tells of how a Lenape Elder answered the inquiry of a Dutchman who wanted to know where the Lenape People came from...

He was silent for a little while, either as if unable to climb up at once so high with his thoughts, or to express them without help, and then took a piece of coal out of the fire where he sat, and began to write upon the floor. He first drew a circle, a little oval, to which he made four paws or feet, a head and a tail.

“This,” he said, “is a tortoise, lying in the water around it,” and he moved his hand round the figure continuing, “This was or is all water, and so at first was the world or the earth, when the tortoise gradually raised its round back up high, and the water ran off of it, and thus the earth became dry.”

He then took a little straw and placed it on end in the middle of the figure and proceeded, “The earth was now dry, and there grew a tree in the middle of the earth, and the root of this tree sent forth a sprout beside it, and there grew upon it a man, who was the first male. This man was then alone, and would have remained alone; but the tree bent over until its top touched the earth, and there shot therein another root, from which came forth another sprout, and there grew upon it the woman, and from these two are all men produced.”

~ Jaspas Dankers & Peter Sluyter, Journal Of A Voyage To New York In 1679-80.

## Change for Climate is Here animated video

Link to video: <https://youtu.be/sh50vVOPKjw>



An animated mural by the Climate Justice Initiative; a collaboration of frontline activists, artists and allies who organize in the Philadelphia and Lenapehoking region for a just and sustainable future!

Change for Climate is Here © 2021 City of Philadelphia Mural Arts Program / Denise Bright Dove Ashton-Dunkley, Shari Hersh, Eurhi Jones, Jeannine Kayembe Oro, Jonathan Leibovic, Gamar Markarian, Dolores Stanford, and Ron Whyte.

Name:

Date:

## You Live on Turtle Island exit ticket

Watch the “Change for Climate is Here” video. Then answer the following questions.

What / where is Turtle Island?

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What / where is Lenapehoking?

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Describe a symbol in the image that the video taught you more about. What is the symbol, and what else did you learn about it?

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Which had the greatest impact on you: the mural image, the creation story, or the video? Explain why.

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After watching the video, what questions do you have?

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Based on everything you learned in class today, come up with a title for the image you saw at the beginning of class. Why did you choose this title?

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# Lesson 01 - Extension

# You Live on

# Turtle Island

## extension activity

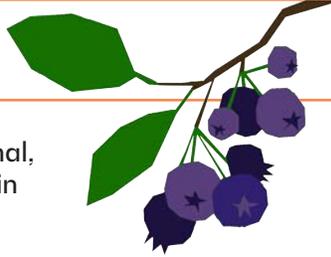
45 min lesson

### Objectives

Students will be able to identify and interpret images and themes in the Climate Justice Initiative mural in order to tell the story of the mural in their own words.



## Key Terms

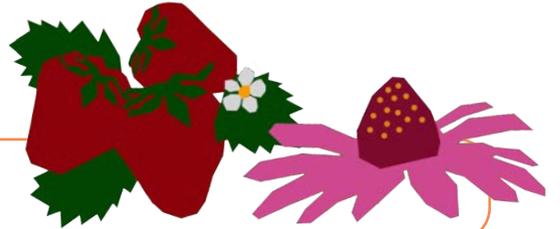


**Character:** A person, animal, or object that plays a role in a story

**Skit:** A short play

**Dialogue:** Conversation

## Teacher Materials



[Climate Justice Initiative Mural](#) (Refer to Lesson 01)

[Change for Climate is Here](#) animated video (Refer to Lesson 01)

[Glossary](#)

## Students Materials

[Mural “Characters” List](#)

## Standards

### PA Core: English Language Arts

CC.1.4.7.O: Use narrative techniques such as dialogue, description, and pacing to develop experiences, events, and/or characters; use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.

CC.1.3.8.C: Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.



# Lesson plan

## Before the lesson

1. Display this lesson's objective, key terms, and definitions in a highly visible location.
2. Print one [Mural Characters List worksheet](#) for each student.
3. Prepare to project the [Climate Justice Initiative mural](#).

## Activity & Purpose

## Facilitation Suggestions

20  
min

### Observe and interpret the Climate Justice Initiative mural imagery.

Pass out the [Mural "Characters" List](#) to each student and display the [CJI mural](#) prominently. Go over the list of characters as a class, pointing out each character in turn. Then, ask students if they can identify any characters in the mural that are missing from the list.

Assign each student a partner, and assign each pair two characters from the mural. Explain that their assignment is to come up with a brief skit, with each student playing one of the assigned characters. Each character must say at least one line of dialogue to the other character, and at least one line of dialogue to the audience. However, neither of their lines of dialogue may include either character's name, because the classroom audience will have to guess which two characters they are portraying based on their dialogue.

Allow students time to work in pairs and practice their skits.

You may allow students to choose their own characters, or you can assign characters to student pairs. Assigning characters ensures that all characters will be covered, with minimal repeats. A third option is to assign characters randomly, e.g. by having students choose their character from slips of paper in a hat (or a similar method).

If students need a refresher on the mural symbolism, they can re-watch the ["Change for Climate is Here"](#) video explaining the imagery.

If they finish early, possible options include expanding the dialogue in their skit, or creating props or costumes. They could also create a new image showing the interaction between their two mural characters. All three of these options are listed on the back of the Mural "Characters" List handout.

25  
min

## Activity & Purpose

### Tell the story of the mural.

Have each pair of students present their brief skit to the class, with a reminder that they must not identify their characters to the class. After each pair presents, have the classroom guess which two characters they were portraying.

## Facilitation Suggestions

Ask students in the audience to cite evidence from the skit's dialogue to support their guess about which characters are being portrayed. What does the dialogue reveal about each character?

## Notes

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Name:

Date:

## Mural “Characters” List

Turtle	Snake	Trees	Water
Air	Sun	Moon	Butterflies
Hawk	Songbirds	Flowers	Factories
Plastic	Ships	Adults	Children

Can you identify any characters in the mural that are missing from the list?

Choose 2 characters from the above list.

Draw them here:

Character 1	Character 2
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**In a pair, come up with a brief skit, with each student playing one of the chosen characters.**

What would character 1 say to the character 2?

What would character 2 say to the character 1?

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What would this character say to a person looking at the mural?

What would this character say to a person looking at the mural?

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**If you and your partner finish before it's time to present your skit to the class, you can:**

- Add more dialogue between your two characters. But remember, your dialogue must not include either character's name!
- Create costumes or props to use in your skit.
- Draw a new image showing both of your characters interacting with each other.





Lesson 02

# Climate Justice in Lenapehoking

1-2 x 45 min lessons

## Objectives

Working in groups, students analyze one panel of the CJI infographic, in order to share concrete local examples of humans changing the environment for better and for worse.



## Key Terms

**Infographic:** A visual display that makes information easy to understand by using elements of design (including colors, sizes, shapes, numbers, words, charts, graphs, and images)

**Analyze:** to study something carefully and in depth

**Climate Justice.** Teacher’s note: climate justice is described in the first infographic panel, but not defined. One of the guiding questions for this unit is “What is climate justice, and why does it matter?” Over

the course of the unit, including during this lesson, students should work towards their own definitions of climate justice, synthesizing information from various resources

Note: the infographic panels use a significant amount of high-level vocabulary, some of which may be challenging for middle school students. The key terms highlighted here are just a selection. The student materials for this lesson include student-friendly definitions of all key terms used in each infographic panel.

## Teacher Materials

[Full CJI Infographic](#) (6 panels)



## Student Materials

[Infographic Presentation Organizer](#)

[Infographic Panel 1:](#) What is Climate Justice?, with key terms

[Infographic Panel 2:](#) Lenapehoking, with key terms

[Infographic Panel 3:](#) Qoaquannock, with key terms

[Infographic Panel 4:](#) Land Circle, with key terms

[Infographic Panel 5:](#) Air Circle, with key terms

[Infographic Panel 6:](#) Trash Circle, with key terms

## Standards

### **PA Core: English Language Arts**

E08.B-K.1.1.2: Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.

E08.B-C.2.1.1: Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.

### **New PA Integrated Standards for Science, Environment, and Ecology:**

Environmental Literacy Skills - Investigating Environmental Issues  
- Gather, read, and synthesize information from multiple sources to investigate how Pennsylvania's environmental issues affect Pennsylvania's human and natural systems.

# Lesson plan

## Before the lesson

1. Display this lesson's objective, key terms, and definitions in a highly visible location.
2. Familiarize yourself with the 6 infographic panels. For differentiation purposes, panels 1, 4, and 5 have the most vocabulary words; panels 2, 3, and 6 have fewer. For pronunciation of Lenape words, visit [Talk-Lenape.org](http://Talk-Lenape.org).
3. Divide the class into groups of 3. Print one Infographic Presentation Organizer for each group.
4. Print one infographic panel and key terms lists for each group as well. It is important to print each infographic panel on one sheet of paper (preferably in color) and the associated key terms on a separate page (black and white), so that students can easily read both at the same time. You may have more than one group analyzing and presenting on the same infographic panel. This is fine, as long as all 6 panels are covered by at least one group.
5. Prepare to project the [Full CJI Infographic](#).

## Activity & Purpose

5  
min

### Prepare students to analyze the infographic.

Ask: What does it mean to analyze something? Can you give an example of a time when you analyzed something? What is the point of analyzing something?

3  
min

### Introduce the assignment, including the process and the product.

Tell students that today they will be working in small groups to analyze one section, or panel, of a 6-part infographic. They will have time in their groups to study their infographic panel, as well as a graphic organizer worksheet to organize their thoughts and help them analyze the information. Then, in the last 15 minutes of the period, each group will make a short presentation to the rest of the class summarizing what they learned.

## Facilitation Suggestions

Project the Full CJI Infographic.

## Activity & Purpose

Divide the class into groups of 3. Assign each group one of the six infographic panels. Distribute an [Infographic Presentation Organizer](#) worksheet to each group, along with that group's assigned panel and the associated list of key term definitions.

## Facilitation Suggestions

To maximize class time, we recommend assigning student groups and infographic panels in advance.

20  
min

### Group Work time

Circulate while groups are working to monitor progress and answer questions. Consider having extra resources available to help students with higher-level vocabulary terms.

2  
min

### Transition to presentations

15  
min

### Group presentations

While each group is presenting, project their assigned infographic panel so it is clearly visible. Students who are not presenting should be actively taking notes - for example, copying key terms and definitions, or identifying the main idea and purpose of each infographic panel. Give each group a presentation time limit based on how many groups you have in your class, with a 30-second warning when they are approaching their time limit. Depending on the number of groups in your class, it may be necessary to extend presentations for an additional class period.

# Full CJI Infographic (6 panels)

## CLIMATE JUSTICE INITIATIVE

### Climate justice in Philadelphia

#### What is Climate Justice?

Climate justice begins with understanding that climate change's effects are experienced inequitably. Marginalized communities face disproportionate impacts, and are least-responsible for climate pollution. Climate justice addresses the social, economic, and health inequities experienced by underserved communities.

#### A Framework for Just Transition

RESIST — RETHINK — RESTRUCTURE

##### Extractive Economy

##### Living Economy

STOP THE BAD — BUILD THE GOOD

## Qoacquannock (Philadelphia Region)

"We are called to be stewards of the land. It is not ours to own. Pigeon and Bonita - Morning Glory and laughing loon! Lenape Indian Tribe of Delaware"

"We should love the land, see that it is beautiful. Find the light in it and respect it and show our gratitude to the creator who blessed us with it." Josephine Harris - Bird Women - Lenape Indian Tribe of Delaware

"Land cannot belong to us. We belong to it. It is an ancestral being part of native culture. Land is that which bears nurture and protects life and which sometimes disciplines it." Thos Brumwell - Three Winds - Lenape Indian Tribe of Delaware

"When we are in service to the earth, we are tasked with replenishing the soil that we have destroyed by our sustainability, and Physical and spiritual health!" Dominique London - Chickadee

"Mother Nature is a healthcare system and we are one of our best health systems. Using together we can inform our resilience of our restoration of all living things." Ruth Ann Thompson

Philadelphia City Limits

Natural Gas Pipelines

Iglesias Garden

The Powhatan Rappahannock Nation

Philadelphia Rhythmic Map

Philadelphia Litter Index

Philadelphia Heat Index

## Lenapehoking In the Land of the Lenape

#### All Our Relations

The Lenape people are the original inhabitants of this land, and many Lenape people still live here today. Reconnect with All Our Relations. Decolonize and indigenize land and water stewardship. Without the trees, we kill off our oxygen. Without clean water, nothing will survive!

Many environmental harms — habitat destruction, toxic pollution, climate change — begin with the colonization of this continent. Know to many Indigenous people as Turtle Island. Destroying the environment and erasing Indigenous people go hand-in-hand.

#### Indigenous Diaspora Indigenous 215

"We keep fighting every day from here from the diaspora. We have to stop this ecological devastation of the Island of Puerto Rico!" Charito Morales

"Indigenous identity is deeply tied to the land. Food, culture, history, art, all come from the land. Every year of life is deeply connected to the land that is around us. To preserve Earth means to preserve our language and cultures." Felicia Teter - Yalokano

#### Puerto Rican Diaspora

Borinquen "the land of the brave" Island of Puerto Rico

## Land Circle

"Indigenous stewardship helps restore the land, caring for us as we care for it. We're becoming food independent with 4.7 miles of clean, healthy beds, healing the community physically and spiritually." — Chief Mann, Turtle Clan Chief, Rappahannock Lenape Nation

"When we want justice, we need to find the places that hold power and land is one of those places. Rebuild our relationship with the land. Teach the kids and the community to form roots and create a unshakable foundation for freedom." — Alkebu-Lan Marcus, Philadelphia Orchard Project

Since 1982, people's relationships with soil have deteriorated. Black, Brown, and Indigenous communities especially have suffered from displacement, dispossession, and land degradation. Today, these injustices continue via gentrification, segregation, extractive industries, and corporate pollution.

Community gardens keep neighborhoods cooler, retain stormwater, strengthen ecosystems, reduce trash dumping, and improve air quality. We need more community controlled land - Indigenous, Black and Brown. — Lauren Troop and Anthony Patrick, Iglesias Garden

Tree Tenders plant trees in Philadelphia to mitigate heat waves, decrease flooding, and beautify their neighborhoods, making it safer and healthier for all. Gabriella Poez created Philly's first bilingual Tree Tender program for Spanish-speaking residents.

## Air Circle

Neighbors Against the Gas Plants, with members from Nicetown, Germantown, and East Falls, stand up for a healthy and pollution-free neighborhood. Cleaner, greener alternatives to fossil fuels already exist, and we should use them!

Philly Thrive, South and Southwest Philadelphians, & allies reclaim the Right to Breathe to pursue the Right to Thrive. With the oil refinery finally closed, the community demands a redevelopment that repairs 150+ years of harm.

For over 25 years, Chester Residents Concerned for Quality Living (CRCQL, pronounced "aircle") has been organizing to shut down the incinerator and preserve healthy air quality for Chester residents.

For many years, grassroots groups in and around Philadelphia have been acting against fossil fuels. They parade tanks to divert from the industry, block oil and gas trains and trucks, and show solidarity with others.

Emissions from incinerators, refineries, and fossil fuel power plants all contribute to air pollution, and water pollution, and climate change. Other reports also occur along the supply chain from extraction to disposal.

The oil and gas industry is one of the largest contributors to climate change worldwide. Burning fossil fuels releases CO2, methane, and other greenhouse gases, which trap heat in the atmosphere, changing the planet's climate.

## Trash Circle

Mural Arts' Trash Academy educates and organizes around the challenge of trash and waste, complicating this seemingly straightforward issue and highlighting how trash is a matter of environmental justice.

In nature, everything is recycled. Trash is a human invention, and a fairly recent one at that. But animals, dogs, waterways, enter our bodies as microplastics, and even affect our mental health.

Neighborhood advocates like Annineta Oalhoum are healing the blight and despair caused by plastic litter and illegal dumping. They are advocating for alternatives to plastics, and for an economy that is circular, efficient, and regenerative.

Recycled Artist in Residency (RAIR) uses art as a way to communicate the scale of the Construction & Demolition waste crisis, while offering a reconsideration about what constitutes waste.

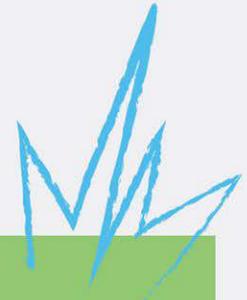
Brookhaven Landfill Action and Remediation Group (BLARG) works towards a future of zero waste — an economic system in which every material is properly repaired, recycled or composted, and nothing is burned, buried, or dumped.



## Infographic Panel 01



# Climate justice in Philadelphia



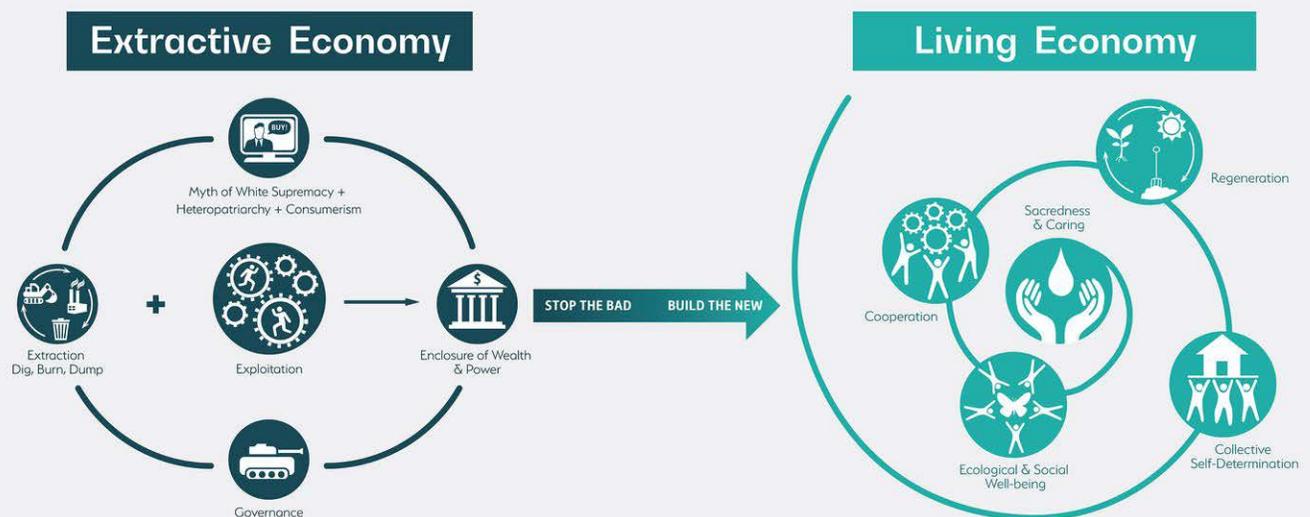
## What is Climate Justice?

Climate justice begins with understanding that climate change's effects are experienced inequitably. Marginalized communities face disproportionate impacts, and are least-responsible for climate pollution. Climate justice addresses the social, economic, and health inequities experienced by underserved communities.

## A Framework for Just Transition

Diagram developed by Movement Generation and Climate Justice Alliance - Visual Design by Micah Bazant

RESIST ————— RETHINK ————— RESTRUCTURE



Use these definitions to help your group understand Infographic Panel 1

**Climate change:** Also known as global warming; a pattern of increasing temperatures and extreme weather events over many years

**Inequitably:** In a way that is not equal

**Marginalized:** Pushed to the side

**Underserved:** Not receiving enough resources

**Economy:** The systems that create and distribute goods (such as food, clothing, and electronic devices) and services (such as healthcare and education)

**Extractive:** Taking away or removing, especially without replacing or giving back

**White Supremacy:** A system that treats the people, languages, and cultures of Europe as superior to those of other places

**Heteropatriarchy:** A system that treats men, especially heterosexual (straight) men, as superior to other genders and sexual orientations

**Consumerism:** A system that considers shopping to be the solution to every problem

**Exploitation:** Taking advantage of other people or things; using others without kindness or love

# Infographic Panel 02

## Lenapehoking In the Land of the Lenape



### All Our Relations

The Lenape people are the original inhabitants of this land, and many Lenape people still live here today. Reconnect with All Our Relations. Decolonize and indigenize land and water stewardship. Without the trees, we kill off all our oxygen. Without clean water, nothing will survive!

Many environmental harms - habitat destruction, toxic pollution, climate change - began with the colonization of this continent, known to many Indigenous people as Turtle Island. Destroying the environment and erasing Indigenous people go hand-in-hand.

### Indigenous Diaspora Indigenous 215

"We keep fighting every day, from here from the diaspora. We have to stop this ecological abuse of the Island of Puerto Rico."  
Charito Morales



"Indigenous identity is deeply tied to the land. Food, culture, clothing, art, medicine, ceremonies, creation stories—all come from the land. Every way of life is deeply connected to the ecosystem that is around us. To preserve Earth means to preserve our lifeways and cultures."  
Felicia Teter - Yakama

**Lenapehoking**  
'In the land of the Lenape'  
(Parts of New York, New Jersey, Pennsylvania, Delaware)



**Borinquén**  
"the land of the brave lord"  
(Island of Puerto Rico)

### Puerto Rican Diaspora



# Key Terms

## Panel 02

Use these definitions to help your group understand Infographic Panel 2

**Indigenous:** Original, first, native

**Indigenize:** To give power (back) to Native and Indigenous peoples

**Diaspora:** Movement and spread of people away from their homeland, usually against their will

**Dialect:** A form of a language spoken in a particular area

# Infographic Panel 03

## Qoaquannock (Philadelphia Region)



"We are called to be stewards of the land. It is not ours to own." Paige and Bonite - Morning Glory and laughing Heart - Lenape Indian Tribe of Delaware

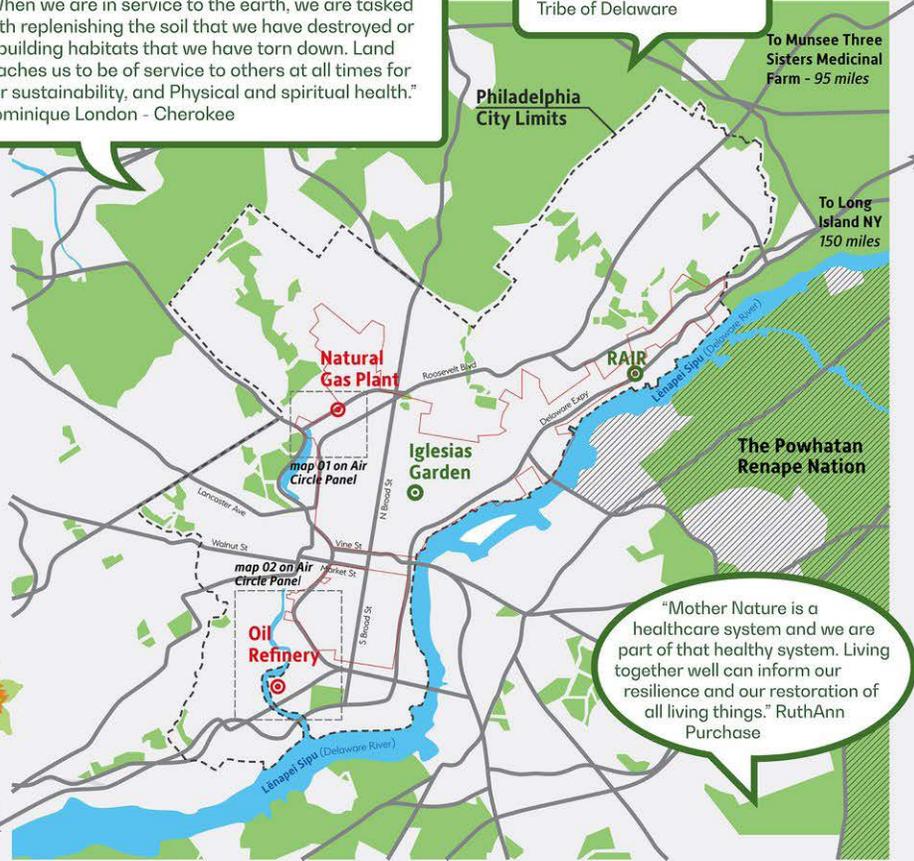
"We should love the land, see that it is beautiful. Find the light in it, live in it and respect it and show our gratitude to the creator who blessed us with it." Josephine Harris - Bird Woman - Lenape Indian Tribe of Delaware

"Land cannot belong to us. We belong to it. It is an intricate living part of native culture. Land is that which bears, nurtures and protects life and which sometimes disciplines life." Theo Braunskill - Three Winds - Lenape Indian Tribe of Delaware

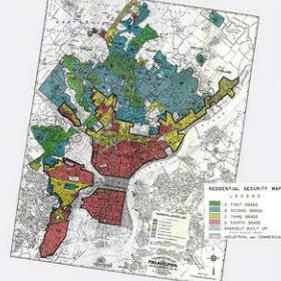
Years of redlining - the discriminatory practice of labeling neighborhoods as undesirable and even "hazardous" - has placed a heavy burden on underserved black and brown neighborhoods, leaving their communities more vulnerable to social pathologies and environmental harms like extreme heat, air pollution, and litter.

"When we are in service to the earth, we are tasked with replenishing the soil that we have destroyed or rebuilding habitats that we have torn down. Land teaches us to be of service to others at all times for our sustainability, and Physical and spiritual health." Dominique London - Cherokee

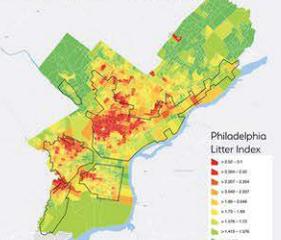
"Mother Nature is a healthcare system and we are part of that healthy system. Living together well can inform our resilience and our restoration of all living things." RuthAnn Purchase



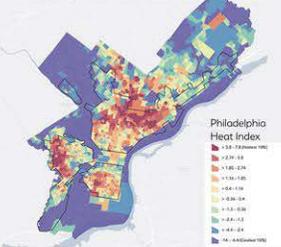
Philadelphia Redlining Map



Philadelphia Litter Index



Philadelphia Heat Index



Use these definitions to help your group understand Infographic Panel 3

**Social pathology:** An “illness” or “disease” that affects society as a whole, such as crime, violence, poverty, etc.

**Resilience:** The ability to recover and regrow after being hurt or damaged

**Replenishing:** Healing, restoring

**Sustainability:** The health of a community in the long-term; the ability to continue living in a certain way

# Infographic Panel 04



## Land Circle



"Indigenous stewardship helps restore the land, caring for us as we care for it. We're becoming food-independent with 4.7 miles of clean, healthy beds, healing the community physically and spiritually."  
 ~ Chief Mann, Turtle Clan Chief, Ramapough Lenape Nation

Since 1492, people's relationships with land have shifted drastically. Black, Brown, and Indigenous communities especially have suffered from displacement, dispossession, and land degradation. Today, these injustices continue via gentrification, segregation, extractive industry, and corporate pollution.



"When we want justice, we need to find the places that hold power and land is one of those places. Rebuild our relationship with the land. Teach the kids and the community to form roots and create a unshakeable foundation for freedom."  
 ~ Alkebu-Lan Marcus, Philadelphia Orchard Project



Industrial agriculture and climate change threaten our food supply. Pesticides, fertilizers, and monocultures endanger biodiversity, carbon storage, and local resilience. In Philadelphia, increased rainfall with decreased green space causes floods. Climate change makes heat waves hotter and more frequent. Community agriculture and greening is the future!



"Community gardens keep neighborhoods cooler, retain stormwater, strengthen ecosystems, reduce trash dumping, and improve air quality. We need more community controlled land - Indigenous, Black and Brown."  
 ~ Lauren Troop and Anthony Patrick, Iglesias Garden



Tree Tenders plant trees in Philadelphia to mitigate heat waves, decrease flooding, and beautify their neighborhoods, making it safer and healthier for all. Gabriella Paez created Philly's first bilingual Tree Tender program for Spanish-speaking residents.

Use these definitions to help your group understand Infographic Panel 1

**Displacement:** Being pushed out of one's home

**Dispossession:** Having one's property stolen

**Degradation:** Breakdown or damage

**Gentrification:** A process of neighborhood change in which wealthier people move into neighborhoods that have historically not had much wealth, which can result in changes in culture, architecture, and the cost of living, ultimately leading to the displacement of long-term, low-income residents

**Segregation:** The separation of communities by race, income, or other characteristics

**Extractive Industry:** Factories and other companies whose main business involves extracting resources from the Earth (such as mining for oil, gas, and metals)

**Mitigate:** To make a problem less severe

**Agriculture:** Large-scale farming for food production

**Monoculture:** Food production that grows a single crop, such as corn or wheat, over a very large area

**Carbon storage:** The ability of an ecosystem to store carbon in the earth, out of the atmosphere, so that it does not contribute to global warming / climate change

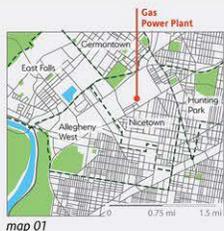
# Infographic Panel 05



## Air Circle



Benzene, nitrogen oxides, particulates, carbon emissions – all these and more come from smokestacks. We all breathe the same air, but environmental racism hits low-income communities of color the hardest with the violence of pollution.



Neighbors Against the Gas Plants, with members from Nicetown, Germantown, and East Falls, stand up for a healthy and pollution-free neighborhood. Cleaner, greener alternatives to fossil fuels already exist, and we should use them!



Philly Thrive, South and Southwest Philadelphians, & allies reclaim the Right to Breathe to pursue the Right to Thrive. With the oil refinery finally closed, the community demands a redevelopment that repairs 150+ years of harm.



For over 25 years, Chester Residents Concerned for Quality Living (CRCQL, pronounced "circle") has been organizing to shut down the incinerator and preserve healthy air quality for Chester residents.



For many years, grassroots groups in and around Philadelphia have been acting against fossil fuels. They persuade banks to divest from the industry, block oil and gas trains and trucks, and show solidarity with others.

Emissions from incinerators, refineries, and fossil fuel power plants all lead to severe health hazards, air and water pollution, and climate change. Other impacts also occur along the supply chain, from extraction to disposal.

The oil and gas industry is one of the largest contributors to climate change worldwide. Burning fossil fuels releases CO2. Methane leaking from fracking infrastructure is also a potent greenhouse gas, changing the planet's climate.

Use these definitions to help your group understand Infographic Panel 1

**Environmental racism:** The choices and policies that result in lower-quality air, water, and soil for communities of color

**Fossil fuels:** Materials (such as coal, oil, and natural gas or methane) that are extracted from the earth and burned for energy. Fossil fuels are one of the main factors causing climate change

**Redevelopment:** The process of changing the purpose or use of a building or piece of land into something different

**Refinery:** A factory where crude oil undergoes physical and chemical changes to become a variety of other products, including gasoline, diesel, kerosene, butane, and more

**Incinerator:** A factory where trash is burned, releasing both energy and pollution

**Divest:** To remove financial support; to stop paying for something

**Solidarity:** Unity

**Fracking:** A process of extracting natural gas, or methane, from deep underground

**Infrastructure:** All of the structures that help a system function - such as roads, electrical wires, pipelines, etc.

**Particulates:** Very tiny pieces of pollution floating in the air that can cause health problems

## Infographic Panel 06



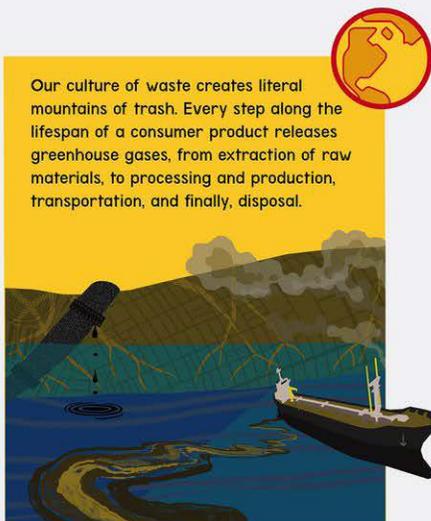
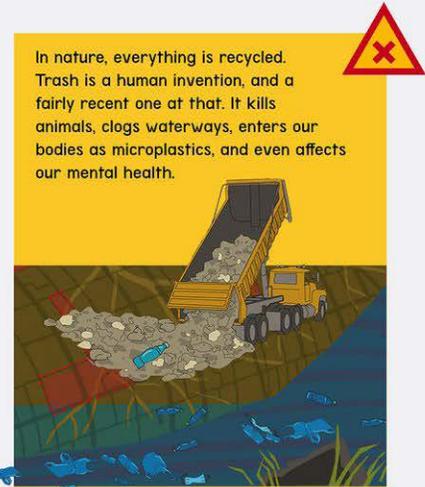
### Trash Circle



Mural Arts' Trash Academy educates and organizes around the challenge of trash and waste, complicating this seemingly straightforward issue and highlighting how trash is a matter of environmental justice.



Neighborhood advocates like Aminata Calhoun are healing the blight and despair caused by plastic litter and illegal dumping. They are advocating for alternatives to plastics, and for an economy that is circular, efficient, and regenerative.



Our culture of waste creates literal mountains of trash. Every step along the lifespan of a consumer product releases greenhouse gases, from extraction of raw materials, to processing and production, transportation, and finally, disposal.



Recycled Artist In Residency (RAIR) uses art as a way to communicate the scale of the Construction & Demolition waste crisis, while offering a reconsideration about what constitutes waste.



Brookhaven Landfill Action and Remediation Group (BLARG) works towards a future of zero waste - an economic system in which every material is properly repaired, recycled or composted, and nothing is burned, buried, or dumped.

Use these definitions to help your group understand Infographic Panel 1

**Blight:** The process by which a formerly healthy part of a city or town starts to fall apart or decay

**Circular economy:** Synonym for zero waste; a system in which there is no trash, because all materials are recycled or composted

**Microplastics:** Tiny pieces of plastic that can be found in water, soil, air, food, and even in human bodies

**Extraction:** The process of taking away or removing something, especially without replacing it

**Construction & Demolition waste:** Trash leftover after building or demolishing a building

Name:

Date:

## Infographic Presentation Organizer

Study your infographic panel with your group. Then, complete the organizer below to present to your class.

Write a complete sentence that summarizes the main idea of your infographic panel.

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Think about the author of this infographic. How would you describe the author's purpose and their point of view? Be prepared to cite evidence from your infographic panel to support your claims!

---

---

Describe 1 problem or issue shown in your panel.

---

---

According to your infographic panel, what are people and communities doing right now to help solve this problem?

---

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3 key vocabulary words or phrases from your infographic panel - write them & explain what they mean.

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3 key pictures or images in your infographic panel - draw them & explain what they represent.

Key image 1	Key image 1	Key image 1
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What 2 things do you still wonder about this infographic panel?

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## Lesson 03

# Our Environment, Our Home

2 x 45 min lessons

### Objectives

Working in groups, students participate in an environmental scavenger hunt in the neighborhood surrounding their school, in order to draw connections between the imagery in the CJI mural and their own community. In the second session, they discuss their findings, including similarities and differences between their neighborhood and the CJI mural image. Then, each student group chooses a local environmental issue for their unit project.



## Key Terms

**Environment:** The air, water, soil, people, plants, animals, buildings, and culture that surround a person, place, or community

**Physical environment:** Non-living things (rocks, soil, water, light, sound, buildings, and other human creations) in an environment

**Biological environment:** Living things (plants, animals, bacteria, fungi, and people) in an environment

**Positive environmental impact:** A human action that makes the environment better, healthier, safer, and more comfortable

**Negative environmental impact:** A human action that makes the environment worse, dirtier, or more dangerous

## Student Materials

Clipboards

Digital cameras

[Neighborhood Environmental Scavenger Hunt](#)





## Standards

### **PA Core: Reading and Writing in Science and Technical Subjects**

CC.3.5.6-8.1: Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

### **Next Generation Science Standards**

MS-ESS3-4: Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

### **New PA Integrated Standards for Science, Environment, and Ecology:**

Environmental Literacy Skills - Environmental Experiences - Collect, analyze, and interpret environmental data to describe a local environment.

# Lesson plan

## Before the lesson

1. Display this lesson's objective, key terms, and definitions in a highly visible location.
2. Make a plan for how you will facilitate the outside portion of the Neighborhood Environmental Scavenger Hunt. Where will you take students? Will you need any extra adult chaperones?
3. Divide the class into groups of 2-3. Print one Neighborhood Environmental Scavenger Hunt for each group.
4. Set aside a clipboard and digital camera for each group.

## Activity & Purpose

## Facilitation Suggestions

10  
min

### Part 1 Define the term "environment."

Write the word "environment" on the board. Use the "think, pair, share" strategy to draw out students' ideas about this word's meaning.

The "Think" portion may be facilitated by the use of paper, writing utensils, and art supplies.

As a class, come up with a shared definition of "environment," including several examples of things that may be part of the student's environment.

It may be important to remind students that humans are part of "the environment," including everything that humans build and create. Some definitions of "environment" categorize living and nonliving things as part of the **physical environment** (i.e. water, soil, air, rocks), **biological environment** (i.e. plants, animals, fungi, and micro-organisms), and **built environment** (i.e. cars, buildings, streets, infrastructure, furniture, art, language, ideas, media, technology, pollution)

Explain that today, students will be conducting a neighborhood environmental scavenger hunt. Pass out the Neighborhood Environmental Scavenger Hunt and divide students into pairs or groups. Have students read the scavenger hunt items aloud. Instruct groups to complete at least 1 item in each category.

In addition to the scavenger hunt sheet itself, each pair or group will need a **clipboard**, **writing implement**, and a **digital camera** (or any digital device that can take pictures). It may be helpful to assign students roles within their groups, such as photographer, scribe, timekeeper, etc.

## Activity & Purpose

## Facilitation Suggestions

30  
min

### Conduct the [Neighborhood Environmental Scavenger Hunt](#).

Bring students outside and allow them time to conduct the neighborhood environmental scavenger hunt.

You know your class and your neighborhood best! Whether you allow your groups to roam freely within a certain radius, or keep the class together in a large group, is up to you. You may want to invite other adults to help chaperone. Give students periodical reminders about their remaining time.

5  
min

### Wrap up.

Bring the class back inside. Collect scavenger hunts and clipboards. Have each group's photographer upload their images to a shared folder or device.

Before the next session, organize all digital images so that each group can easily present their scavenger hunt findings to the class.

30  
min

### **PART 2:** **Review and process the results of the Neighborhood Environmental Scavenger Hunt, in order to support students to choose a local environmental problem of interest for their unit project.**

Return students' Neighborhood Environmental scavenger hunts, which were collected at the end of the previous class, so students can review their responses in order to share their findings. Ask students to share examples of positive human impacts they observed, and record all examples on one side of a large T-chart for the class. For each positive impact shared, ask: "How did you feel when you observed this?" Accept all answers.

Examples may include: people throwing litter away in trash cans and recycling bins; signs reminding people not to litter or pollute; food/water/shelter provided for stray animals; people planting trees or flowers; neighbors interacting / talking / organizing with each other; etc.

If possible, display photographs taken by students to provide a visual reference for human impacts.

## Activity & Purpose

Before continuing to negative impacts, pause to discuss the topic of students' emotional reactions. Reassure students that there are no "wrong" emotions, and that every emotional reaction is valid.

Ask students to share examples of positive human impacts they observed, and record all examples on the opposite side of the T-chart. For each negative human impact, ask students (including the student who shared the original observation, as well as others) how they felt when they observed this. Accept all answers.

Take a moment to breathe! Then, refer to the objective for Lesson 3. Students conducted the environmental scavenger hunt in order to draw connections between the imagery in the CJL mural and their own community. Acknowledge that there will be some similarities, some connections, and many differences, between their observations in the community and their observations in the mural.

## Facilitation Suggestions

Students may feel happy, sad, angry, confused, hopeful, depressed, motivated, apathetic, etc. They may feel more than one emotion at a time; they may feel different emotions on different days. There are no "correct" or "incorrect" emotional reactions. As the teacher, you can help students understand and appreciate the complexity and variety of their emotional reactions (i.e., "Can you tell me more about that feeling?"); and remind students that there is a difference between feeling an emotion, naming that emotion, and taking an action based on the emotion. Although all emotions are valid, not every action is socially acceptable, and middle school students should understand this distinction.

[The Feelings Wheel](#) can be a helpful resource for students to identify and name their emotions.

If possible, display photographs taken by students to provide a visual reference for human impacts.

## Activity & Purpose

Display the CJI mural image.

Ask students to identify and share positive environmental impacts they see in the mural image. Record these on the positive impacts side of the T-chart. Then do the same for negative environmental impacts in the mural image.

Pause to discuss the T-chart. Ask students: What similarities do they see between the mural and their community, and what differences do they notice?

Ask students what connections they notice between the results of their scavenger hunt and the imagery in the mural.

Ask: students what relationships they notice between the positive environmental impacts and the negative environmental impacts generally.

## Facilitation Suggestions

Examples of negative impacts: slavery, colonization, genocide, deforestation, redlining, segregation, oil spills, air pollution, etc.

Examples of positive impacts / community responses / solutions: protesting, building community, reclaiming land, celebrating Black and Indigenous culture, planting trees and vegetables, using renewable energy, educating others, organizing, etc.

Possible answers: Similarities may include people, plants, trees, animals, water, the sky, vehicles, signs, buildings, trash, air pollution, etc. Specific differences will vary based on your own community. The mural represents the past, the present, and a possible future; students' observations are a snapshot of the present.

Possible answers: Both the mural and our own observations include positive and negative environmental impacts. Both relate to land, air, and trash issues.

Possible answers: positive environmental impacts are sometimes in response to, or in opposition to, a negative environmental impact. For example, banning plastic bags is a response to the problem of litter, and renewable energy technology is a response to the problem of fossil fuels and climate change. Both positive and negative impacts can be the result of individual actions or collective actions, and can be large or small in scale.

15  
min

## Activity & Purpose

**Give students time in their groups to discuss and choose which local environmental problem they will choose to focus on.**

Note that the Climate Justice Initiative's resource collection is organized into three broad categories: land issues, air issues, and trash issues, so the research process will be much more streamlined if students' local environmental problems fit into one of these three categories. If students are interested in an issue that falls outside of these categories, such as water quality or homelessness, you may instruct them to choose a different topic, or point them towards reliable resources that will help them create an effective product.

After groups have settled on a choice, have them share their choice of topic, as well as their rationale, with the rest of the class. Then, congratulate your class on having chosen local environmental problems to focus on!

## Facilitation Suggestions

As the teacher, you can make decisions about whether to keep students' pre-existing groups for the remainder of the unit, or to reshuffle some or all students, based on factors such as students' interest in a particular local environmental issue, or their academic and social compatibility. It is also your choice as teacher whether you will allow multiple groups to choose the same local environmental problem.

Circulate while groups are discussing to observe and help facilitate conversations. You can ask questions like:

“Does everyone in your group agree with this choice? Why or why not?”

“What are your reasons for choosing this topic? Do you have any doubts or concerns about this choice?”

“Do any of your group members have background knowledge or experience about this topic that could be helpful?”

Each group should be prepared to briefly answer the following questions orally:

“Which local environmental problem did your group choose to focus on?”

“Why did you choose to focus on this problem?”

“What do you know about this topic already?” (If time allows, make space for students from other groups to chime in with background knowledge about the chosen topic)



<b>Plant</b> Description          Quantity	<b>Animal</b> Description          Quantity	<b>Positive Human Impact</b> - Air	<b>Negative Human Impact</b> - Air
<b>Plant</b> Description          Quantity	<b>Animal</b> Description          Quantity	<b>Positive Human Impact</b> - Land / Soil	<b>Negative Human Impact</b> - Land / Soil
<b>Plant</b> Description          Quantity	<b>Animal</b> Description          Quantity	<b>Positive Human Impact</b> - Trash	<b>Negative Human Impact</b> - Trash
<b>Human-made Object</b> Description          Quantity	<b>Human-made Object</b> Description          Quantity	<b>An opportunity for positive impact:</b>	<b>A question we have:</b>



## Lesson 04

# Getting to the Roots

2 x 45 min lessons



### Objectives

In the first part of this lesson, students learn about root cause analysis in order to apply it to their chosen local environmental problem. They also apply the Unit Project Rubric to two example projects in order to improve their own final projects. In the second part, students construct an explanation that describes regional environmental conditions and their implications on environmental justice and social equity.



## Key Terms

**Weed:** A plant that grows in a place where humans do not want it

**Local Environmental Problem:** An issue that affects the air, water, soil, or general health of a particular neighborhood, community, city, or region

**Symptoms:** The signs, impacts, or results of a local environmental problem

**Root Causes:** The deepest reason(s) for a problem. Identifying and addressing the root cause of a problem can make the problem less likely to return

**Root Cause Analysis:** Digging beneath the surface of a problem to find its deeper reasons for existing

**Five Whys:** A method that continues asking 'Why?' many times (sometimes more than 5) in order to find the roots of a problem

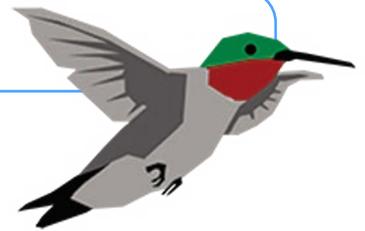
## Student Materials

[Unit Project Rubric](#)

[Getting to the Root Graphic Organizer](#)

[Sample social media posts](#) from [@\\_yafavtrashman](#) and [@chester\\_e](#)

CJI [Land Circle](#), [Air Circle](#), and [Trash Circle](#) Videos





## Standards

### PA Core: English Language Arts

E08.B-C.2.1.1: Determine an author’s point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.

### PA Integrated Standards for Science, Environment, Ecology, Technology, and Engineering (2022)

Gather, read, and synthesize information from multiple sources to investigate how Pennsylvania environmental issues affect Pennsylvania’s human and natural systems.

Construct an explanation that describes regional environmental conditions and their implications on environmental justice and social equity.

# Lesson plan

## Before the lesson

1. Display this lesson's objective, key terms, and definitions in a highly visible location.
2. Print one Getting to the Root graphic organizer, one Unit Project Rubric, and one copy of the [@chester\\_ej](#) sample social media post for each student.
3. Prepare to project the following videos: [@\\_yafavtrashman](#) social media video, [How to Properly Pull Weeds From Your Yard](#), and [Five Whys Jefferson Memorial Example](#).

## Activity & Purpose

22  
min

### Part 1

**Introduce the Root Cause Analysis framework using the “Getting to the Root” Graphic Organizer, in order to expand and deepen students’ thinking about the root causes and solutions to local environmental problems.**

Show the video “How to PROPERLY Pull Weeds From Your Yard” by Helpful DIY on YouTube, in order to introduce students to the idea of “pulling out a weed by its roots.” The video is 2 minutes 18 seconds long.

After showing the video, ask:

1. “What does it mean to ‘get to the root’ of something?”
2. “What do you think would happen if a gardener pulled out the leaves of a weed, but left the roots in the soil?”
3. “How is this video related to the local environmental problem your group chose?”

## Facilitation Suggestions

You may find it helpful to clarify in advance that the word “weed” in this video refers to a garden weed, not the drug.

Possible answers:

1. It means to find the deeper cause or origin of a problem.
2. The weed could grow back from its roots.
3. We have to find and address the root of the problem, otherwise the problem will keep coming back.

## Activity & Purpose

Distribute the “Getting to the Root” graphic organizer and fill out the local environmental problem and its symptoms, in order to solidify each group’s choice of problem and remind them why their problem is worth solving. Students should not proceed to step 3 of the graphic organizer yet.

Show the video “Five Whys Jefferson Memorial Example” (1:30) in order to model root cause analysis and the Five Whys.

Ask:

1. “What was the root cause of the Jefferson Memorial’s stone deteriorating?”
2. “How did the park rangers arrive at this root cause?”
3. “What happened when the park rangers solved the root of the problem?”

Have students complete step 3 of the Getting to the Root graphic organizer. Starting with their chosen local environmental issue, they will ask “Why is this happening?” five times, completing the lower half of the graphic organizer.

## Facilitation Suggestions

For demonstration purposes, you may use an overhead projector or document camera to model filling out the Getting to the Root graphic organizer.

Instruct students to write the name of their local environmental problem in the center of the graphic organizer.

Next, students write several symptoms, or negative impacts, that are caused by this problem, in the branches of the tree.

Before continuing to root cause analysis, pause for groups to share their progress so far.

Possible answers:

1. Lights on the memorial at night attracted bugs, which then attracted spiders and birds. Droppings from the birds caused the stone to deteriorate.
2. They kept asking “Why?” over and over, until they found the deepest reason for the problem.
3. The problem was solved once and for all. There was also a positive ripple effect because the park saved money on its electric bill by not using the lights at night.

Circulate while students are working to ensure that they are following the instructions on the graphic organizer.

It is possible that after asking “Why?” a few times, students may not know the reason(s). This is an excellent segue to the next activity: research! Push your students to think deeply about the root causes of their chosen problems, and encourage them to avoid answers that blame the victims. Ask: “What would environmental justice look like for your issue? What would social equity look like for your issue?”

22  
min

## Activity & Purpose

**Distribute the Unit Project Rubric, in order to prepare students to create projects that are rigorous, persuasive, and impactful.**

Show the class how to use the rubric, applying it to the Ya Fav Trashman video.

Play the video. When the video is done, instruct students to choose the square in their assigned row of the rubric that best describes the video they just watched. If they cannot find a perfect match, they should choose the square whose description matches the video most closely. After about a minute of work time, students should be prepared to share their choice, and to justify their answers.

## Facilitation Suggestions

Call on various students to reach the rubric aloud. Pause frequently for questions.

Divide the class into three equal-sized groups. Students do not need to change their seats.

Tell the first group to pay close attention to the 'Rigor' row in the rubric while watching the video: does it explain the local environmental problem, as well as its symptoms, root causes, possible solutions, and action steps, using grade-appropriate vocabulary and/or images?

Tell the second group to pay close attention to the 'Persuasion' row: does the video convince the audience that the local environmental problem is important and concerning, that the root causes are accurate and connected, and that the suggested actions are meaningful and effective?

Tell the third group to pay close attention to the 'Impact' row: does the video invite the audience to take at least one specific, reasonable action to address the root causes of the problem, and not just the symptoms of the problem?

Possible answers: In the Rigor row, I chose 'Approaches standard', because the video talks about the problem, symptoms, and action steps, but it does not discuss the root causes of litter, and it does not mention any statistics. In the Persuasion row, I chose 'Meets standard', because the video convinced me that this problem is important and that my actions could make a difference; and even though the video does not discuss root causes, it does make it seem easy and fun to take action. In the Impact column, I chose 'Approaches standard', because the action steps mentioned in the video are specific and reasonable, but they are aimed at symptoms of the problem, and not root causes. Note that answers may vary, but students should be able to justify their choices using the language in the rubric and observations from the video.

## Activity & Purpose

Have students work in their project groups to apply the rubric to the @chester\_ej social media post. When they are done working, if time allows, ask students to explain their rubric ratings in each category and provide justifications for their choices.

45  
min

### Part 2

**Introduce the CJI collaborator video library, as a starting point for students to begin exploring points of view about the root causes of their group's chosen issue.**

## Facilitation Suggestions

Sample social media post (including shareable graphics and informational text) from [@chester\\_ej](#) on Instagram.  
[Alternative \(non-instagram\) link](#)

Possible answers: In the Rigor row, I chose 'Meets standard', because this social media post explains the problem as well as its symptoms, root causes, possible solutions, and action steps, as well as a statistic about the problem. In the Persuasion row, I chose 'Meets standard', because this social media post convinced me that air quality is important, that the problem of air pollution can be stopped at the root by preventing an LNG facility from being built, and that testifying at the City Council meeting is meaningful and effective. In the Impact row, I chose 'Meets standard', because the suggested action step of testifying at City Council is specific and reasonable, and would address the root cause of air pollution by preventing an LNG plant from being built in Chester. Note that answers may vary, but students should be able to justify their choices using the language in the rubric and observations from the social media post.

Note: although all of these examples are social media posts, students' final projects are not required to be digital in nature. They can design a physical poster, perform a song or rap or skit, etc.

Say: "One of the principles of environmental justice, and social justice in general, is to center the voices of the people who are most impacted by a particular issue. That's why the Climate Justice Initiative has put together a video library of Black and Indigenous community leaders sharing their stories about the past, present, and future of environmental justice in their communities." This is also a good time to discuss your expectations around academic integrity, including plagiarism and citations.

## Activity & Purpose

Direct students to begin their investigation in one of the following 3 places, depending on the local environmental issue they have chosen:

<https://www.climatejusticeinitiative.com/land-circle> - for videos and other resources related to land topics, including indigenous stewardship, decolonization, farming and gardening, street trees, and more!

<https://www.climatejusticeinitiative.com/air-circle> - for videos and other resources related to air topics, including air pollution, asthma, oil refineries, trash incinerators, and more!

<https://www.climatejusticeinitiative.com/trash-circle> - for videos and other resources related to trash topics, including littering and illegal dumping, neighborhood cleanups, zero waste, landfills, and more!

Have students organize their research notes on the back of the Getting to the Root graphic organizer.

## Facilitation Suggestions

If students have selected a problem that is not related to land, air, or trash (such as water quality, homelessness, etc), you may either direct them to a reliable resource on this topic, or instruct them to choose a different topic.

Each of these three resource lists includes long-form videos (10-20 minutes each) presented by Climate Justice Initiative collaborators, who are primarily Black and Indigenous organizers, activists, and artists working to improve their communities' environments by taking action steps towards solving root causes of problems. Resource collections also include links to each of these collaborators' social media pages, where more information is often available.

Once students have gone through all the relevant resources on this site, if they have more time, they should continue searching for other points of view about the root causes of their local environmental issue.

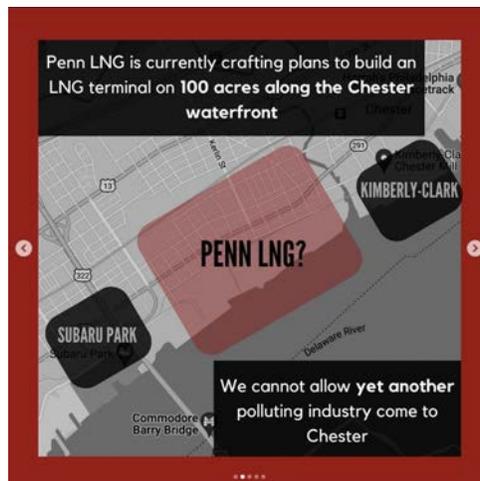
Circulate while students are researching to ensure that all students are playing a helpful role in their groups, that students continue using their graphic organizers and project rubric to organize their research notes, including the author's point of view and purpose.

## Sample Social Media Posts

[@chester\\_ej](#)

Chester Environmental Justice  
Community Organization

Chester Environmental Justice movement led by Chester  
Residents Concerned for Quality Living (CRCQL - “circle”) in PA.  
Fighting polluters since ‘92.



**chester\_ej** We want everyone to get used to hearing the term LNG and to know what it stands for-liquified natural gas. Yes, the incredibly volatile substance known to cause huge explosions. They are trying to bring a LNG plant to Chester. Yes! They want to manufacture gas here!

Between the incinerator and the sewage facility doesn't Chester have enough toxic industries?

Chester residents let your voice be heard. Let Chester City Council know that we don't need another toxic industry.

Chester City Council Meeting tomorrow at 10:00am 📍 City Council Chambers, Municipal Building, One Fourth Street, 2nd Floor, Chester, PA 19013

View online here: <https://www.facebook.com/cityofchester>

## Sample Social Media Posts

@ [yafavtrashman](#)

Terrill Haigler

Political Candidate

Former sanitation worker for the city of Philadelphia, turned community activist. Now a candidate for City Council At-Large 2023 #yafav4philly



[\\_yafavtrashman](#) Registration for my Earth Day trash walk is now open. Link is in the bio. The goal is to have 2000 people participate in this walk. The walk will take place in the Kensington area of the city we will walk 5K while picking up trash at the same time. We will also be giving out 250 hot meals to the homeless. You don't wanna miss this event !!! Tag a friend who you want to do this walk with 🤗  
#Yafavtrashman #earthday #trashwalk #philly #acleanphilly #action #impact

41w

*A still from video post*

Name:

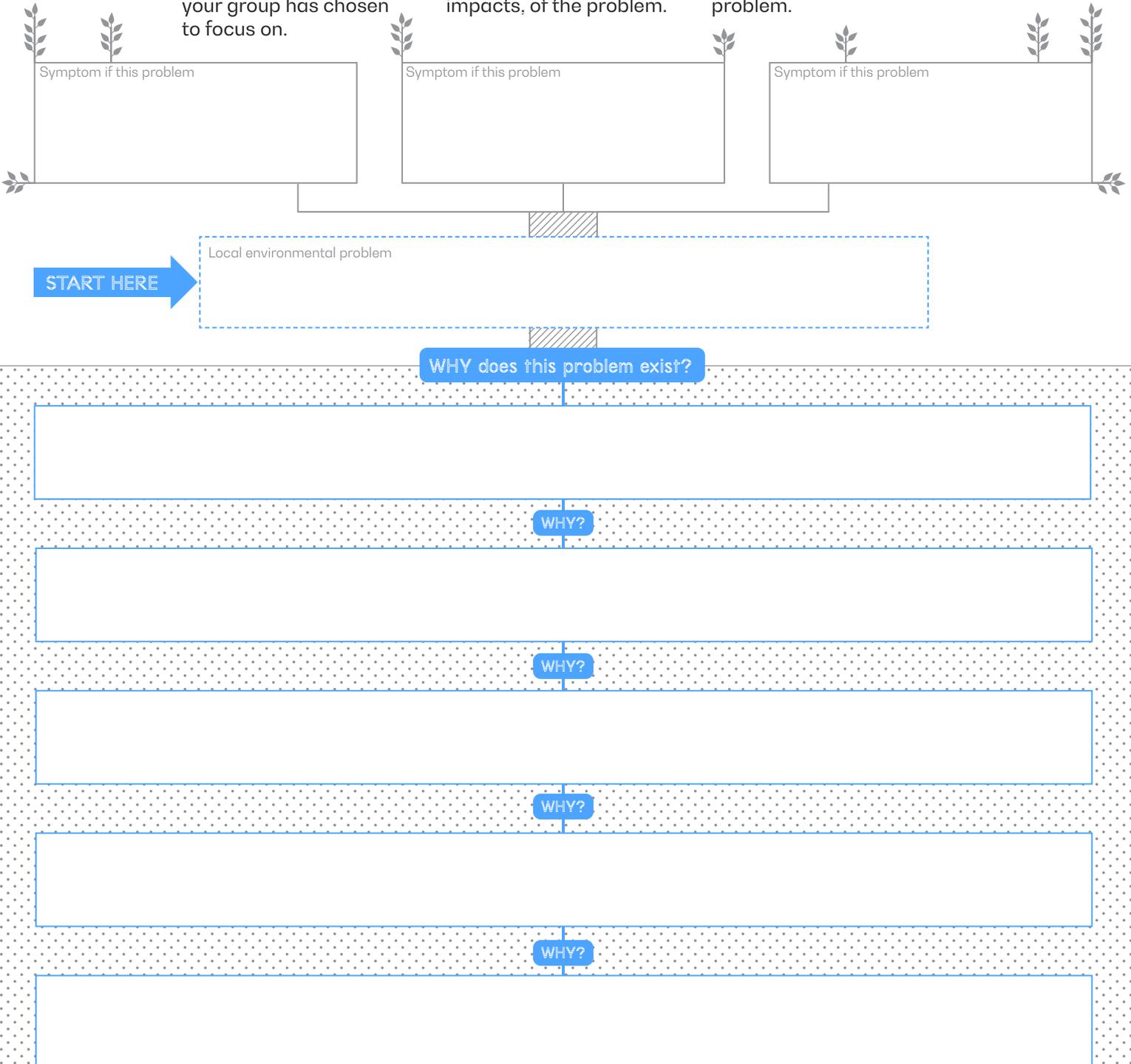
Date:

# “Getting to the Root” graphic organizer

1. Write the local environmental problem your group has chosen to focus on.

2. Describe three symptoms, or negative impacts, of the problem.

3. Use the “Five Why’s” to get to the root of your problem.



Visit **ClimateJusticeInitiative.com** and click on the **‘Teach-Ins’** page to watch videos related to your local environmental issue. As you learn more about root causes and possible solutions, **take notes** on this page.

Source of information	Notes (facts, information)	Author's Point of View / Purpose	Questions for further research

**Do you have all the pieces you need for a successful final project?**

- Local environmental problem
- Possible solutions to the problem
- Appropriate images
- Symptoms of the problem
- Action steps
- At least one statistic
- Root causes of the problem
- Appropriate vocabulary
- Citations



Group members:

Date:

## “Getting to the Root” Unit Project Rubric

Local environmental problem: \_\_\_\_\_

	Approaches Standard	Meets Standard	Exceeds Standard
Rigor	<p>The project <b>does not explain</b> the local environment <b>problem, symptoms, root causes, possible solutions, or action steps</b> using <b>grade-appropriate vocabulary and/or images</b>.</p> <p>The project does not contain any <b>statistics</b> related to the local environmental problem.</p>	<p>The project explains the local environment <b>problem</b>, as well as its <b>symptoms, root causes, possible solutions, and action steps</b>, using <b>grade-appropriate vocabulary and/or images</b>.</p> <p>The project contains at least one <b>statistic</b> related to the local environmental problem.</p>	<p>The project meets the standard for rigor, <b>and</b>:</p> <p>... uses appropriate <b>evidence and reasoning</b> to <b>support claims</b> about the problem, symptoms, root causes, solutions, and action steps.</p> <p>... includes appropriate visual representations (such as a <b>graph</b>) and an appropriate <b>citation</b> for each <b>statistic</b>.</p>
Persuasion	<p>The project <b>does not convince the audience</b> that the local environmental problem is important and concerning, or that the root causes are accurate and connected, or that the suggested actions are meaningful and effective.</p>	<p>The project convinces the audience that the local environmental problem is <b>important and concerning</b>, that the root causes are <b>accurate and connected</b>, and that the suggested actions are <b>meaningful and effective</b>.</p>	<p>The project meets the standard for persuasion, <b>and</b>:</p> <p>... describes <b>how</b> and <b>why</b> the suggested actions will <b>improve</b> the local environment.</p> <p>... makes it <b>easy and fun</b> for the audience to take action.</p>
Impact	<p>The project <b>does not invite the audience</b> to take action, or:</p> <p>... the actions suggested by the project are <b>vague</b> and <b>not specific</b>, or</p> <p>... the actions address the problem's <b>symptoms</b>, but not its <b>root causes</b>.</p>	<p>The project invites the audience to take at least one <b>specific, reasonable action</b>.</p> <p>The actions address the <b>root causes</b> of the problem, and not just the <b>symptoms</b> of the problem.</p>	<p>The project meets the standard for effectiveness, <b>and</b>:</p> <p>... suggests a <b>sequence of actions</b>, including some that are simple and some that are more complex.</p> <p>... includes a way for the audience to <b>share</b> the impacts of their action steps, creating positive <b>ripple effects</b>.</p>

What did this group do well? \_\_\_\_\_

What could this group improve? \_\_\_\_\_

Write a question for this group. \_\_\_\_\_





Lesson 05

# Project Development

2 x 45 min lessons

## Objectives

Students will plan and develop a creative product (such as a skit, poster, social media post, video, song/rap/spoken word piece, letter to the editor, etc) that communicates to their peers about a local environmental problem, its root causes, a possible solution, and an action step.



## Teacher Materials

[Sample social media posts](#) from @chester\_ej and @\_yafavtrashman  
CJI [Land Circle](#), [Air Circle](#), and [Trash Circle](#) Videos

## Student Materials

[Unit Project Rubric](#) (Refer to Lesson 04)  
[Getting to the Root Graphic Organizer](#) (Refer to Lesson 04)



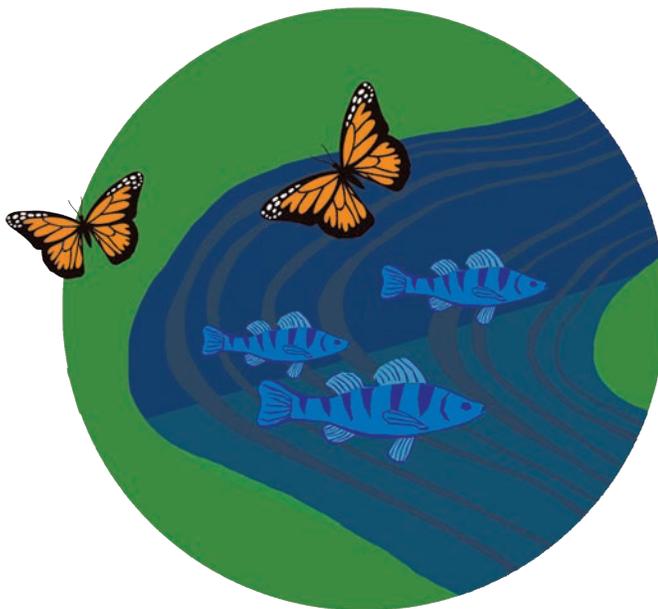


## Standards

### **PA Integrated Standards for Science, Environment, Ecology, Technology, and Engineering (2022)**

Design a solution to an environmental issue in which individuals and societies can engage as stewards of the environment.

Construct an explanation that describes regional environmental conditions and their implications on environmental justice and social equity.



# Lesson plan

## Before the lesson

1. Display this lesson's objective in a highly visible location.
2. Have extra printed copies of the Unit Project Rubric and Getting to the Root Graphic Organizer available for students who may need them.

## Activity & Purpose

90 min

**Facilitate the creation of each student group's unit project, using the rubric as a guide.**

## Notes

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## Facilitation Suggestions

Make sure that all groups have fully completed the following:

1) "Getting to the Roots" graphic organizer (front and back). Some groups may need to conduct additional research in order to complete this sheet.

2) Reviewed sample social media posts using the Unit Project Rubric, including choosing a score in each category for each sample post. Then, circulate between groups to monitor students' progress. Refer to the rubric as often as possible, and remind students to do so as well.

If a group finishes early, help them conduct a self-assessment of their own project using the rubric. Provide encouraging and constructive feedback about the strengths and weaknesses of their project.

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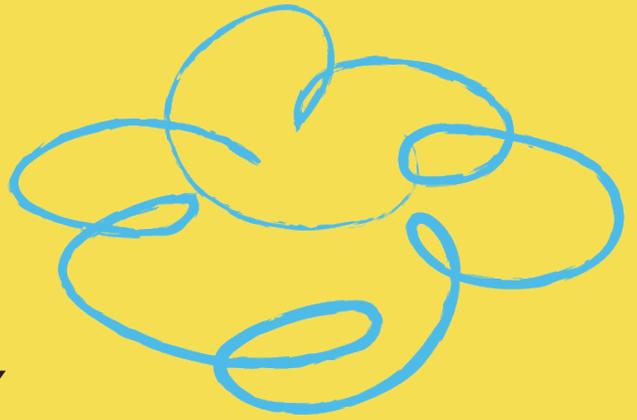
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Lesson 06

# Project Feedback



45 min lesson

## Objectives

Students share their creative product with the class, and provide feedback to their classmates. They make a plan to improve their products in order to share with the broader community.

## Teacher Materials

[Unit Project Rubric](#) (Refer to Lesson 04)

Note: Each student will need several copies, in order to fill out a copy for each presenting group. The teacher will also need at least one copy of the rubric per presenting group.)





## Standards

### **PA Core: English Language Arts**

CC.1.5.7.D: Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

### **PA Integrated Standards for Science, Environment, Ecology, Technology, and Engineering (2022)**

Design a solution to an environmental issue in which individuals and societies can engage as stewards of the environment.

Construct an explanation that describes regional environmental conditions and their implications on environmental justice and social equity.

# Lesson plan

## Before the lesson

1. Display this lesson’s objective in a highly visible location.

2. Print and distribute rubrics according to the table below:

Total number of project groups	Print this many rubrics	Each group receives this many rubrics	Teacher keeps this many rubrics for grading
4	16	3	4
5	25	4	5
6	36	5	6
n	$n^2$	n-1	n

## Activity & Purpose

45 min

**Each group shares their project with the class. The audience uses the Unit Project Rubric to score each project and provides constructive feedback.**

## Facilitation Suggestions

Keep a close eye on the clock in order to ensure that each group gets the same amount of time.

During presentations, monitor the rest of the class to make sure they are using the Unit Project Rubric to provide feedback to their peers. Each group in the audience will fill out a single rubric as a group for each presenting group. Of course, you should fill out a copy of the rubric for each group as well!

## Notes

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If time permits, at the end of each group’s presentation, ask for feedback and questions from the audience. Specifically, you can ask audience members for “glows” (What did the group do really well?) and “grows” (How could it be even better?). If necessary, remind students to refer to the categories and descriptions in the rubric to ground their feedback.

Depending on the size of your class and the length of each presentation, there may or may not be time remaining in class for students to actually incorporate their peers’ feedback. The rubrics do not include a category for how or whether peer feedback is incorporated, or for whether the projects are shared outside of class. Use your best judgment as an educator to decide whether, or how, to encourage students to take these steps on their own.



Getting to the Roots

# Glossary



# Glossary

## A

### **Action steps**

Small, specific actions that bring you closer to your goal

### **Agriculture**

Large-scale farming for food production

### **Analyze**

To study something carefully and in-depth

## B

### **Biological environment**

Living things (plants, animals, bacteria, fungi, and people) in an environment

### **Blight**

The process by which a formerly healthy part of a city or town starts to fall apart or decay

## C

### **Carbon storage**

The ability of an ecosystem to store carbon in the earth, out of the atmosphere, so that it does not contribute to global warming / climate change

### **Character**

A person, animal, or object that plays a role in a story

### **Circular economy**

Synonym for zero waste; a system in which there is no trash, because all materials are recycled or composted

### **Climate change**

Also known as global warming; a pattern of increasing temperatures and extreme weather events over many years

### **Construction & Demolition waste**

Trash leftover after building or demolishing a building

### **Consumerism**

A system that considers shopping to be the solution to every problem

## D

### **Decolonize**

To become free from the mental, physical, social, and economic effects of colonization

### **Degradation**

Breakdown or damage

### **Dialect**

A form of a language spoken in a particular area

### **Dialogue**

Conversation

### **Diaspora**

Movement and spread of people away from their homeland, usually against their will

### **Displacement**

Being pushed out of one's home

### **Dispossession**

Having one's property stolen

### **Disproportionate impact**

A negative consequence that is not fair, reasonable, or justified

### **Divest**

To remove financial support; to stop paying for something

## E

### **Economy**

The systems that create and distribute goods (such as food, clothing, and electronic devices) and services (such as healthcare and education)

### **Emissions**

Dangerous chemicals that come out of the smokestacks of factories, power plants, cars, trucks, etc.

### **Environment**

The air, water, soil, people, plants, animals, buildings, and culture that surround a person, place, or community

### **Environmental racism**

The choices and policies that result in lower-quality air, water, and soil for communities of color

### **Exploitation**

Taking advantage of other people or things; using others without kindness or love

### **Extraction**

The process of taking away or removing something, especially without replacing it

**Extractive**

Taking away or removing, especially without replacing or giving back

**Extractive Industry**

Factories and other companies whose main business involves extracting resources from the earth (such as mining for oil, gas, and metals)

**F****Five Why's**

A method that continues asking "Why" many times (sometimes more than 5) in order to find the roots of a problem

**Fossil fuels**

Materials (such as coal, oil, and natural gas or methane) that are extracted from the earth and burned for energy. Fossil fuels are one of the main factors causing climate change

**Fracking**

A process of extracting natural gas, or methane, from deep underground

**G****Gentrification**

A process of neighborhood change in which wealthier people move into neighborhoods that have historically not had much wealth, which can result in changes in culture, architecture, and the cost of living, ultimately leading to the displacement of long-term, low-income residents

**H****Heteropatriarchy**

A system that treats men, especially heterosexual (straight) men, as superior to other genders and sexual orientations

**I****Incinerator**

A factory where trash is burned, releasing both energy and pollution

**Indigenize**

To give power (back) to Native and Indigenous peoples

**Indigenous**

Original, first, native

**Inequitably**

In a way that is not equal

**Infographic**

A visual display that makes information easy to understand by using elements of design (including colors, sizes, shapes, numbers, words, charts, graphs, and images)

**Infrastructure**

All of the structures that help a system function - such as roads, electrical wires, pipelines, etc.

**Interpretation**

One person's explanation of the overall meaning of a work of art or literature

**L****Lenape**

The original inhabitants of Lenapehoking before European colonization, and their descendants. Today, there are many different Lenape communities, including the Ramapough Lenape, the Nanticoke Lenni-Lenape, the Delaware Lenape Nation, and more

**Lenapehoking**

Native American name for the Delaware River watershed (including parts of Pennsylvania, Delaware, New Jersey, New York, and Maryland)

**Local environmental problem**

An issue that affects the air, water, soil, or general health of a particular neighborhood, community, city, or region

**M****Marginalized**

Pushed to the side

**Microplastics**

Tiny pieces of plastic that can be found in water, soil, air, food, and even in human bodies

**Mitigate**

To make a problem less severe

**Monoculture**

Food production that grows a single crop, such as corn or wheat, over a very large area

## N

### **Negative environmental impact**

A human action that makes the environment worse, dirtier, or more dangerous

## P

### **Particulates**

Very tiny pieces of pollution floating in the air that can cause health problems

### **Physical environment**

Non-living things (rocks, soil, water, light, sound, buildings, and other human creations) in an environment

### **Positive environmental impact**

A human action that makes the environment better, healthier, safer, and more comfortable

### **Possible solutions**

Ideas about how to solve a problem by addressing its root causes

## R

### **Redevelopment**

The process of changing the purpose or use of a building or piece of land into something different

### **Redlining**

The racist practice of banks refusing to lend money to people who live in communities of color

### **Refinery**

A factory where crude oil undergoes physical and chemical changes to become a variety of other products, including gasoline, diesel, kerosene, butane, and more

### **Replenishing**

Healing, restoring

### **Resilience**

The ability to recover and regrow after being hurt or damaged

### **Ripple effects**

The impacts (positive and negative) of an action or event that continue to spread across space and time after the action has occurred

**Root cause analysis**

Digging beneath the surface of a problem to find its deeper reasons for existing

**Root causes**

The deepest reason (or reasons) for a problem. Identifying and addressing the root cause of a problem can make the problem less likely to return

**S****Segregation**

The separation of communities by race, income, or other characteristics

**Skit**

A short play

**Social pathology**

An “illness” or “disease” that affects society as a whole, such as crime, violence, poverty, etc.

**Solidarity**

Unity

**Stewardship**

Taking care of something, especially land

**Sustainability**

The health of a community in the long-term; the ability to continue living in a certain way

**Symbol**

A word, image, character, or object that has multiple layers of meaning

**Symptoms**

The signs, impacts, or results of a local environmental problem

**T****Turtle Island**

Native American name for the continent of North America (including Canada, Mexico, the United States, and other countries)

**U****Underserved**

Not receiving enough resources

## W

### **Weed**

A plant that grows in a place where humans do not want it

### **White Supremacy**

A system that treats the people, languages, and cultures of Europe as superior to those of other places

## Z

### **Zero Waste**

A system in which there is no trash because everything is recycled, reused, or composted, and nothing is thrown away



End of glossary



Written by Jonathan Lebovic  
Designed by Gamar Markarian  
Project Management Shari Hersh

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