

Abstract

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This unit attempts to engage students into looking at place-based environmental sustainability including multiple perspectives from the original landowners of the Lenape towards providing creative solutions. To encourage access to students of different abilities, the approach towards entry into the content is intentional. Students will learn not only about the values and culture of the Lenape through a Western lens, but also use their own current place-based references and experiences in today's times to solve humanities concerns, in a non-box-like fashion! In alignment with Next Generation Science Standards, the process invites students to think critically and mindfully about problems, with which they are familiar, related to the quality of the air, water and land. It gives students an opportunity to deeply investigate, and amplify their exploration of the contemporary climate change challenges they face, now and into the future.

Meta Tags: Sustainability, Place-based, Lenape, Philadelphia

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Natural Tendencies

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We have all witnessed the impact of climate change to communities and ecosystems. All of us in some way have observed and noted direct experiences. Others may have participated in activities in an attempt towards mitigating some of anthropogenic daily actions that contribute towards the change, such as reducing carbon emissions, and the use of petroleum-based products such as plastics. In this unit, we initiate discussions with interpretations of the word - sustainability. In this exercise, we pause and dichotomize practices of the original land stewards, the Lenape, in the place we call home, Philadelphia, to engage in dialogue with the past that informs the present and future. -This unit is designed to provoke the user to explore perspectives and the lifestyle of the Lenape and then look at where we are now in our interactions with the environment as place-based people. Finally, students will design solutions and consider designs beyond thought patterns prevailing within industrialized economies, but rather perhaps include ideas from the original Lenape, that are relatively holistic.

Climate change is a buzz phrase with which students are familiar. -The goal of this unit is to enable students to choose their path of discovery and sink into one specific focus area to resolve. The introduction of this unit with the Lenape culture, value and interaction with the environment is to provoke students to consider simple comprehensive ideas. It may disrupt their thinking from thoughts arising from an instantaneous quick fix, a modern day response. The

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intent is to coerce students to think critically and embrace systemic ramifications when designing a solution.

Unit Content

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Introduction

Climate change and sustainability is a broad topic that may appear overwhelming, and this in itself can lead to a sense of anxiety, apathy or indifference. -This unit is designed to be student-led to resurge interest in creating solutions that are place based, with a direct impact on student lives. It is designed to support students with Individual Education Plans (IEPs) that have intervention support in place for math and literacy. -The inquiry opportunities in this unit plan enable all students to participate and access experiences, wherever they are at. -Students may be placed in mixed groups for web quests, so students with different abilities can work on a design project together.

It is evident that our students' lives are infiltrated with frequent news blasts of some weather or human related disaster that impacts the air that they breathe, the water they drink, and land on which they live and from which their food is grown. Within the last year, each student has received alerts on their cell phone relating to each of these events.

This unit starts by having students step back in time, to look at the lives of the original people of the land, before they look at - the now. As students increase their exposure to the Lenni- Lenape, before the European settlers arrived, they may shift their perspective and expand their range as they analyze modern day issues. It may prompt them to consider the past about where they live and the history or past of the location where they go to school, perhaps the questions they raise and the responses they bring to light - will be different. This unit is designed for students that have seen and experienced first-hand the impact of disruptions in the quality of the water, the air and land, in the urban environment. In Philadelphia, in the last three years, the incidents have been common.

Before these incidents are normalized, students need to be made aware that normalizing is not an option. They may choose to actively participate in the processes that require precision modifications, troubleshooting and feedback given to governmental and activist institutions as their interest continues to evolve. As students learn about the different components that go into systemic sustainable solutions, they may consider design and implementation alternatives, as they gain experience and working knowledge.

The lessons in this unit are introductory, constructed as individual lessons connected to the whole experience of enabling students to develop systemic approaches to contribute towards sustainability to mitigate climate change problems. -The goal is for students to gain comfort and confidence in looking at anthropogenic and climate related changes and working towards brainstorming, discussing and creating solutions. - Lessons 1-3 are introductory and foundational to building an understanding of the history and people of the land. In lesson 4, students look at the engineering design process as they consider a problem they have identified. In Lesson 5 students use the design process as they gather information and design a solution to the problem.

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Lessons 1 through 5 may be completed in two 1 hr. class periods. -Lessons 3-5 directions and instructions may be done within 1-1 ½ hr. time period; however, the implementation by students may need to be extended over 2-3 class periods depending on the teacher's discretion and the need of the particular student population or group.

Background

Sustainability can have so many interpretations amongst us. The ideas may have evolved as corporations rush to appease audiences with what may be perceived as Environmental, Sustainable and Governance strategies (ESG). -Along with that new terminology, a word that contests the argument brings up the word Greenwashing. The words appear simple. -The topic is complex with numerous stakeholders of power, influence, geopolitics to name just a few that intersect. So, we start simply by looking at the word *sustainability*. -We then delve into the culture of the original people of Philadelphia with practices that respected the spirit of the elements of air, the water and the land.

Thereafter, we continue by identifying a current problem, looking at how we can address that issue. -Consider the approach: Is it a band-aid quick fix? Are we asking the questions that look at the end - from the start? Are we creating a solution to a problem that future generations will have to solve? -How are we thinking through our solutions?

As a group of educators in the seminars we covered numerous topics connected to climate change and activism extensively. -We discussed the monitoring of air quality in numerous locations, urban heat islands, the types of materials that were well intended to cover urban areas instead of concrete that were evidently reported to raise temperatures, yet worked to enable water drainage. The water distribution infrastructure in Philadelphia. -The socio-economic factors and the zip codes are heavily disproportionately impacted. -The gun violence and fatalities along with home and family instability that our students confront. -It is a lot - as an adult to comprehend.

Now, let's look at today's students that have been born into a world where they have been exposed to and navigated a global pandemic. In Philadelphia recently, the population has been asked to stop using the water supply due to a chemical spill, and asked to remain indoors due to poor air quality, all within the time frame of a few within months. -This is nothing new for this urban student generation. It is normal.

This unit is structured to enable students to lead us. -To tell us in the midst of so much - what is most important to them, in their place. As an educator, the role is to support the phenomenon that best resonates with them, and to facilitate the depth and breadth in inquiry using the web resources so readily available.

The questions we will consider in the engineering design process are: How will we focus on one simple solution? -How can we plan to make a change? -How will the interaction with the environment create an impact? -How can we design it to do what we would want it to do? What is the purpose and how many lives will it impact - in our place, where we are at? What institutions can we gain support from? What institutions do we need to confront? What are the limitations or opportunities?

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Teaching Strategies

Project Model Based Learning: Teachers introduce an idea to students, students then research and gather credible information using guiding questions. -During the active investigation and research learning time, the teacher will facilitate the learning by listening to students group discussions and conversations as they decide, design, troubleshoot, evaluate and select what they choose to embrace. -At the end of the hands-on lesson/unit, students will present their models/ discoveries, reflections and learning, to their peers.

Photo Images: At the start of the unit, students use this visual tool to document and record process steps along with items of daily process and use. -This form of communication is a pragmatic vehicle to record, explain, journal their progression, visually show and verbally tell their approach. -This provides an inclusive approach for students of different abilities that may have access and expression forms that are other than, at grade level math and literacy skills.

Observe, consider and reflect: This enables students to at times consider what they already know about an idea drawing from their own background knowledge and experiences. Alternatively, it is a time to step back from the information, evaluate it with minimal reaction and reflect on situations, to affirm or adjust. This strategy is used in an attempt to encourage students to approach discussions and conversations with claims, evidence and reasoning, and minimize students responding to situations with approaches of I believe, or I like.

Classroom Activities

Lesson #1

What is sustainability?

The first lesson is designed to get students thinking about the word sustainability means are the components that make a system sustainable. Students will look closely at familiar and unfamiliar situations that can express sustainability in action. At this stage, students activate background knowledge, and ideas that have shaped their thinking. The goal of the lesson is for students to be able to analyze and apply the key components that reflect situations of sustainability (1- 3 hrs. dependent on student population, which may extend to a 2nd lesson that is reviewed/summarized).

Objective: Students will be able to analyze the sustainability system in order to evaluate complimenting components that enable a system to work.

1) Teacher will open up a blank slide deck on the board with each of the following questions on the 3 slides, and take 5-10 minutes on each slide writing responses students give. Alternatively, the Padlet App can be used for student responses:

Slide 1: What is sustainability?

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Slide 2: How do you see sustainability in your life and experiences - give specific examples to explain.

Slide 3: What are the components that make sustainability happen?

2) Teacher will guide student responses towards identifying situations that promote sustainability, and the components that make sustainability happen. A valuable resource is the chapter on How Do We Reduce our Ecological Footprint, from the book *Reimagining Sustainable Cities* by Wheeler and Rosan.

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When students have gained clarity of the components, the teacher will show images of daily situations that look at our modern-day practices such as: a chip bag on the sidewalk, used plastic water bottles next to a trash can, a clothing label indicating the percentage of polyester in the fabric, Pawpaw trees and other native plants, glitter near a storm drain, images of a concrete and tarmac paved urban street with no trees. The teacher will then ask students if these situations are sustainable, why or why not. -This will enable students to strengthen their inquiry and paradoxically leave a sense of open comfortable confusion.

3) Teacher will ask students to look at the Coaquannock Map. It is available online, and a color copy from the University of Pennsylvania Archives is available in the Resources section, along with a printed article Philadelphia Map Evening Bulletin 1934. Ask students to create Google Slides to share what sustainable practices are observable in the map, how are they interpreting the map and the published 1934 article, what visible changes have they noticed about Philadelphia between then and now? -At this point encourage students to consider what happened between that time, and now. -What values and actions shaped - where we are - in our places in Philadelphia now? -This is to engage students into thinking about place, history, time and values. Allow time for students to collaborate and discuss, express and question the complexity that contributes to how we arrive at this moment. -Allow 15 -30 minutes.

4) Students will share slides with the class, allow 10 - 15 minutes per student or paired groups, allowing student peers to ask and discuss student share outs.

5) At the end of the lesson, ask students to complete an exit ticket that states:

3 interesting ideas that resonated with them from the lesson.

2 facts that changed how they thought about sustainability and their place in Philadelphia.

1 question that comes to mind, that makes them wonder.

Lesson #2

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In this lesson, students will delve into the Lenape culture and the relationship the original people of this land had with the environment. -Students will gain an understanding of how the values of the people shaped their interactions with the environment. -In this lesson, students will gain an understanding of how they used the elements of air, land and water in daily living. (1- 1½ hr. dependent on student population)

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Objective: Students will be able to investigate the values of the Lenape People in order to explore how they chose to interact with the land, water and air in the environment.

1) Teacher will:

Introduce the words of the original people of the land, the Lenape and ask students to complete a KWL (Know, Want to Know, Learned) chart, with connections to those words. -Alternatively, Padlet may be used for a group mind exploration on the topic of the Lenape, to activate student minds and build on the ideas of the previous lesson.

Students will complete KWL charts 5-15 minutes, and share their Know and Want to Know ideas with peers.

2) Teacher will introduce the Lenape video examples using the following web link and videos. 10 - 15 mins. Allow students time to digest and add notes to their KWL

Example of possible site:

<https://www.youtube.com/watch?v=UNFxDWNv9G4>

Students will then be placed in mixed groups of 2- 4 students and be assigned a section of the reading. Students will need to: Read a section, create a Google Slides to share with the class summarizing and sharing their learnings, taking note of interactions with the resources of the land, water and air. -Students are inclined to add their personal perspectives and comments, these are encouraged as it indicates vested interest in the subject.

Example of possible sites to use:

Readings:

<https://eportfolios.macaulay.cuny.edu/muehlbauer2013/?cat=60>

<https://www.schuylkillcenter.org/news/the-lenape-and-the-land/>

<https://delawaretribe.org/blog/2013/06/26/lenape-life/>

<https://collaborativehistory.gse.upenn.edu/about>

3) Students will be asked to present their learnings to the class. Allow 15-20 minutes for students to investigate and explore the materials.

4) Ask students to summarize their KWL charts, and complete the Learned Section.

Ask each group to share their investigations and at least 3 key discoveries they experienced through the process. 5-10mins. Allow extended time if needed.

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Lesson #3

In this lesson, students will identify locations and compare the original Lenape map used in Lesson 1 to the current EPA Environmental EJS map. To make it accessible to all students different video options and website links examples are offered. -Students will then be asked to solve a problem using the process, and documenting steps. (1 - 1½ hr. may be extended to multiple class periods, dependent on teacher discretion and student population)

Objective: Students will be able to identify locations in Philadelphia in order to evaluate current environmental place-based data pertinent to their livelihood.

Teacher will:

Review and explain the EPA EJS map and tool.

<https://www.epa.gov/ejscreen/overview-environmental-indicators-ejscreen>

<https://ejscreen.epa.gov/mapper/>

Ask students to choose one location, either school or home to investigate.

Ask students to explore the place and its history, what it was, what it is and the environment. Students will record their findings on Google Slides.

Ask students to focus on one criterion through their investigation, either soil or land use, air quality or water.

Ask students to summarize their findings to share with the class stating the location, the criteria they investigated, what they thought they knew, and what surprised them.

Identify one problem.

Wrap-up:

15 min. Student groups will share their summary and problem with the class.

Lesson #4

In this lesson, students will use the engineering design process to solve a problem they identified in their environment.

Teacher will: Show the video on the engineering design process. Ask students to keep the problem they found during lesson 3 in mind as they consider steps to resolve the problem.

<https://www.youtube.com/watch?v=oBqGoXCBHtk>

Students will:

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Identify the steps as they document their design process from the lesson video and teacher explanations. 10-15 mins.

Students individually or in small groups are assigned to take steps to find solutions, and possible resolutions as the challenge for the lesson. One student will need to ensure the process is documented as they work on their solution using Google slides

(1- 1½ hr. may be extended to multiple class periods, dependent on teacher discretion and student population. Students may need multiple lessons to implement the design.)

Objective: Students will identify a place-based problem related to air, water or soil in order to design solutions using the engineering design process.

Teacher will: Allow thinking time, think aloud and share out time.

Students will: Be asked to create a photo documentary of their design using the Engineering Design Process. To assist students with organizing their Google Slides create a template slide desk.

The 5 slides should have each of the following words:

1. Explain the need
2. Develop a solutions
3. Plan and design
4. Test and Evaluate
5. Modify and improve

Wrap-up:

Students share their processes, status and outcomes. -If needed, additional lesson time may be offered according to class scheduled and student population needs.

Lesson #5

In this lesson, students will use the techniques from the engineering design process in mind as they create a design of how they will solve the problem identified. -(1- 1½ hr. may be extended to multiple class periods, dependent on teacher discretion and student population. Students may need multiple lessons to implement the design.)

Teacher will:

Facilitate and guide students as they navigate resolutions. The following websites may support and inspire student direction:

Air

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<https://www.nytimes.com/2020/07/28/magazine/pollution-philadelphia-black-americans.html>

https://www.scientificamerican.com/article/how-to-use-the-air-quality-index/?utm_source=newsletter&utm_medium=email&utm_campaign=week-in-science&utm_content=link&utm_term=2023-06-09_top-stories

https://www.inquirer.com/news/philadelphia/inq2/philadelphia-air-quality-record-pollution-aqi-20230609.html?clickText=news/philadelphia_2&utm_source=newsletter&utm_medium=email&utm_campaign=latest_headlines_6_9_2023&sfmc_id=0031U00002BhWkaQAN&sub_source=newsletter_latest_headlines&list_name=DE44_Newsletter_Latest_Headlines&int_promo=newsletter&et rid=706002377

<https://apnews.com/article/canada-wildfires-air-quality-index-5e7477de001aa30e3d8e34b0083d6f4d>

<https://www.inquirer.com/weather/live/philadelphia-smoke-haze-air-quality-forecast-canada-fire-20230607.html>

<https://www.ahs.dep.pa.gov/AQPartnersWeb/forecast.aspx?vargroup=se>

<https://www3.epa.gov/ttn/ozonehealth/figure14.html>

<https://www.airnow.gov/?city=Philadelphia&state=PA&country=USA>

https://www.inquirer.com/news/air-quality-index-smoke-philadelphia-explained-20230607.html?clickText=news_1&utm_source=newsletter&utm_medium=email&utm_campaign=latest_headlines_6_7_2023&sfmc_id=0031U00002BhWkaQAN&sub_source=newsletter_latest_headlines&list_name=DE44_Newsletter_Latest_Headlines&int_promo=newsletter&et rid=706002377

Water

<https://www.nytimes.com/2023/03/26/us/delaware-river-latex-chemical-spill.html?searchResultPosition=1>

<https://www.theguardian.com/environment/2023/jun/09/high-levels-drugs-water-pollution-study-england-south-coast>

<https://www.youtube.com/watch?v=sqrbrBJ9z3w>

https://www.cnn.com/2023/03/14/health/epa-pfas-standards-wellness/index.html?utm_term=16794305553258e06a50eadb1&utm_source=cnn_03.21.23+Results+are+In&utm_medium=email&utm_term=.jsY1OmF1pm9YDq29tTx1Mzq%2FAiJluf7UDut9Z6joAueDRSSYNAMnSkDbcDbNTtoZ8&utm_term=.1679430555328

https://www.cnn.com/2020/03/22/world/world-water-day-03-22-2020-iyw-trnd/index.html?utm_term=1679482345428703247537414&utm_source=cnn_Five+Things+for+Wednesday%2C+March+22%2C+2023&utm_medium=email&utm_term=.WaNiaLHVZng6tUj4MCf66btF6eN9HitMFLQITHFB4A1q8U1KRnq6RCDcytnaR5t5H&utm_term=.1679482345430

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Land

<https://www.youtube.com/watch?v=Jew8ZXBqk0>

https://apnews.com/article/earth-environment-climate-change-nature-sick-2dded06915af4645253f5c29abff4794?user_email=ba85f16818ebb5e2f4b2df23921ff8a3229be00c52d82d80d1a88a793f2fa429&utm_medium=Afternoon_Wire&utm_source=Sailthru&utm_campaign=AfternoonWire_May31_2023&utm_term=Afternoon%20Wire

https://apnews.com/article/chevron-union-oil-kevin-wright-california-santa-barbara-benzene-myeloma-cancer-63-million-57529d07bb50b8882f719d1e8707d951?user_email=ba85f16818ebb5e2f4b2df23921ff8a3229be00c52d82d80d1a88a793f2fa429&utm_medium=Morning_Wire&utm_source=Sailthru&utm_campaign=MorningWire_09June_2023&utm_term=Morning%20Wire%20Subscribers

https://www.inquirer.com/real-estate/housing/urban-institute-land-use-zoning-board-race-gender-20230417.html?utm_source=newsletter&utm_medium=email&utm_campaign=real_estate_4_19_2023&clickText=overrepresented-on-land-use-boards&clickHeader=the-latest-news-to-pay-attention-to&sfmc_id=0031U00002BhWkaQAN&sub_source=real_estate_newsletter&list_name=DE45_New_sletter_Real_Estate&int_promo=newsletter&et rid=706002377

Students will:

Choose a model they wish to create and document it on Google Slides using the Engineering Design process. They will share their process, and present their design using Google Slides at the end of the lesson, or if additional time is needed, the following lesson period may be considered for presentations.

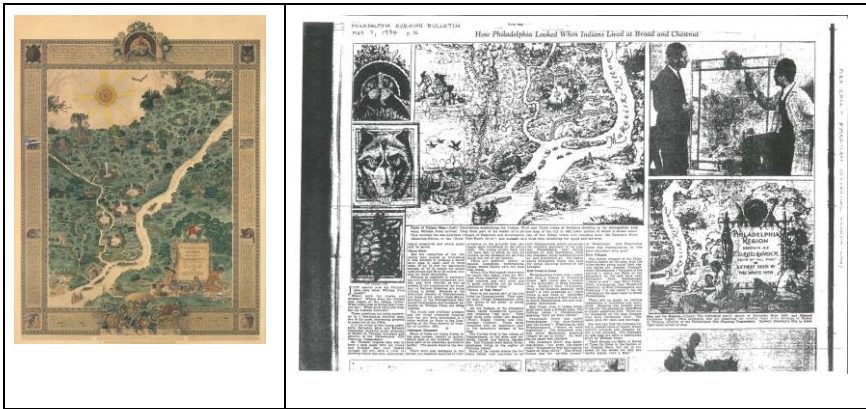
Resources

The following website and video links support teaching and learning for the first lesson and enables us to consider the word sustainability and how specific aspects are accentuated depending on the institution and the author.

<https://www.youtube.com/watch?v=zx04Kl8y4dE>

<https://sdgs.un.org/goals>

The Coaquannock Map link and attached Map Image and 1934 Article, Source University of Pennsylvania Archives. <https://hiddencityphila.org/2021/11/coaquannock-map-shows-lenape-land-before-william-penn/>



<https://collaborativehistory.gse.upenn.edu/discover/by-neighborhood>

The following book is a valuable resource for teachers towards guiding and facilitating learning for students.

[Wheeler, S. M. \(2021\). *Reimagining Sustainable Cities*. In University of California Press](#)

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The websites below range from a site that has user-friendly overviews of the Lenni-Lenape people, their culture and interactions with the environment. There are videos and sites that inform teachers and learners of the uses for the second lesson.

<https://www.youtube.com/watch?v=T11ShMQAC04>

<https://www.thegreencities.com/water/the-lenape-were-the-og-caretakers-of-the-delaware-river/>

<https://www.youtube.com/watch?v=9mioymSpAvo>

<https://www.youtube.com/watch?v=UNFxDWNv9G4>

<https://www.youtube.com/watch?v=iWFeMGmJne4>

<https://collaborativehistory.gse.upenn.edu/discover/by-neighborhood>

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For the third lesson, the following video and websites are helpful tools to get specific mapping details on locations and the different criteria related to climatic conditions.

<https://www.epa.gov/ejscreen/overview-environmental-indicators-ejscreen>

<https://ejscreen.epa.gov/mapper/>

The following website for the fourth lesson details the engineering design process as an approach towards problem solving.

<https://www.youtube.com/watch?v=oBqGoXCBHtk>

The fifth lesson has relevance to resources relating to air, water and land to start students on a discovery Web Quest.

Air

<https://www.nytimes.com/2020/07/28/magazine/pollution-philadelphia-black-americans.html>

https://www.scientificamerican.com/article/how-to-use-the-air-quality-index/?utm_source=newsletter&utm_medium=email&utm_campaign=week-in-science&utm_content=link&utm_term=2023-06-09_top-stories

https://www.inquirer.com/news/philadelphia/inq2/philadelphia-air-quality-record-pollution-aqi-20230609.html?clickText=news/philadelphia_2&utm_source=newsletter&utm_medium=email&utm_campaign=latest_headlines_6_9_2023&sfmc_id=0031U00002BhWkaQAN&sub_source=newsletter_latest_headlines&list_name=DE44_Newsletter_Latest_Headlines&int_promo=newsletter&et rid=706002377

<https://apnews.com/article/canada-wildfires-air-quality-index-5e7477de001aa30e3d8e34b0083d6f4d>

<https://www.inquirer.com/weather/live/philadelphia-smoke-haze-air-quality-forecast-canada-fire-20230607.html>

<https://www.ahs.dep.pa.gov/AQPartnersWeb/forecast.aspx?vargroup=se>

<https://www3.epa.gov/ttn/ozonehealth/figure14.html>

<https://www.aimow.gov/?city=Philadelphia&state=PA&country=USA>

https://www.inquirer.com/news/air-quality-index-smoke-philadelphia-explained-20230607.html?clickText=news_1&utm_source=newsletter&utm_medium=email&utm_campaign=latest_headlines_6_7_2023&sfmc_id=0031U00002BhWkaQAN&sub_source=newsletter_latest_headlines&list_name=DE44_Newsletter_Latest_Headlines&int_promo=newsletter&et rid=706002377

Water

<https://www.nytimes.com/2023/03/26/us/delaware-river-latex-chemical-spill.html?searchResultPosition=1>

<https://www.theguardian.com/environment/2023/jun/09/high-levels-drugs-water-pollution-study-england-south-coast>

<https://www.youtube.com/watch?v=sqrbrBJ9z3w>

https://www.cnn.com/2023/03/14/health/epa-pfas-standards-wellness/index.html?utm_term=1679430553258e06a50eadb1&utm_source=cnn_03.21.23+Results+are+In&utm_medium=email&bt_ee=jsY1Om1pm9YDg29tTx1Mzq%2FAiJuf7UDut9Z6joAueDRSSYNaMnSkDbcDbNT0z8&bt_ts=167943055328

https://www.cnn.com/2020/03/22/world/world-water-day-03-22-2020-iyw-trnd/index.html?utm_term=1679482345428703247537414&utm_source=cnn_Five+Things+for+Wednesday%2C+March+22%2C+2023&utm_medium=email&bt_ee=WaNiaLHVZnq6tUj4MCf66btF6eN9HtMFLQITHFB4A1q8U1KRnq6RCDcytnaR5t5H&bt_ts=1679482345430

Land

<https://www.youtube.com/watch?v=Jew8ZXBqk0>

https://apnews.com/article/earth-environment-climate-change-nature-sick-2dded06915af4645253f5c29abff4794?user_email=ba85f16818ebb5e2f4b2df23921ff8a3229be00c52d82d80d1a88a793f2fa429&utm_medium=Afternoon_Wire&utm_source=Sailthru&utm_campaign=AfternoonWire_May31_2023&utm_term=Afternoon%20Wire

https://apnews.com/article/chevron-union-oil-kevin-wright-california-santa-barbara-benzene-myeloma-cancer-63-million-57529d07bb50b8882f719d1e8707d951?user_email=ba85f16818ebb5e2f4b2df23921ff8a3229be00c52d82d80d1a88a793f2fa429&utm_medium=Morning_Wire&utm_source=Sailthru&utm_campaign=MorningWire_09June_2023&utm_term=Morning%20Wire%20Subscribers

https://www.inquirer.com/real-estate/housing/urban-institute-land-use-zoning-board-race-gender-20230417.html?utm_source=newsletter&utm_medium=email&utm_campaign=real_estate_4_19_2023&clickText=overrepresented-on-land-use-boards&clickHeader=the-latest-news-to-pay-attention-to&sfmc_id=0031U00002BhWkaQAN&sub_source=real_estate_newsletter&list_name=DE45_New_sletter_Real_Estate&int_promo=newsletter&et rid=706002377

The following links can be used to create a presentation rubric for students based on the teacher's particular student population.

<https://link.springer.com/article/10.1007/s11423-021-10030-7/figures/1>

<https://www.teacherspayteachers.com/Product/Google-Slide-Presentation-Rubric-4914418>

<https://www.teacherspayteachers.com/Product/FREEBIE-Presentation-Rubric-EDITABLE-in-Google-Docs-810784>

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Works cited and an annotated list of materials to be used by teachers and students in the classroom.

References:

Wheeler, S. M. and Rosan. C.D. (2021). *Reimagining Sustainable Cities*. In University of California Press eBooks. <https://doi.org/10.1525/9780520381209>

Ubiñas, H. (2023, June 16). We (literally) can't catch our breath - We have had countless alarming moments that should have served as a reminder of how dependent we are on each other's actions or inactions. *Philadelphia Inquirer, The (PA)*, p. A10. Available from News Bank: Access World News: <https://infoweb-newsbank-com.libproxy.temple.edu/apps/news/document-view?p=AWNB&docref=news/1923151DAEB467D8>.

Appendix

Common Core Standards

RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concepts, resolving conflicting information when possible.

HSN.Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Pennsylvania State Standards

C.3.5.9-10A Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

CC.3.5.11-12.H Evaluate the hypotheses, data analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information

Next Generation Science Standards

HS-PS3-2 Energy: Develop and use models to illustrate the energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects)

HS-PS3-5 Ask questions to determine quantitative and/or qualitative relationships between independent and dependent variables.

HS-PS2-4 Develop and/or use models to illustrate/ generate data/ support explanations/ predict phenomena/ analyze systems/and or solve problems.

Summary

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This unit attempts to engage students into looking at place-based environmental sustainability including multiple perspectives from the original landowners of the Lenni-Lenape towards providing creative solutions. To encourage access to students of different abilities the approach towards entry into the content is intentional. The materials chosen to create solutions are based on website references since the physical space has not been available due to asbestos contamination, and the next school year's space has been secured as yet. Students will learn not only about the values and culture of the Lenape through a western lens, but also use their own current place-based references and experiences in today's times to solve humanities concerns, in a non-box-like fashion! In alignment with Next Generation Science Standards the process invites students to think critically and mindfully about problems, with which they are familiar, related to the quality of the air, water and land. It gives students an opportunity to deeply investigate, and amplify their exploration of the contemporary climate change challenges they face now and into the future.

Using the perspective of the United Kingdom's current Prime Minister, who mentioned his daughters in the context of climate change during a debate, he said he took the advice of his two young daughters. In this unit, we will be facilitating and guiding our students, and taking their advice towards solving our place-based problems.