



Global Civil War: A Refugee's Story

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This curriculum unit is recommended for:
High School Students in Grades 10-12 All Subject Areas

Keywords: Climate change, refugee, global civil war, resource, Greta Thunberg, call for action, activist, advocate, migration, coyote, resource, hunger, desperation, pollution, atmosphere, lab

Teaching Standards: See [Appendix 1](#) for teaching standards addressed in this unit.

Synopsis: The topic of my curriculum unit is Climate Refugees, a term which describes people whose way of life has been devastated by the effects of climate change. Students will study current events in real time as it relates to climate change and refugee status. Students will create a profile of a historically accurate but fictitious refugee and bring that refugee's experience to life through journal entries. Pertinent information in the profile includes their refugee's name, age, gender, home country, way of life before the climate crisis, and how the climate crisis caused them to become a refugee. Their journals will document the struggles of a climate refugee to adapt to a new way of life with meaning. Furthermore, students will study the effects of climate change through scientific experimentation. Planned experiments include the effects of climate change on the respiratory and integumentary systems, and the effects on the geosphere, hydrosphere, and atmosphere.

I plan to teach this unit during the coming year to 60 students in Anatomy and Physiology in spring of 2022.

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Introduction

The effects of climate change are not just a national emergency; it is a worldwide pandemic. The difference between climate change and the diseases that kill millions every year is that climate change is almost entirely caused by the actions of humans. It also affects all living organisms, not just humans.

Unit Goals

It is my goal with this Curriculum Unit that students come to understand the devastating effects of climate change and develop empathy for climate refugees. Their empathy can spur them into action, leading the cause for change as they mature and assume power from the previous generations. Students will create a profile of a climate refugee and describe their experiences through journaling. They will further explore the effects of climate change through scientific experimentation, and spotlight world climate activists such as Greta Thunberg. I hope that through spotlighting Thunberg's story, students will realize that they really can change the world at any age.

Demographics

The school at which I teach, Phillip O. Berry Academy of Technology is located on West Charlotte. POB is a magnet school, which means we draw from a student pool all over Mecklenburg County. Out of a total of 1710 students, approximately 65% are Black or African American, 22% are Hispanic or Latino, 6% are Asian, 4% are White, and 3% are multiracial or of other ethnicities. Our school is totally immersed into STEM (Science Technology Engineering Mathematics). In addition to the core classes (social studies, English, science, PE, and math), we have two 'academies' where students focus their studies: Health Science, and IT. I teach core science classes, although I have taught in the Health Science Academy as well. We also have a small arts department that offers band, orchestra, and visual art. I think the best characteristic of our school is the open mindedness of our students. I love seeing the blue hair, graphic novels, and the other ways in which our students express themselves. This unit will fit in perfectly with their willingness to learn new topics.

Rationale

Since over 90% of students in my school are students of color; and many are immigrants or children of immigrants, I feel that there is a definite connection to the theme of my seminar. The students are "woke" and are not oblivious and unconcerned about world issues including politics and climate change. Though they may not all agree on a solution, most students agree that *something* must be done, and that the status quo is unacceptable. This may resonate with students if faced with the reality that other citizens from their homeland may be suffering due to climate change, even if they are not there. This topic is relevant to all students because they will realize that climate change affects all of us, not just people in "third world" countries or Flint, MI (water crisis) or the California Wildfires. The goal is to get students to care enough about climate

change and refugees to do something about it. As an educator of high school students. I can personally attest that they are anything other than apathetic. Young people are passionate about issues and not afraid to take a stand, even if that means going up against adults that they respect, such as their parents or teachers. I truly believe that this generation, GenZ, will change the world. I am currently teaching Anatomy and Physiology, and I have the flexibility to modify the course curriculum as I need to. I plan to introduce the concept at the beginning of the course. Students will create a profile of a fictitious refugee. They will have to include the name, country of birth, current location, age, gender, parents (if known), siblings, children (if known/or any) and other relevant information such as education and occupation. One of the most important pieces of their profile will be their origin story or answering the question of how they became a refugee. They will keep a double journal, one part will be their personal narrative of their story as they migrate, endure refugee camps and other hardships of a refugee, and the other part will be scientific journal to document experiments or reflect on articles and research that we do that is relevant to the topic. As we explore each body system, we will connect what we learned about the body to our continuing narrative. I will embed this CU into the entire curriculum, instead of teaching it all at once. At or near the end of each unit, students will have a designated amount of time to update their narrative. We will conduct experiments, read articles, study data and use that to build our narrative. Instead of a final exam in the class, their completed narrative along with a presentation will count for 20% of their final grade. Also, along the way, journal entries and experiment documentation will be graded. Frequent “checkpoints” will be built in to ensure that students are not waiting until the end of the semester to try to complete the whole project at once and become overwhelmed.

Content Research

There is a lot going on in terms of climate change policy right now. After four years with an Presidential administration who though climate change was a “hoax”, mocked wind energy, and referred to the dirtiest fossil fuel as “beautiful clean coal” (On Demand News 2020). The previous president mocked climate advocates such as Greta Thunberg, a child at the time, and withdrew the United States from the Paris Climate Accord. Corporations were free to pollute the air, water, and land as they pleased, with no consequences. Legislation that been in effect for decades to protect the US citizens from corporate irresponsibility were not enforced or cancelled (Gross 2020). The state of our environment grew worse as the world looked on. The United States now has a president who will take climate change seriously. On his first day in office, President Joe Biden released a statement that he resolved to rejoin the Paris Climate Accord (Biden Jr. 2021). Climate activists everywhere were hopeful that this would signal an era of change for the world’s largest consumer of resources.

Fast forward eight months later and little progress has been made. Some areas are out of the government’s control, such as the massive drought in the Western United States, and the record breaking heat wave this summer in the Pacific Northwest (Vigdor 2021). The extreme drought conditions in California threatens to make climate refugees out of US citizens. California is a major producer of crops such as almonds, oranges, grapes, melons, and even marijuana, which is now legal for adults 21 and older and can be grown for private

use by citizens (State of California Senate and Assembly 2016). All this adds up to an enormous amount of water needed, and this is only for agriculture, we haven't even considered public and private use in the US's most populous state. The amount of water used by California and other states in the West is not sustainable and most states are in active violation of the Colorado River Compact of 1922 (States of Arizona, California, Colorado, Nevada, Utah, New Mexico, and Wyoming 1921). As of September 2021, Flint water is still testing positive for lead and now Benton harbor, an under resourced city 200 miles west of Flint, is having the same water crisis that Flint is still recovering from (Granda 2021). Puerto Rico, a territory of the United States, still struggles to recover from Hurricane Maria, which hit the island four years ago (Acevedo 2021). If the "richest country in the world" (as the US is frequently called), cannot protect its own vulnerable populations against the devastations of climate change and other crises of our own making, what hope is there for the rest of the world?

I began amassing resources for my CU even before I knew what my CU would be. Climate refugees is a topic that crosses the science barrier into the humanities. Some of the first resources I found was a three article series from *The New York Times* on climate migration. In the first article, "The Great Climate Migration Has Begun", the article opens with a startling statistic: "Today, 1% of the world is a barely livable hot zone. By 2070, that portion could go up to 19%," (Lustgarten 2020b). I cannot even fathom such a large area of Earth being virtually unlivable. With the world populations showing no signs of decline, what will become of its people? With so much pressure to transition to a plant based diet, how will the agricultural community feed people if arable land turns to desert? The first family featured was a Guatemalan family who grew corn to eat and sell to earn a living. After years of drought, the family pinned its last hopes and seeds on a somewhat promising growing season. Healthy corn stalks sprouted ears and the family remained optimistic, but then the river flooded and drowned their crop. The family then mortgaged their small hut with a tin roof for a \$1500 advance, which they used to buy okra seed. No rain came. Facing starvation, the family finally decided they had to leave. Thus began their migration north (Lustgarten 2020).

The article paints a bleak future for not only Guatemala, but the entire region. Researchers estimate that by 2070 rainfall will decrease by 60% and staple crops yields could decrease by at least a third (Lustgarten 2020). Modest estimates put the number of migrants from Central America and Mexico to the United States at 680,000 with moderate climate mitigation, and over a million persons if no efforts are made to reduce emissions of greenhouse gases. These figures are only for documented immigrants, if undocumented immigrants are included that number can easily double (Lustgarten, 2020). Most of the migration follows the same pattern: hungry and desperate migrants leave the rural countryside when their farms fail due to lack of rain or sudden flooding for season after season. They first travel to the big cities of their regions looking for work and opportunities to feed their families, and often there is little to no relief in the cities due to the massive amounts of immigrants and the countries' lack of resources and job opportunities. After finding no relief in the cities migrants move north to Mexico, and eventually to the United States, the supposed "promise land."

The second article of the series, entitled “Where will everyone go?”, describes the perilous journey desperate families must make to avoid starvation. Coyotes, violence, disease, hunger, and exhaustion are only a few of the obstacles that must be faced to reach their ultimate destination. The setting for these articles is 2019, when then President Donald Trump was putting increasing pressure on Mexico to stop ‘caravans’ of migrants headed towards the United States. The Mexican authorities began detaining and deporting thousands of migrants. The ones that did manage to make it to the United States border to seek asylum were cruelly handled, detained in camps, and treated inhumanely. We all will not soon forget the images of students in cages with mylar blankets. The Trump administration insisted that the children were fed and being cared for better than they had ever received with their parents in their home countries, but at the same time making examples of the migrants and hopefully deterring future refugees seeking asylum and protection (Lustgarten 2020).

The third and final article of the series focuses on Russia. The title, “How Russia wins the climate crisis” is thought provoking. It reminds us that even the most catastrophic events have parties who benefit from other’s misery. As the world warms up, extremely cold countries like Russia and Canada began to thaw out and become more farm friendly. Russia is rich in natural resources, but much of it is trapped beneath permafrost. If the permafrost continues to melt and its current rate up to six feet of frozen soil will be available by 2080 (Lustgarten 2020a). More arable soil will put Russia as a potential front runner for exports of food and other natural resources previously unavailable. Russia and the former Soviet Union has always rivaled the United States primarily and Western Europe to a lesser extent for a seat at the table of Global Superpowers. Will this current climate crisis finally push Russia to the head of the table?

A devastating side effect of permafrost melt is the fact that nearly half of the Earth’s organic carbon is stored in the soil. With 24% of this soil being permanently frozen, the problem wasn’t an immediate concern (Bykova 2020). However, as permafrost melts, microbes will begin to eat the once frozen material, and as the material decays large amounts of carbon will be released into the atmosphere. Permafrost temperatures are rising at a much faster rate than the temperature of the air in the Arctic and have risen between 1.5 to 2.5 degrees Celsius in the last 30 years. As a result, permafrost layers are melting. A 3 degree Celsius increase in global temperatures could melt 30 to 85 percent of the top permafrost layers that exist across the Arctic region, destroying infrastructure and irreversibly changing the unique terrain and ecosystems at the top of the world (Bykova 2020).

As I am writing this on a weekend in late September there are climate protests going on worldwide. In New York City, both Indigenous and non-Indigenous young activists are protesting the Land 3 pipeline, and demanding that Indigenous lands be returned to the Native Nations. In Turkey, climate protesters staged a “Die in” outside of a Museum in Istanbul. Turkey is one of a handful of nations that has yet to ratify the Paris Climate Agreement along with Eritrea, Iraq, Iran, Libya and Yemen. President Tayyip Erdogan has

promised to bring the Climate Agreement to parliament for approval. Although on the other side of the world, Turkey has been ravaged by the same climate devastations as the United States: wildfires, floods, and droughts (Dewan et al. 2021). This (September 20-24, 2021) world leaders amassed in New York for the United Nations General Assembly. As leading countries discussed their plans to address and combat climate change, the Climate Action Network (CAN) are arguing that world leaders are not doing enough, calling the plan of actions of many countries “fake climate action” and “empty rhetoric.” President Biden has pledged \$100 billion towards climate funding, but Climate Activists still insist that it is not enough, arguing that trillions of dollars are needed (Dewan et al. 2021).

In Germany, there are over 400 different climate protests schedule for this weekend. Greta Thunberg, a Swedish teen who has gained worldwide fame for her activism, spoke to several thousand supporters in Berlin on the steps of Bundestag, the seat of the German government. There is a key election coming up next week, and all political parties have put forth proposals to combat climate change. However, according to Thunberg, "It is clearer than ever that no political party is doing close to enough ... but it's even worse than that — not even their proposed commitments are close to being aligned with what would be needed to fulfill the Paris Agreement," (Benecke 2021). Thunberg went on to chastise every major government for their lackluster policies on climate change in the same speech. The only party that even comes close to an acceptable plan is the Green Party. Their candidate for chancellor Annalena Baerbock tweeted on Friday: "The election on Sunday is a climate election. Just like in Cologne, tens of thousands of children, adolescents and people of all ages across Germany attend [climate strikes], take to the streets and make it clear: They want a new departure because they know that our future is at stake," (Gehrke 2021).

Instructional Implementation

General Teaching Strategies

As stated earlier, I plan to have students study the climate crisis on two fronts, scientifically and socially. As a science educator, I will always seek to incorporate science inquiry into anything I teach. Science inquiry involving climate change are not hard to do but have a powerful impact on students' understanding of climate change and its effects on the human body and global ecosystem. Experiments on how climate change affects the respiratory, cardiovascular, and integumentary systems will really help students to realize that climate change is not just a topic for politicians to debate the validity, but in fact is a life and death situation. Students will get to see the effects of climate change with their own eyes, and it will become more than just a talking point.

The overall approach for this unit will be discussion and inquiry. I don't want this to feel like a traditional unit in class, with long slideshow lectures, notes, quizzes, and tests. Therefore, there will be no tests or quizzes in this unit. The final product will serve as artifacts that prove a successful unit was implemented. Instead of having everything due at the end, students will receive grades for their journal prompts and labs as we investigate climate change and how this phenomenon creates refugees and mass migration. I feel that students learn more from classroom

conversation than they do from lecture and notes. Sometime classes get into passionate discussions about a topic and the engagement level (which teachers are judged on) is extremely high, even for those students who choose not to speak.

The profile and journal of a refugee is to me even more important than the scientific experimentation. By profiling a climate refugee and viewing the world to their refugee's eyes, students will begin to develop empathy for climate refugees. I want the experience to be personal for the students, which will in turn spur them into action. The person may be made up, but the experiences will be very real. Writing is a way for students to gain new experience and sharpen their academic skills at the same time. Students have many ideas and thoughts that just need a sounding board, and these journals of a refugee can give them an opportunity to express themselves. Journals will be open ended, with only a few parameters for students to follow. The profile will be written and not typed, which I feel will help the student personalize it even more.

The inclusion of Greta Thunberg in this project is crucial. Thunberg is a young activist, still in her teens, who managed to grab the world's attention. I think it is very important that students see that young adult just like them can make a difference. Greta also has Asperger's syndrome, placing her on the autism spectrum. The fact that she is able overcome perceived limitations of her neuro atypical conditions can be a source of inspiration to students. I am considering requiring the students to incorporate at least one journal entry that features Thunberg, either by their character meeting her directly or seeing/hearing her speak. Their refugee's reaction could clue me in to how they feel about Thunberg.

The First Days

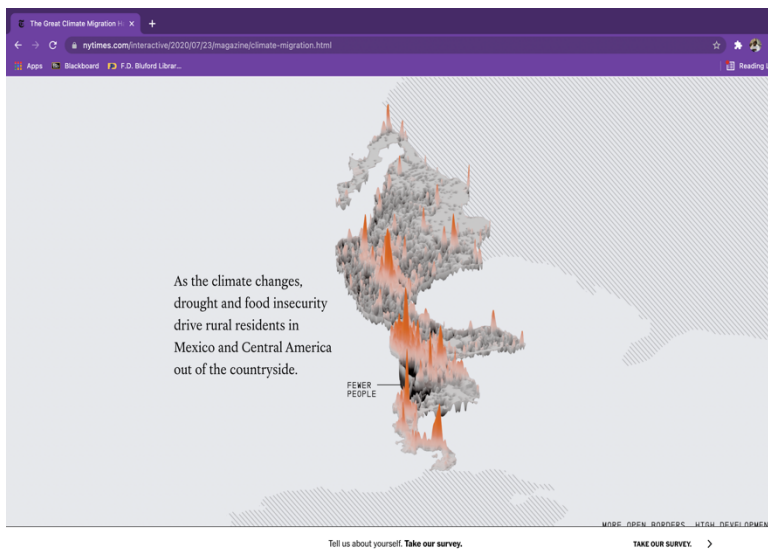
The first day to any major project is crucial to the project's success. The unit will begin with a discussion of reasons why people choose to leave their homeland for another place. I will bring up the term "refugee" and ask them to define it. Students will then be given a sheet with a list of words that may or may not be affiliated with the term "refugee" and asked to circle the words they associate with the word refugee and add any terms that they felt were missing. Then, students will pick their top three terms and submit them to an electronic list. A word TM or word cloud will be created that shows how many times a word was mentioned. See [Appendix 2](#) for a sample word cloud. After the discussion, students will view a short documentary/introduction video to climate refugees titled "Climate Refugees: Nations Under Threat" to facilitate a discussion. Students will respond to a brief journal prompt: "How does Climate Change play a role in mass migration?" Students will then receive a project description and [rubric](#), which will be discussed in a slideshow format and begin to work on their climate refugee profile. The profile sheet that they must fill out is thorough and I expect that it will take several days to complete since some students will need time to think about the key components of the project, such as their refugee's country of origin, and they may need to research.

Day three will be our first lab. It will be a simple lab from Science Take-Out TM, a company that specializes in portable labs with maximum impact. We will be doing the lab [Is Climate Change Making Us Sick?](#) The teacher guide to this lab can be found in [Appendix 2](#).

This lab tracks a patient who has been suffering from allergy induced asthma and wonders if climate change could be the blame. The scope of health problems from climate change goes far beyond allergies, but allergies is a good place to start. This lab has both simple experiments to test for allergens and uses the skill of graphing and interpreting data. This lab is simple and will get them used to more advanced labs.

Continuing the Unit

One journal that the students will do that will be about their personal experience with hunger. The prompt will be to describe the hungriest that they have ever been. They will describe the situation that led to them going without food, how long they went without food, and how they felt. They will discuss what happened to them (faint, dizziness, illness, other effects) and how they felt when they were finally able to eat. The point of this will be for them to realize that no one likes to be hungry or thirsty. They will read an article on the effects of starvation on the body and mind. I plan to use this article and journal entry to start a conversation on how climate change is leading to food insecurity. With the big push to eat a plant based diet, what happens if we have limited or no suitable land for farming, what happens when once fertile regions turn into deserts, or drown from flooding and the soils are washed away? These are questions that students will ponder as they read their first interactive journal article from *The New York Times* series of climate migration “The Great Climate Migration Has Begun.” The vivid images and interactive map (see figures 1-2 below) provide a snapshot of the current migration situation.



Figures 1-2: Images of a failed corn crop and the interactive image from the *New York Times* article (Lustgarten 2020a).



Figure 3: A corn harvester in Russia, once previously considered too cold to farm corn on a commercial scale. From the article “How Russia Wins the Climate Crisis” from *The New York Times* (Lustgarten, 2020c).

The students will be in cooperative groups of 2-3 and will have one of 3 possible assignments:

1. Create a timeline of the crop failures that Jorge A’s family farm has experienced since 2013. Include years and events that happened. End your timeline with their decision to leave (March 2020) and the actions they had to take to prepare for their journey.
2. Create a map of the journey that Jorge family has taken to find food and work. Include all stops and methods of transport. What is their ultimate destination?
3. Create a world map of how climate has affected food security and way of life. Include all countries mentioned in the article.

By having the students only focus on one part of the long article, the students will become “experts” at their particular part of the article. They will then have the opportunity to “teach” students about their part of the article and learn from other students about the other parts of the article. This reduces the workload and stress behind having to read and analyze one long article.

Overall, I plan for this project to have eight journal entries, including the one about the students’ personal experience with being hungry. The other journal prompts will be “Home No More”, “On the Road”, “The Camp”, “I can’t Breathe”, “The Never-ending Journey”, and “A new life”. For the final journal prompt, students will have to reflect on what they learned by doing this project, and why fighting climate change is important. See [Appendix 3](#) for a description of each journal entry. A few are described below.

The journal entry “Home No More” will describe the situation that led to the refugee’s family having to leave their home. The students will read or learn about Jorge A’s family in the article “The Great Climate Migration Has Begun” from the *New York Times*. The article describes several years of failed crops and other hardships, which eventually led to the family selling everything that they had to pay coyotes to get them out of the country. The journal entry “I can’t breathe” will focus on air pollution, climate change, and decreased air quality due to ground level ozone. Ozone destroys lung tissue and students will write of an experience when they had difficulty breathing. The difficulty could be because of the weather, their location (near a mine or factory), or even a natural phenomenon such as a sandstorm. This is another way the students can personalize their character. “The Never-ending Journey” will describe the perils of travel to their destination. Students will describe how they travelled and the difficulties they faced along the way. They will also describe people they met along the way, whether they be fellow refugees, border agents, coyotes, or any other significant interactions they (character) had along the journey.

There are four planned labs, including the first lab on climate change. The other labs are from the *Inquiries in Science* series from Carolina Biological Supply. There are three labs in the Environmental Science series that would complement the project; they are *Understanding Climate Change*, *Investigating Legislation*, and *Experiencing Air Pollution*. These labs allow for scientific experimentation to provide further evidence of climate change and its effects on humans from a physiological standpoint. The lab *Investigating Legislation* also explores legislation in the United States pertaining to protecting the Environment and natural resources. The Clean Air Act, Clean Water Act, Safe Drinking Water Act, and the Endangered Species Act, along with the establishment of the EPA, all took place during the early 70s in the Nixon Administration. Students will investigate how these laws have changed (or not) over the years and how relevant they are now. The lab *Experiencing Air Pollution* will be conducted before writing the journal entry “I Can’t Breathe”. All labs have been carefully reviewed and selected to deliver maximum impact and truly enhance the experience of the unit.

The Final Presentation

The final project will be a culmination of all the journal experiences and labs in the class. The students will introduce the class to their refugee with a presentation. The project description can be found at this [link](#). The final project will consist of three parts: the eight journal entries, the data and writeups from the labs, and the final presentation. The presentation is worth 15% of the total grade on the project. Students will create a 5-8 minute presentation on their refugee using a slideshow, Prezi, Canva, or video. If a student wishes to use another platform, they can get permission from the teacher. Students will turn in their journals and labs at the same time as they submit their project.

Appendix 1

Teaching Standards

Anatomy and Physiology

Anatomy and Physiology does not have state content standards, rather it uses the National Health Science Standards adopted May 2015. Standard 6.2 focuses on **Cultural, Social, and Ethnic Diversity**

***6.21** Discuss religious and cultural values as they impact healthcare (such as: ethnicity, race, religion, gender).*

***6.22** Demonstrate respectful and empathetic treatment of ALL patients/clients (such as: customer service, patient satisfaction, civility).*

ELA (Grades 9-10 NC Essential Standards)

W.9-10.3 *Narratives share an experience, either real or imagined, and use time as their core structures. Narratives can be stories, novels, and plays, or they can be personal accounts like memoirs, anecdotes, and autobiographies. Narrative writing has many purposes—to inform, teach, persuade, or entertain readers. Writers utilize event sequencing and pacing, create characters, use vivid sensory details and other literary elements to evoke reactions from and create effects on the reader. By the end of tenth grade, students understand how to write narratives to unfold and share real or imagined experiences or events by using effective narrative techniques, carefully chosen details, and purposefully structured sequences of events.*

Biology

Bio.2.2 *Understand the impact of human activities on the environment (one generation affects the next). **Bio.2.2.1** Infer how human activities (including population growth, pollution, global warming, burning of fossil fuels, habitat destruction and introduction of nonnative species) may impact the environment. **Bio.2.2.2** Explain how the use, protection and conservation of natural resources by humans impact the environment from one generation to the next.*

Appendix 2: Sample Lessons

Sample word cloud. Bigger words are used more. Goes with the first lesson of word association for “refugee.”

Prompt: What three words do most associate with the word “refugee”?



Link to Project Description and Rubric
[Project description and rubric](#)

Link to Climate Refugee Profile Sheet
[Refugee Profile Sheet](#)

Teacher Guide to Climate Change Lab
Lab: *Is Climate Change Making Us Sick?*

Appendix 3: Journal Entries

Journal 1: What's the hungriest you have ever been?

What is the hungriest you have ever been? How long did you go without food? What circumstances led to you going without food for so long. How did you feel physically, mentally, and emotionally?

Journal 2: "Home No More"

Your refugee has just left home or is preparing to leave. Describe the circumstances that led to you making this drastic decision. Where will you go? What do you hope to find?
POV: Refugee

Journal 3: "On the Road"

You (refugee) have been travelling for a few days (no longer than a week). Describe your feelings and experiences so far. Are you homesick? Hopeful?
POV: Refugee

Journal 4: The Camp

You are at a refugee camp or a large encampment area. What types of experiences are you having while being with such a large group of people all looking for the same or similar goals? Is there a sense of unity or desperation that leads to competition and violence, or is there a combination?
POV: Refugee

Journal 5: "I Can't Breathe"

Today, you are feeling sick. You are having trouble because of some event. Is it pollution, a storm, have you ventured too close to a dumping site? Describe what happened and how struggling for breath is making you feel.
POV: Refugee

Journal 6: The Never-ending Journey

You are in the most difficult part of the journey. Where are you? Are you on a boat, train, or traveling by foot? How long have you been travelling? What obstacles have you encountered along the way? What interactions have you had with other travelers, border agents, or coyotes? (Human traffickers, not the animal) How have you maintained your optimism during the trip, or have you given up your positive outlook?
POV: Refugee

Journal 7: A New Life

You are starting your new life. You are at the border, awaiting entry, or you have been granted asylum and are trying to start over. What is your outlook? How are you feeling about your future?

POV: Refugee

Journal 8: Final Reflection

You will write this entry as yourself, not your refugee. What have you learned over this project? Has this project changes your outlook about climate change and refugees? Why or why not?

POV: Yourself

Appendix 4: Teacher and Student Resources

Labs

Science Take-Out- Is Climate Change Making Us Sick?

Link:

<https://www.sciencetakeout.com/product/is-climate-change-making-us-sick-group/>

This lab seeks to find a correlation between temperature, pollen counts, and an increase in allergy symptoms. Students track and graph changes over time to tree pollen and track a patient's symptoms. They also perform allergen tests to determine cause of symptoms.

Carolina Biological Inquiries in Science: Investigating Legislation

Link:

https://www.carolina.com/inquiries-in-science-environmental-science/inquiries-in-science-investigating-legislation-kit/FAM_251418.pr;jsessionid=IUoGzK4e-Soup8Uv4EmQ2_cDdmKCiurv_sYDUbOOHQFL-3E3nEvE!1972194465

Students explore the need for laws to protect our environment and standard of living. The importance of the Clean Air and Clean Water Acts are emphasized, along with the concept of the Tragedy of the Commons. They perform an LD50 (lethal dose, 50%) experiment of a water pollutant on a population of brine shrimp and study the effects of nitrogen dioxide on plants. Part of the Inquiries in Science® series.

Carolina Biological Inquiries in Science: Understanding Climate Change

Link:

https://www.carolina.com/inquiries-in-science-environmental-science/inquiries-in-science-understanding-climate-change/FAM_251417.pr

Students explore how all greenhouse gas sources contribute to global climate change. They discover how carbon dioxide interacts with the atmosphere to contribute to rising global temperatures. They also investigate the role of the ocean as a carbon sink and how climate change can affect the uptake and sequestration of carbon dioxide. In the final activity, students alter their simulated environments to determine how different environmental conditions influence the greenhouse effect.

Carolina Biological Inquiries in Science: Experiencing air Pollution

Link:

https://www.carolina.com/inquiries-in-science-environmental-science/inquiries-in-science-experiencing-air-pollution-kit/FAM_251414.pr

Explore different types of chemical and physical air pollutants and research the sources of these pollutants, as well as the health hazards associated with them. Students test for ozone and particulate matter in their area and observe the effects of gases on the pH of water. To extend their learning, students design and conduct experiments to test the effects of air pollution on living organisms.

Video: Climate Refugees: Nations Under Threat

<https://youtu.be/4MXoUbsswHY>

A video introducing the terms “Climate Refugees” and the cause of Climate Migration. This is a great introductory video for students to the unit.

Newspaper Articles: New York Times Series

Part 1: “The Great Climate Migration Has Begun”

<https://www.nytimes.com/interactive/2020/07/23/magazine/climate-migration.html>

An article that introduces the climate migration series, focusing on a family that was forced to sell everything they had and leave Guatemala after years of failed corn, okra, and other crops. Also gives vital statistics on climate change and migration. Interactive article.

Part 2: Where will Everyone Go? -Pro Publica

<https://features.propublica.org/climate-migration/model-how-climate-refugees-move-a-cross-continents/>

Continues the story of the family from part 1 and discusses the hardships and challenges of migration. Interactive article.

Part 3: How Russia Wins the Climate Crisis

<https://www.nytimes.com/interactive/2020/12/16/magazine/russia-climate-migration-crisis.html>

Discuss the melting of permafrost due to climate change. Interactive article.

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