

Teacher's Guide: Introduction to Climate Change

LOCAL LESSONS FOR A COOL CLIMATE

Introduction to Climate Change

Let's Think Local!

Understanding the big picture and our place within it.

Why teach this module?

Approaching climate change in the classroom can be overwhelming. How can we introduce students to not only the serious challenges and far-reaching implications of climate change, but also the social, cultural, political, and economic complexities involved in working toward viable solutions? The local level is a good place to start! Understanding local challenges and focusing on positive solutions can offer an entry point to deeper learning on climate change, while also encouraging critical and creative thinking on issues that are directly relevant to students' lives.

This module includes two introductory lesson plans on climate change. While they may be adapted to suit many subject areas, the lessons are geared towards social studies classrooms. The lessons pull together the information students have learned in other classes or experiences outside of the classroom, and then leverage these ideas to promote deeper learning. The module is divided into two parts, the first lesson explores the causes and impacts of climate change, while the second is more specifically focused on solutions that involve both mitigating global warming and adapting to the impacts of climate change.

Lesson 1: Climate Change – The Big Picture

The first lesson acts as an entry point for discussion and challenges students to examine the basic causes and impacts of climate change. Students then explore these ideas in more depth through a climate change “Meet and Greet” activity, where students role-play various individuals and explore how they are impacted by climate change differently according to things like race, class, nationality, location, culture, etc. By focusing on current impacts of climate change, the lesson is about the here and now rather than treating climate change as future and far off problem, and simultaneously provides a local and global perspective. The lesson culminates with students examining how climate change impacts their own lives and their communities.

Lesson 2: Climate Change Solutions

After having the opportunity to explore the complex causes and impacts of climate change in the first lesson, lesson 2 allows students to explore solutions. Students learn about options for both mitigating and adapting to climate change and explore the scale of solutions from the neighborhood or local level to the global. While exploring these solutions, the activities challenge students to identify both individual and collective action that will help achieve them. Further, students are encouraged to consider their own role in helping mitigate climate change, as well as ways that they may help their communities adapt.



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Lesson 1: Climate Change –The Big Picture

Introduction

In this lesson, students are introduced to the causes and impacts of climate change. Students then explore these ideas in more depth through a climate change “Meet and Greet” activity, where students role-play various individuals and explore how they are impacted by climate change differently according to things like race, class, nationality, location, culture, etc. The lesson culminates with students examining how climate change impacts their own lives and their communities.



Lesson Objectives

By the end of this lesson, students will be able to:

- Explain various causes of climate change.
- Identify local and global impacts of climate change
- Identify ways that climate change impacts people differently according to race, class, nationality, culture, etc.
- Describe ways that climate change impacts them and their families personally.



Time Requirements

2 x 1 hour class periods



Materials Needed

- Paper and markers
- CIMA Handout and Answer Sheet
- Climate Questions Handout
- Climate Profiles Cards
- Nametags (optional)
- Create Your Own Climate Profile Handout

Activities

Warm-up: CIMA (Causes, Impacts, Mitigation, Adaptation)

Start by seeing what students know about climate change. Present the CIMA (Causes, Impacts, Mitigation, and Adaptation) framework available on the [CIMA handout](#). Have students define the major concepts and then identify examples of each. Some students may be able to do this easily, others may know very little. This is a simple activity to explore what students know before moving on to the next activities. An example of student answers has been included for your reference.

Four Corners: Climate Change

Start getting students thinking more in depth about these basic concepts by doing a Four Corners activity. In each corner of the classroom, post an opinion or response (Strongly Agree, Agree, Disagree, Strongly Disagree) on a sheet of paper.

Then, read a statement from the list below. Have students take time to think about their answer and write it down. Then ask the students to congregate in the corner in front of the response they agree with. Have students talk to others standing in the same corner (in groups of 2 or 3) about why they have chosen that response. After the students have had an opportunity to talk to each other, ask for volunteers to share with the class. Then move on to the next statement. More information on setting up a Four Corners Activity and its usefulness as a teaching tool is available [here](#).

Example opinion statements:

1. British Columbia is currently experiencing the effects of climate change.
2. I am affected by climate change.
3. Some people are affected by climate change more than others.
4. Solutions to climate change are the responsibility of individuals.

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5. Solutions to climate change are the responsibility of the government.
6. Solutions to climate change are the responsibility of businesses and corporations.
7. New technology is enough to fix climate change.

You might also invite students to come up with a statement they want to gauge the class's opinion on. This activity is a good way to get students thinking about the topics that will come up in the next activity.

Climate Change "Meet and Greet"

Explain to students that they will undertake a role-play activity where they will explore the impact of climate change both locally and globally. This activity is adapted from the climate change mixer developed by Bill Bigelow in *A people's curriculum for the earth: Teaching climate change and the environmental crisis*.¹

1. Provide each student one of the **Climate Profile Cards** (included on the attached handout). Depending on the class size, more than one student may be assigned to a single role. Have the students spend time studying their identity so that they know it well. Ideally when they participate in the activity, they will be able to speak about their identity without referencing or reading their profile card. If possible, you may even want to provide the students the cards the day before you plan to do the activity so that they have plenty of time to familiarize themselves with their character. Remind students that in most cases these are real people, and in many cases, the quotes on the cards are their own words. (In any role play activity, there is a risk of stereotyping. Encourage students to speak in the first person as their character, but remind students to avoid accents or other behaviors that contribute to stereotyping.)
2. Provide students a blank nametag before the activity begins and have them fill it out with their character's name. They may also create a title or key words they would like to include on their name tag.
3. Provide students the **Climate Questions Handout**. Instruct the students to first take a few minutes to read through the questions. These questions will be used to help guide the students' conversations with other people throughout the activity. Instruct students to speak to 10 different people and answer each of the 10 questions based on a different person. Encourage them to take their time and answer each question completely. They may also add extra details and comments that come up in their conversations. When answering questions, encourage students to use "I" and get into their roles. Rather than reading from their cards or asking the questions directly, students should try to talk about their identity as if it were their own in conversation. Some of the questions will require the students to think creatively beyond the information available on their profile cards. They should try to answer the questions as they think their character would.
4. Ask students to walk around the classroom and meet other students. Students should be given about 30 minutes or more. It's important to let students know that they have plenty of time. This will allow for full conversations and more thorough answers to questions. The teacher is encouraged to join the activity as a character themselves in order to get a sense of how long the students need to complete their questions and how the conversations are going.
5. After you have given the students time to circulate around the room and answer all of their questions, provide the students 5 or 10 minutes to turn their notes into answers for each question. You may want to have students turn in their **Climate Questions Handout** at the end of the class to assess their participation in the activity.



¹ Bigelow, B., & Swinehart, T. (2014). *A People's Curriculum for the Earth: Teaching Climate Change and the Environmental Crisis* (Vol. First edition). Milwaukee, Wisconsin: Rethinking Schools.

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Activity Debrief

Instruct students to spend 5 or 10 minutes debriefing from the activity using the S-I-T strategy. Have students identify what they found **surprising, interesting, and troubling** in their conversations throughout the mixer. This will help them process the information they learned during the activity and is a particularly useful way to help them articulate their feelings and thoughts about anything they found unsettling during the activity. The exercise will also help prepare students for a larger group discussion.

Ask each student to identify the following:

- One **S**urprising fact or idea
- One **I**nteresting fact or idea
- One **T**roubling fact or idea

Allow students to share their responses in pairs. You may also want to collect these written responses to gauge how the class understood the activity.

Discussion

As a class, discuss the following questions:

1. How did you feel about “playing” your character? Were you able to understand or relate to the character? Was it difficult to speak as this person? Why or why not?
2. Who did you meet? In your conversations, what did you hear about that surprised you? Was there anything you’d never heard about before? What did you learn?
3. Did anyone make you sad? Angry? Who was it and why?
4. Which conversation was most impactful on you? Why?
5. Who did you enjoy speaking to the most? Why?
6. What themes came up in your conversations? What did you talk about most? Why?
7. Did you meet anyone who made you hopeful? Who was it and why?

Follow-up Writing Activity (may be assigned as homework)

After the discussion, assign students a follow up writing assignment using the [Create Your Own Climate Profile Handout](#). This assignment challenges students to take what they’ve learned in the Climate Meet and Greet activity as well as the follow up discussion, and then use it to think about their own lives. Students write their profile including how they are affected by climate change or how they might be in the future. The students will be asked to continue this assignment in the second lesson, adding more information about the role they can play in working toward solutions. A [Grading Rubric](#) for this activity is attached to the end of Lesson 2 to help evaluate student learning.

Follow-up Discussion

If time allows, have the students share their personal Climate Profiles in small groups or with the rest of the class. Is everyone in the class impacted by climate change similarly or are there differences? Do students understand or relate to climate change in the same way? If not, why?

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What's Next?

In the next lessons students will explore solutions to some of the causes and impacts learned about in this lesson. They will be encouraged to think about efforts towards mitigation and adaptation on the local, national, and global scale. The lesson will also explore the types of action necessary to work towards identified solutions.



Resources

Websites

PICS [Climate Insights 101](#) provides introductory materials to both the causes and impacts of climate change.

The IPCC (Intergovernmental Panel on Climate Change) is the U.N. body that focuses on the science related to climate change and release reports detailing climate science. A 2014 report included a [detailed climate impact map](#) that is helpful to provide an overview of climate impacts globally.

Books

Bigelow, B., & Swinehart, T. (2014). *A People's Curriculum for the Earth: Teaching Climate Change and the Environmental Crisis* (Vol. First edition). Milwaukee, Wisconsin: Rethinking Schools.

Meadows, D., Sweeney, L. B., & Mehers, G. M. (2016). *The Climate Change Playbook: 22 Systems thinking games for more effective communication about climate change*. Chelsea Green Publishing.

Sheppard, S. R. (2012). *Visualizing climate change: a guide to visual communication of climate change and developing local solutions*. Routledge.

Videos

[National Geographic Climate 101: Causes and Effects](#)

[AJ+ Effects of Climate Change](#)

[Climate 101](#)

[Years of Living Dangerously](#): A documentary TV series on the impacts of climate change.



Lesson Extensions

Extend this lesson by creating a climate map. You could print or have the students create a world map and display it in the classroom. Post excerpts from the profiles of individuals in the Meet and Greet activity to help students visualize climate change geographically. You can also add the students' own profiles, as well as additional profiles and information as students come across issues related to climate change in other classes, in the news, etc. Add these things to the map as an ongoing collective project.

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Instructions: Define each key term and then identify 3 examples of causes, impacts, mitigation, and adaptation to climate change.

Causes:

1.

2.

3.

Impacts:

1.

2.

3.

Climate Change



Causes



Impacts



Mitigation



Adaptation

1.

2.

3.

Mitigation:

1.

2.

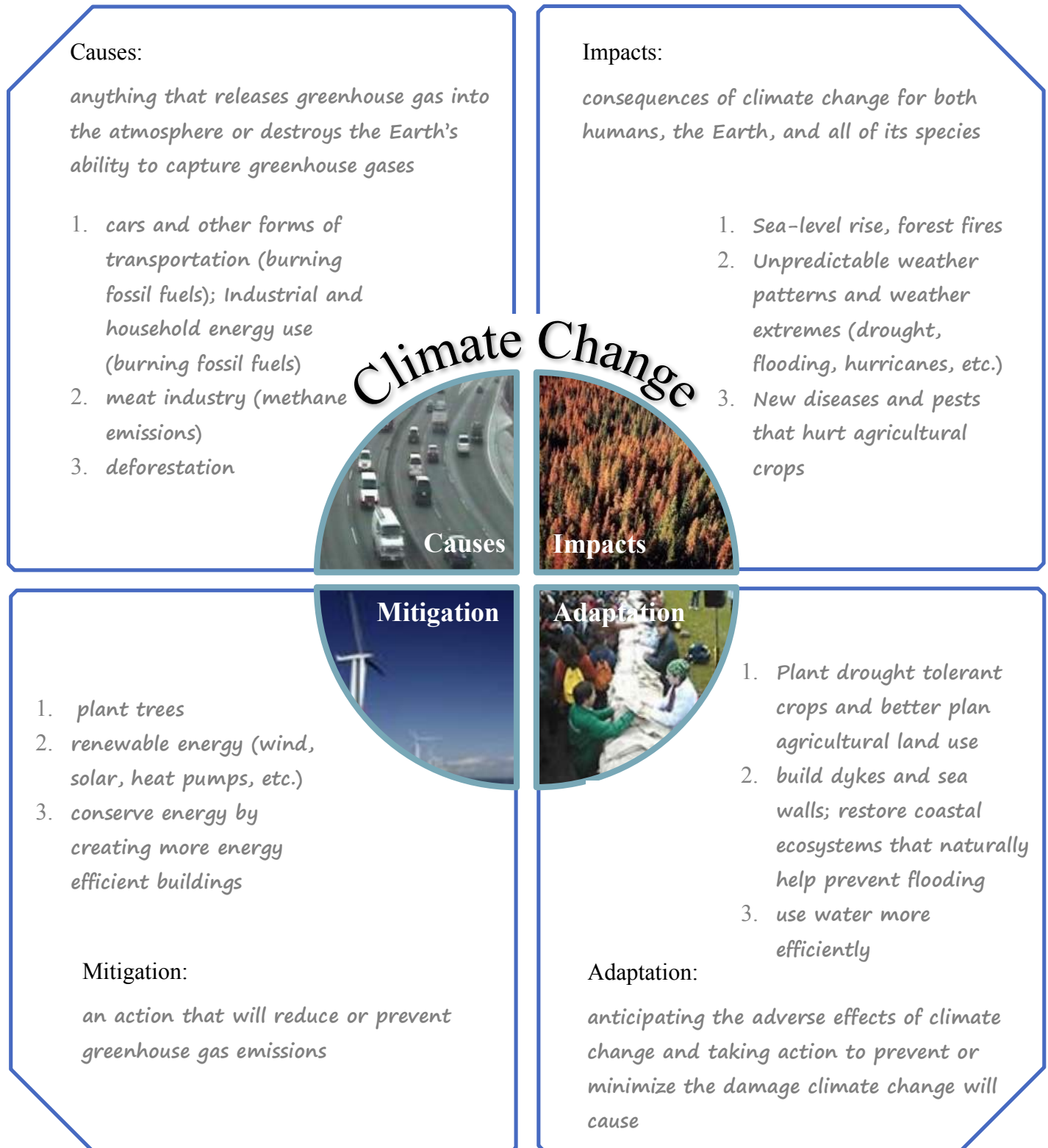
3.

Adaptation:

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Student Example



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Climate "Meet and Greet" Questions

1. Talk to someone who has been negatively affected by climate change? Who are they? Why were they negatively affected? What happened and why? Will they continue to be affected in the future?
2. Talk to someone who has been helped or who has benefited from climate change? Who are they? How have they benefited? Or how will they benefit in the future?
3. Talk to someone who is affected in a similar way to you. How are they affected? Who are they? Why are your situations similar?
4. Find someone whose story involves food and climate change. Who is the person? How are food and climate change connected?
5. Talk to someone who lives in a different country. How is this person's life impacted by climate change? How is this similar to or different from how you are impacted?
6. Talk to someone who lives in British Columbia. Who are they? How is this person's life impacted by climate change?
7. Find someone whose story involves water and climate change. Who is the person? How are water and climate change connected?
8. Talk to someone who will have to make a major change in their life because of climate change. Who is this person and what changes will they have to make? Why do they have to make these changes?
9. Talk to someone who has ideas of how to fight against climate change or who is taking action in some way. Who are they? How are they taking action or what ideas do they have?
10. Try to find someone who you could work together with to take action. Who are they? Why would you work together? What could you do?

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Climate "Meet and Greet" Profiles

Tracy Wimbush

Executive member of the First Nations Fisheries Council of B.C.

Seafood and salmon in particular has been the lifeblood of First Nations' food, culture, and economies for millennia. The annual migration of Pacific salmon brings millions of salmon up the Fraser and Skeena rivers systems all the way up British Columbia to First Nations communities in the interior. The salmon provide a healthy source of food that can be frozen, canned, dried, smoked, or eaten fresh. It's absolutely delicious and economical. However, climate change is threatening salmon and other sea life.

I live in Merritt and already have to drive to "the Fraser Canyon to harvest salmon because of already diminished stocks in the local Nicola River system." There has been "a century of human-caused impacts that have harmed the fish, starting with the Hell's Gate rockslide during railway construction in 1913, along with poorly regulated and toxic industrial developments, and large-scale commercial fishing. Yet the latest projected declines from climate change may be the most challenging threat of all."

A few years ago, I read a study that warns that "By 2050, aboriginal catches are expected to decline significantly, depriving indigenous people from 16 coastal communities of up to CAN \$12-million annually in commercial fisheries." Warming oceans and changing oxygen levels due to climate change will affect our catches. In fact, the study said, "that two critical species will suffer the greatest declines: salmon by 17 to 29 percent; and their prey, herring, by 28 to 49 percent. Catches of green sea urchin could shrink by as much as 36 percent, flounder and sole by 30 percent, shrimp and prawns by 18 percent, and halibut by 13 percent". The communities near B.C.'s southern waters are going to suffer most. The Tsawwassen First Nation might suffer up to a 27% loss in catches, but it will affect us up here in the Interior too.

"It's a fearful thought, it really is. Climate change is such a big issue." We have to get climate change and greenhouse gases under control and learn to manage our fish populations in the best way possible. "It can't just be First Nations doing their best...It's all of us—everyone will be affected by the loss of these fish and the economics they bring in."

Source: [Hakai Magazine](#)
Photo: [Fisheries Council CA](#)



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Pat Crowley

Owner Stinson Farms, North Okanagan

Lately, our farms have been moving north! I've been farming for many years. In fact, I think I started around 1975, but things aren't exactly like they have been in the past. Climate change is definitely changing things. It's getting much warmer. In the 1970s and 1980s, I wouldn't have been able to plant my cherry farm in the Lavington area. In fact, back then, even plotting apples this far north would be pretty risky. But now it's possible. Areas that use to produce a lot of cherries in the Pacific North West like Washington and California are getting too warm to produce cherries, leaving British Columbia many more opportunities to enter the market. I've been growing cherries at increasingly higher elevations and further north than ever before. Cherries need very specific conditions to survive. It can't be too cold or they'll die or freeze in the spring. However, if it's too hot, the cherries won't do well. They have this narrow window to grow in, and that weather window is working out well here. We can grow cherries late into the season.

The only down side is that climate change is bringing some unpredictable conditions. We can grow our cheery plots late into the season, but we are also having to deal with much more unpredictable weather patterns. Too much rain isn't good for my production, too much warmth brings new pests I have to deal with, and cold snaps or sudden spring frosts are really bad for my crops. For example, last season, we had really warm weather throughout the spring until the end of May, but then in June it got cold and wet.

Summer didn't actually set in until late August. It was really unusual. This volatility makes it a little difficult for my crop planning. If I can manage this though, the warmer climate allows me to get my cherries to market and certainly helps profits on the farm!

Source: [CBC News](#)



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Rachel Wilkes

Resident of Telegraph, B.C.

The 2018 wildfire season was like something never seen before. More than 1,400 fires were started by lightning and almost 500 were caused by human activity. According to Environment Canada more than 13,500 square kilometers of British Columbia burned this season. It was the worst season on record and even surpassed last year's devastation.

One of these fires burned near my home in Telegraph. I lost everything. It was absolutely devastating. I went back to my community in September. The evacuation order hadn't been lifted yet and emergency officials were still very active in the community, but I just really wanted to see what was left of my home. I remember the very day I walked back down my street. Everything was charred. Just burnt completely to the ground. The place my family has lived for generations was devastated. I plan to move back to Telegraph Creek as soon as I can and begin to rebuild our lives there, but it's going to take some time for our community to heal. Life has been changed forever for many people.

Scientists tell us that the last two years of hot and dry weather is what has allowed so many large fires to develop in B.C. The hot and dry summers are due to a high pressure weather system that hovers over the coast. It causes warm, dry air to just sit for most of the summer and creates a perfect scenario for forest fires. They say it's due to climate change and the way that the Arctic is warming. I'm not a scientist, but I know enough to know that these fires aren't normal and if this continues, it's going to be bad news for B.C. So many people lost everything and it's expensive to rebuild. We've got to do something. I just don't want this to happen to anyone else.

Beyond the impact these fires have on human and nonhuman communities, they further release a lot of carbon into the atmosphere. In fact, Scientists estimate that the 2017 fires released two to three times more greenhouse gases in the air than all of the other sectors in B.C. and they will continue to release even more as the burned trees decompose. Not to mention the beautiful trees won't be around to soak up carbon dioxide. The fires are a cyclical problem and we've got to locally and globally mitigate climate change to solve them.

Sources: [CBC News](#), [CBC News](#)



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Igor Sechin

CEO Rosneft Oil Company, Moscow, Russia

Climate change is global catastrophe to many people, but as our president Vladimir Putin puts it, though it's an unpopular thing to say, "Climate change brings in more favorable conditions and improves the economic potential of [the Arctic] region." Climate Change is definitely going to benefit some people, and I plan on being one of those people!

The melting Arctic opens up new opportunities for exploring the region. Ships can travel more easily and we can explore the Arctic continental shelf, where there are still many untapped energy resources. Due to this potential, Moscow plans to spend billions of dollars in the region over the next few years and companies are going to be spending billions more, including mine. My company, Rosneft, drills all across the Russian section of the Arctic with 28 licenses from the Russian government to drill in the shelf with reserves totaling 249.22 billion barrels of oil. We have been investing big money in Arctic exploration and from 2017 to 2021 we'll be investing \$4.354 billion more!

It's simple really. As ice melts, my company can explore more areas for oil, which means big profits for me. I'm not going to sit back and let other companies go after these resources. I want a share of the goods. Look, I know climate change isn't good for a lot of people, but I'm a businessman and someone is going to tap these resources. It might as well be me. It's time to ramp up our exploration!



Sources: [The Moscow Times](#), [OilPrice.com](#)

Photo: [Press TV](#)

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Ron Phillips

Homeowner, Richmond, B.C.

I've become particularly concerned about climate change lately. It's something I had never really thought much about until I heard our Mayor, Malcolm Brodie, talking about the Dike Master Plan for the City of Burnaby. He said, "Richmond is well protected from any current flood threats, but we must work proactively to upgrade our existing network of dikes and pump stations to address the impacts of climate change and other risks...Our comprehensive Dike Master Plan ensures we are providing for long-term protection of Richmond from events such as projected sea level rise, extreme weather events and the impacts of spring snow melt."

Hearing him talk about climate change led me to do a little bit of research. I read a UN report that scientists are saying that sea level rise from melting ice sheets is happening much faster than they initially thought. In fact, they say the rate of rise could triple every year by 2100. The sea rises due to climate change because of two reasons. First, the ice sheets are melting at the north and south poles. Also, as the oceans are warming up due to global temperature rise, they are expanding (hot water is less dense than cold water and it takes up more space). The UNIPCC reports say that global greenhouse gas emissions need to decrease really quickly if we are going to stop sea level rise, storms, and the other negative effects of climate change. I mean, they're already happening, but we can prevent it from getting worse.

The City of Burnaby, and my house, sit at sea level. That means it is really at risk if sea levels rise or there are extreme weather events that cause flooding. I know my City's Flood Protection Management Strategy is planning to raise our city dikes by 1.2 meters over the next 30 years or so, but will this be enough? And how much is this going to cost the city and taxpayers?

I know it sounds a little selfish, but what about my house? I was planning to sell it to help me and my wife retire. I doubt I'm going to be able to get anyone to buy it if it's in a flood prone area. You know, I always thought that climate change was something I would never see impacts of here. I guess I just assumed it was a far-off problem.

Sources: Richmond.ca, GlobalNews.ca, UNFCCC



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Sam Herrington

Welder, Syncrude Canada Limited
Fort McMurray, Alberta

I've been working in the Tar Sands for years. Working for Syncrude was the best gig available when I graduated from tech school. I never really planned to work in the oil industry. I mean, it wasn't my childhood dream or anything. It just kind of happened, and it has worked out pretty well. It definitely has its perks. When there is a boom in the oil markets and the price per barrel soars, there is plenty of work and the paychecks are good, really good.

That said, working for the oil industry is grueling work. Three weeks on followed by one week off is not exactly a great schedule. I'd love to be at home spending time with my family. Also, the work isn't very consistent. Sometimes it's great and I make a ton of money. Other times, when the price of oil drops, work can be somewhat unreliable. Occasionally, I get laid off. This makes it a little difficult to plan my finances and it definitely adds stress in my relationships with family.

Also, lately, climate change and the opponents of the oil industry are starting to scare me a bit. I'm still pretty young and I care about my children's future. I recently heard of an organization called Iron & Earth that is providing training to help oil workers make career shifts into renewable energy. I mean, if I can weld pipes, I'm sure I can weld wind turbines and solar panels, right? Maybe I should switch to a new job? Launching a new career is a little scary though. And honestly, I've got a family of four to feed; I can't take a pay cut. There is no way that clean energy jobs are going to pay me as much as Syncrude does. Until the renewable energy sector can offer me what oil and gas can, I think I'll stay put.

Sources: TheConversation.com, IronAndEarth.org



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Maerere Eria
Pastor
Tarawa, Kiribati

I am the pastor of a community church in Tarawa, Kiribati. My island is one of the more vulnerable islands of Kiribati. As a small, low-lying atoll in the Pacific, the highest point on our island is only 3 meters above sea level.

We've seen a lot of hardship lately due to changes in the tides. "We can see that there is an increase of the high tides right now and we see that it brings damage to a lot of sea walls and not only that it is damaging a lot of our buildings as well." We use to get these king tides a few times a year and we could handle it, but now we have at least five or six each year. It's just too much!

When the tides come, people come to my church because it's a concrete building and it's able to provide shelter, but even with the church as a refuge, it is hard to stay dry. Recent tides destroyed our community's sea wall that used to offer some protection. Since it was destroyed, places where people had houses before are now completely under the sea.

The idea that we may need to leave Tarawa for good is a very scary idea. I'm worried about my community. The hardest part of all of this is "because they are brought up in this place, it is quite hard for them to move out from here." But we're not giving up yet! This is our home and we are proud of it. We will battle the tides the best we can and survive.

Everyone keeps debating climate change in International meetings like the United Nations Climate Change Conferences, but while people talk, we are living it. We are dealing with the impacts. "It's happening right now. We really spend a lot of time praying about it. Who are the people that are willing to help us? We really suffer by these high tides."

Sources: SolomonTimes.com
Photo: [RNZ Pacific / Koro Vaka'uta](#)



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Shelly Stodard

U.S. Immigration Officer

I've worked as an immigration officer for quite some time now. It's a really interesting job. For most of my career, I've worked along the border between the U.S. and Mexico. Lately the border has been getting a lot of attention in the news due to the large groups of people looking to cross into the U.S.

As an immigration officer, I get to hear a lot of the migrants' stories. What I've come to realize is that some of the migrants are looking for new opportunity due to economic reasons. NAFTA (North American Free Trade Agreement) and CAFTA (Central American Free Trade Agreement) have made it really tough on small farmers because the trade deals put small farmers into competition with highly subsidized U.S. agribusinesses. Farmers simply can't make a living anymore. Others have been displaced by large scale mining and development projects. People are losing the lands they live on and their ability to make a living and provide for their families. These economic reasons for looking for new opportunity are compounded with violence in many Central American countries. Due to many factors, gang violence is increasing. In fact, one sixteen-year-old boy recently presented a letter to me from his school director as evidence as to why he was trying to cross the border into the U.S. It said, "The student had to withdraw himself from school due to violence and gang persecution...He decided to move to save his life." The stories migrants tell me of what they are facing back home is really scary. Many people are just looking for a way to get their families to somewhere safe.

I've known about all of these reasons for quite some time. However, recently, I have also been seeing a lot of people who are fleeing for ecological, not just economic reasons. Though I guess, these are also connected. I hear stories all of the time from farmers who had faced drought or storms that damaged their community. They're heading north from countries like Guatemala, Honduras, El Salvador, and Nicaragua where they have been unable to produce healthy crops due to changing weather patterns. When the rains don't come, it makes it very difficult to survive. Drought conditions have always been a problem, but they are getting worse due to climate change. So it really seems to me that the changing climate is just another added layer of difficulty that is leaving many with no choice but to try and find opportunity elsewhere.

I started looking into this a bit more because I was curious and I found a report about Mexico that showed that these sort of patterns of migration will most likely continue to grow. For example, the report predicts that by 2050, 1 in 10 Mexicans would be displaced due to climate-related challenges such as drought, storms, and sea level rise and many people are expected to try to move north. I'm not sure how we are going to be able to adjust to new patterns of migration, but it is something we really should start thinking about. Personally, I've started to get involved with a few NGOs on the border that are working to educate people about migrants' stories and reasons for moving. I think it's important for people to understand that these people have no other choice. If it were my family, I'd be searching for new opportunities too.



Sources: RRI.org, NYTimes

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Elizabeth Grady

*High School Student
Vancouver, B.C.*

Last year I did a project on climate change in my science class. For part of my project, I wrote an essay about greenhouse gas emissions. What I learned is that the numbers don't add up. The UN Intergovernmental Panel on Climate Change (IPCC) report said that If we want to keep global warming under 1.5 degrees Celsius, the limit that scientists say is necessary to prevent the worst effects of climate change, we have to cut emissions 45% by the year 2030 and our emissions have to come down to 0% by 2050. That's really soon and the actions by our politicians and policy makers are way too slow! And this is just to prevent the worst things. We're already going to experience a lot of really serious consequences regardless.

After I learned all of this, how could I just go about daily life without worrying about the future? I had to do something. I've been noticing a lot of kids striking for climate change on Instagram lately. Greta Thunberg, a 16-year-old Swedish girl has been striking every Friday outside of the Swedish parliament. In one of her videos I heard her say something that really had an impact on me, "The climate crisis has already been solved. We already have all the facts and solutions. All we have to do is to wake up and change."

I decided to take action. With the help of several friends, I organized a climate strike here in Vancouver. Students from all over Vancouver walked out of class to march with us. The cool part of the strike is that we also got to talk to a lot of people on the streets that day. We explained about the climate reports and how we are afraid for our future. Some people really listened. They joined us and shared other ways they were planning to take action. It was really powerful to see that. I didn't realize that I could help educate other people on climate change!

I want the leaders of our country to pay attention and take action that matches the seriousness of the problem. I will keep organizing with my friends until they do. What we do or don't do right now is going to affect my whole life and my children's lives.

Sources: [Ted.com](https://www.ted.com)



Teacher's Guide: Introduction to Climate Change

LOCAL LESSONS FOR A COOL CLIMATE

Basmina

Teacher

Haji Saheban, Afganistan

"My name is Basmina and I'm a teacher in Haji Saheban village in Nangarhar province. Around here, our lives are pretty good. Unlike other parts of Nangarhar life is peaceful, we don't have too many problems with insecurity, and there has been a big effort made over the past decade to reconstruct and rebuild our village, we have access to clean water, – hospitals and schools have been built, and we even have women doctors in our hospitals for the first time.

However these are the things that we can control. There are things we cannot like the weather. These days it's impossible to predict the weather. Some years we have drought and other years we have too much rain. Both situations make it more difficult to farm our crops. When we face these problems, like with serious flooding in the past, we all pulled together and helped one another. When we had drought, everyone in the community came together to build water reservoirs for irrigation. Working together, our community overcame these challenges. This is something no money can buy.

I'm a teacher, I can see the value of education in helping our community grow stronger. In the past, many people living around us were not sending their children to madrassas and schools to study, so I decided to become a teacher so I can help the children in my community get an education and better themselves. If we have the right knowledge and skills, I believe we can combat natural disasters together. Its people working together that achieve the most!"

Sources: Taken directly from: unenvironment.org



Teacher's Guide: Introduction to Climate Change

LOCAL LESSONS FOR A COOL CLIMATE

Golam Begum

Farmer

Maijdee, Bangladesh

I'm from Maijdee in southern Bangladesh. My village is part of the 80% of my country that is a flood plain. Living on a flood plain means we're facing some big problems related to climate change, especially us farmers. For one, ice melting in the Himalayas is starting to increase the flows of our rivers. This causes river banks and people's farms to erode. Also, as the sea level rises, it kills our crops. The salt water from the ocean is poisonous to our crops and our freshwater fish. The salt water also ruins our drinking water. And if these problems weren't challenging enough, we are also dealing with tropical storms and cyclones that are getting more destructive every year.

I'm honestly not sure how much longer my family and I can keep our farm going. For me, saltwater intrusion from rising seas and storm surges has been the most challenging battle. Where once I could support my family on the small lands I own, the increasing loss of crops is making it really difficult these days. I love farming and I love my home. The people in the village I live in are my community. Most of us have been here all of our lives. Yet every week, I hear of someone else who has chosen to give up. Like many other people living in the south, they are all moving to Dhaka, the capital city.

I'm worried that maybe one day soon, I'll have to give up too. We've always struggled with environmental challenges, but it's just getting to be too frequent and too much. That said, I'm not quite sure what I will do in the city. I've never lived in a major city before. My farming skills aren't going to be of much use. How am I going to find enough work to feed my family? I've also heard that Dhaka is already too overcrowded. Thousands of people migrate there every day. I've heard there isn't much room left and there isn't any affordable housing. I really don't want to give up the beauty of my farm for the slums of Dhaka, but there doesn't really seem to be much of an alternative. I'm also a little nervous about taking my children to the city. One man in my village who came back from Dhaka recently said the crime is getting really bad in the city. There are just too many people in one place.

For now, we'll stay put, but I'm sure we'll end up moving to Dhaka sooner rather than later to find work. There just really doesn't seem to be another option.

Sources: PRI.org



Teacher's Guide: Introduction to Climate Change

LOCAL LESSONS FOR A COOL CLIMATE

Martina Longom

Caicaoan Village, Uganda

I live in Caicaoan Village in Karamoja in the north eastern part of Uganda. In the past, at this time of year, we have usually been greeted by the happy noises of the elele bird. When we heard it's call, we would know that the rains were coming. My country, Uganda, has always had problems with dry periods and drought. However, due to climate change, these problems have gotten much, much worse. It makes it very difficult for me to grow crops and keep cattle.

The past three years we have had a horrible drought. Before, "there was enough rain. Whenever it rained the fields would yield all kinds of fruit and our mothers would store lots of food in our granaries. We used to have plenty of boiled sorghum and porridge to eat and plenty of milk to drink." The trees would be bountiful with fruits, but they're all dying now.

"Things are different. Cows are dying. The rains have disappeared. And when it rains these days, it just drizzles. The drizzle isn't enough for the sorghum to grow properly." Not only is it really tricky to grow foods we rely on, it also hard to find water. "The drinking water that we used to fetch from the riverbeds can no longer be found. The riverbeds have dried up as well. There is a lot of thirst... Even if you have food to cook, you still need water to do the cooking. What can I do? There aren't enough words to express the pain."

If the drought continues, we'll have to figure out what to do next. Maybe we'll move. I talk to others in my community and we're not sure what else to do. But I am not sure where we will go.

Sources: Quotes and photo taken directly from: [Oxfam](#), [The Water Channel](#)



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LOCAL LESSONS FOR A COOL CLIMATE

Jean Swanson

*Anti-poverty and social justice advocate, City of Vancouver Councilor
Vancouver, B.C.*

We're all beginning to experience the bad parts of climate change now. From the smoky summers we have in Vancouver where people with breathing issues have to stay inside and the sky looks like we're on another planet to the flooding in Madagascar recently that killed 700 people. As a 76-year-old whose generation is responsible for this, I have worked to oppose projects that make climate change worse. For example, the Trans Mountain (now Trudeau) pipeline that will continue to extract fossil fuels from the Alberta Tar Sands. I've taken a stand against this pipeline project on the grounds that the \$4.5 billion spent on it by our government could be better spent on clean energy or on non-dangerous things like ending homelessness.

Of course people who are poor experience climate change in a worse way than people who aren't poor. If you can't afford air conditioning, how will you endure extreme temperature? If you don't have a home, how can you escape the smoky air?

Behind the climate crisis and the inequality crises is the same problem: capitalism. Some people are making money from fossil fuels and don't want to give that up. And some people are making money by exploiting workers or flipping real estate, or extracting resources and polluting and they don't want to give that up. That's why I really like the idea of a Green New Deal. The Green New Deal is a plan being proposed by concerned policy makers, politicians, non-profit organizations, and citizens to include everyone, where governments get together and tackle climate change and make our society more just at the same time. It is a plan to help us transition away from our current destructive economic and energy systems that rely on fossil fuels and are based in exploitation and extraction. The plan will help us create a new system that is sustainable and ensures the well-being of everyone. As writer Ursula LeGuin said, "We live in capitalism. Its power seems inescapable. So did the divine right of kings. Any human power can be resisted and changed by human beings." We just have to get together and make it a priority. I know, it's easier said than done, but we have to start working on it right away.

Photo: [Cherise Seucharan / StarMetro](#),



Teacher's Guide: Introduction to Climate Change

LOCAL LESSONS FOR A COOL CLIMATE

Gilbert Kend

Member of Gwich'in Tribe, Northern Alaska/Northwestern Canada

I am a member of the Gwich'in, the northernmost Indian nation on the American continent. Our territories span the Alaskan coastal plain, Yukon and the Northwest Territories.

Our "Gwich'in story of creation says that man and caribou were created with a piece of the other's heart in his own. Accordingly, the fate of the animal and the people are said to be intertwined." My people, who live near the Arctic Circle in the Western part of North America have depended on the caribou for thousands of years. Our connection is not only strong because the caribou provide sustenance for us, they also have spiritual and cultural significance for our communities.

We have been hunting the caribou for thousands of years, but now they are on their way to extinction mostly because of human causes such as resource development and climate change. Due to warming temperatures and less snowfall, our ways of getting around such as sleds and snowmobiles are becoming more difficult. The waters are freezing later and we can't travel safely on them as we once did. These challenges make it hard for us to travel and they also make it hard for the caribou to travel too. Migration patterns are changing and calves are drowning as they try to cross rivers that were once frozen. Further, some bodies of water are drying up, and the caribou don't have the resources they need to survive.

If these struggles weren't enough, the calving grounds for Caribou, Izhik Gwats'an Gwandaii Goodlit in our language, which translates to the Sacred Place Where Life Begins, are now being targeted for resource development. This is of very concern because any disturbances can significantly affect calving and the migration patterns of herds.

The Caribou makes up almost 60% of our diet. Without the caribou, feeding our families will be really challenging. Supermarket food is expensive this far north and other healthy food is not easy to come by. The extinction of the caribou is a very scary reality for my people. Not only do we depend on them, the caribou is part of who we are. It is our identity and much will be lost if the climate and resource development projects keep disrupting and decreasing the herds.



Source: [The Globe and Mail](#)

Photo: [Gwich'in Steering Committee Facebook](#) via [National Native New](#)

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LOCAL LESSONS FOR A COOL CLIMATE

James Hansen

Former director, Goddard Institute for Space Studies, National Aeronautics and Space Administration (NASA)

I am a climate scientist, who more than 30 years ago warned the U.S. Government and the general public of human caused climate change.

I retired from NASA back in 2013 and since then, I've been doing all I can as an activist to stop global warming. In fact, I've even been arrested in efforts to stop the expansion of fossil fuels. Recently, I was arrested while protesting the building of the Keystone oil pipeline in Washington D.C. Like many other pipelines, it is planned to ship more and more fossil fuels out of the Alberta Tar Sands. We really have to keep what's left of fossil fuels in the ground. I have a granddaughter and honestly, I'm afraid for her future.

If we keep building these pipelines and pulling oil out of the ground, we have very little chance of stopping the disastrous effects of climate change. In fact, if we keep pulling out the very dirty oil that is in the Tar Sands, it is "game over" for the climate. "Canada's tar sands, deposits of sand saturated with bitumen, contain twice the amount of carbon dioxide emitted by global oil use in our entire history. If we were to fully exploit this new oil source, and continue to burn our conventional oil, gas and coal supplies, concentrations of carbon dioxide in the atmosphere eventually would reach levels higher than in the Pliocene era, more than 2.5 million years ago, when sea level was at least 50 feet higher than it is now. That level of heat-trapping gases would assure that the disintegration of the ice sheets would accelerate out of control. Sea levels would rise and destroy coastal cities. Global temperatures would become intolerable. Twenty to 50 percent of the planet's species would be driven to extinction."

You know, when I first warned of climate change all those years ago, I thought people would respond accordingly. I thought we would start working on ending our use of fossil fuels. Until they do, I will keep up my activism and will continue my civil disobedience if it is necessary. I have already been arrested 5 times, and I will keep getting arrested if that's what it takes to raise awareness and block these types of projects. We can rise to the challenge but action and leadership is important.

Source: [NY Times](#)

Photo: [Ali Smith for the Guardian](#)



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LOCAL LESSONS FOR A COOL CLIMATE

Cecilia Frame

CEO, Frontier Airlines

I am currently the CEO of Frontier Airlines. I've been working in aviation all of my life. As the CEO, it is my job to think about long term plans for our company. I need to make decisions in ways that keep the company profitable and successful so that we can continue serving our customers and paying our employees. We also have to keep our shareholders happy.

Two or three years ago, I started doing a lot of thinking about climate change. I know that my company does a lot that contributes to global warming. Our planes release greenhouse gases into the atmosphere in large quantities every day. In fact, I recently read that aviation is responsible for 2% of greenhouse gas emissions and airline travel is expected to grow exponentially in the future. The International Civil Aviation Organization estimates that emissions will increase by 700% over 2005 levels by 1950. This would mean a massive contribution to climate change.

The only option it seems is to reduce air travel by encouraging people to take less flights. This, however, is bad for business. I need people to fly and fly often in order to maintain our profits. The only way I can see reconciling these problems is with new technology. Maybe we can create cleaner jet fuels? Or maybe we can come up with alternative low-carbon planes? Until this technology exists, though, I have to keep our business going. Maybe I can donate some of our profits to researching new technologies. Until then, we can continue trying to be cleaner and more efficient, but really, I'm going to have to leave global warming to the politicians and policy makers for now. I need to worry about my employees and profits.



Source: [Vox](#)

LOCAL LESSONS FOR A COOL CLIMATE

Introduction



By the end of this lesson, students will be able to:

- 

2 x 1 hour classes



- Large sheet of paper, sticky notes, colored markers
- Climate Solutions Worksheet
- Climate Solutions Resource
- Solutions Notetaking Handout

Warm-Up

Example



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LOCAL LESSONS FOR A COOL CLIMATE

Exploring Solutions

After having done some brainstorming, in this activity students will explore various solutions to climate change. Divide the students into 5 groups. Each group will be assigned to a station to begin the activity. Each station focuses on a different solution: (1) active transportation (2) reducing meat and dairy consumption (3) energy efficient buildings (4) mangrove reforestation (5) community owned renewable energy.

At each station students will explore information related to a proposed solution to climate change. Groups of students will spend 10-15 minutes at each station learning about the solution. Links to these materials for each station are included on the [Solutions Resource Sheet](#). Instruct students to fill out the [Climate Solutions Worksheet](#) for each station they visit. Using this worksheet, they will analyze the materials to gather the following information:

1. What is the solution being proposed?
2. Is it a mitigation or adaptation strategy or both? Explain.
3. At what scale could this solution be applied (local, regional, national, and/or global)? Explain.

Inform students that the last station their group visits will be the one they will discuss in front of the class in the next activity. Give them extra time to carefully understand and consider the implications of the proposed solution.

Solutions Discussion

In this activity, students will participate in a fish bowl discussion. An extensive explanation of how to set up a fishbowl discussion and the opportunities it provides for learning is available [here](#). Set up a small number of chairs in the center of the room in a circle (enough for one group), place the rest of the class around this circle. The group of students who are sitting in the inner circle will discuss the following questions in relation to the solution they read about at the last station they visited. The observers on the outside of the circle will practice carefully listening and taking notes on the attached [Solutions Notetaking Handout](#). This will help them practice listening carefully and thinking critically about the solutions being proposed and the arguments being made.

The following may be used for discussion questions for the students in the “fishbowl”:

1. What is the solution and why is it being proposed?
2. Are there any reasons this solution might be difficult to implement? Why?
3. Who would like the solution and benefit from its implementation? Why?
4. Who would be against the solution? Why?

During the discussion, note takers (those sitting on the outside of the circle) consider and take notes on the following:

1. What arguments are being made *for* the solution?
2. What are the arguments being made *against* implementing the solution?
3. Would this solution require individual or political/collective action or both?

Repeat the discussion activity for each solution/group.

Debrief

Revisit the big sheet of paper the class created on climate change solutions at the beginning of the lesson. First, invite the students to add to these solutions. Did they think of anything else after exploring solutions during the lesson? After the students have had a chance to add to the solutions they initially thought of, continue adding information to the brainstorming sheet as a class:

1. First, remove the sticky notes from the paper and draw a Venn diagram. Creating one circle for “Adaptation” and a second circle for “Mitigation” with an overlapping section in between. Have the students re-stick the sticky notes to the paper where they belong.

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Example



Questions for discussion:

- What do you notice about the solutions we came up with?
- What do we usually think about more, adaptation or mitigation? Why do you think that is? Do you think it would be the same for other classes in other places? Why?
- Are all of the proposed solutions strictly one or the other?
- Can efforts toward mitigation also help communities adapt and vice versa? How?

2. Ask the students to circle the solutions that require Individual action in one color and political or collective action in another.

Example



Questions for discussion:

- What do you notice? What sort of action do these solutions require? Why?
- Choose a few of the proposed solutions and discuss what it would require to implement them. Have students think critically in terms of what sort of action would need to be taken.

For example: Students may suggest switching to electric cars to reduce emissions. However, many people cannot afford a new electric vehicle. Therefore, you could take action in many different ways: (1) try to convince individuals within your community to buy an EV, (2) engage with the local government to create tax breaks or economic incentives to owning an electric vehicle, (3) provide more communal resources such as electric car and/or bike share programs, (4) extend the public transit network to better serve people so they don't need a vehicle at all, and/or (5) create more complete communities where people can live closer to school, work, etc. so that they can walk or bike to their destination.

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LOCAL LESSONS FOR A COOL CLIMATE

My Climate Profile

In the first lesson, students created their own [Climate Profile](#) to consider the ways climate change impacts their lives and their communities. After studying climate solutions and the individual and collective actions necessary to achieve them, have the students revisit their climate profile and add a few paragraphs related to solutions by answering the following questions:

Will you need to adapt to climate change? If so, how and why?

Are there things you are already doing or can do to mitigate climate change or work toward solutions?

Are there actions you can take individually to work toward solutions to climate change?

Are there actions you can take as a part of a group or community?

How might your individual actions and community actions be connected?

A [Grading Rubric](#) to evaluate this assignment is provided below.

Debrief

After students write their individual profiles, allow them to share the information they've learned with each other. If time allows, you could have the students do a second "Meet and Greet" activity using their own profiles and focusing specifically on questions #9 and #10 related to taking action. By connecting with each other and talking about actions, they will be more likely to take action and feel as though they have some agency.

If time allows, also have the students to share their learning beyond the classroom. Students could create a gallery walk with their climate profiles for other students around the school, share their profiles within the community, etc.

Homework or Follow Up Activity: Climate Heroes

In this activity, the students research people who are taking action on climate change. To start the activity, you might want to introduce the students to some of the following youth activists for inspiration:

- [Xiuhtezcatl Martinez](#) – Rap artist, Indigenous Climate Activist, and Youth Director at Earth Guardians ([Article](#), [Video](#))
- [Greta Thunberg](#) - Swedish Climate activist that has lead student climate strikes around the world ([Article](#), [Article](#), [Video](#), [Video](#))
- [Mya Chau and Eve Helman](#) – Two grade 6 students in Calgary petition Starbuck's to take action ([Article and Video](#))
- [Juliana v. United States](#) - 21 Youth sue the U.S. Government over Climate Change ([Article](#), [Video](#))
- [Ta'Kaiya Blaney](#) - First Nations musician, actress, and activist from North Vancouver ([Article](#), [Video](#), [Video](#))
- [A Collection of Young Activists](#) ([Article](#))

Then have students research local leaders who are acting on climate change in different fields of society (e.g. International, national, or local politics; non-governmental organizations; business; popular culture; grassroots activism; science; etc.). Each student selects an individual they find inspiring and creates a poster/essay/poem/art piece about them to present to the class. This not only introduces students to real solutions, but will also give them ideas about how they can engage with solutions both as students and in the future as professionals. Have the students share their "climate hero" with the class.

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LOCAL LESSONS FOR A COOL CLIMATE



Resources

Websites

PICS [Climate Insights 101](#) provides introductory materials on mitigation and adaptation.

[Community Energy Explore](#) and [Student Energy](#) provide information on renewable energy.

The [Suzuki Foundation](#) has some good information on climate change solutions.

Books

Bigelow, B., & Swinehart, T. (2014). *A People's Curriculum for the Earth: Teaching Climate Change and the Environmental Crisis* (Vol. First edition). Milwaukee, Wisconsin: Rethinking Schools.

Sheppard, S. R. (2012). *Visualizing climate change: a guide to visual communication of climate change and developing local solutions*. Routledge.

Videos

[Adaptation and Mitigation](#)

[Climate Change Adaptation](#)

[A Way Forward: Facing Climate Change](#)



Lesson Extensions

Expound on the Climate Hero activity by having students interview people who work on issues related to climate change professionally. They might ask: How do you engage with climate change? Who do you work with? What kind of difference are you able to make through your work? What are some challenges you have come across? Alternatively, you might invite some of these individuals into the classroom to speak to the students directly.

Have students explore various organizations that work on climate change. In small groups students could research non-governmental organizations by answering the following questions: What are the organizations goals related to action on climate change? What is the organization doing to achieve its goals? Who else does the organization work with? How can one get involved?

Learn about international, national, and local climate politics. Have students do research about climate policies and plans at different levels. Students could learn about the international climate agreements, national policies and plans, as well as policies and plans for climate action at the municipal level (for resources on the municipal level, see CALP's lesson plans on renewable energy created in collaboration with The City of Vancouver).

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LOCAL LESSONS FOR A COOL CLIMATE

Climate Change Solutions

The following are examples of solutions to climate change that may be used in the [Exploring Solutions](#) activity. The examples offer a mix of articles and videos.



Community Energy

The Bull Tribe in Maskwacis, Alberta, installs [community solar panels](#) on their daycare and in the process, retrain oil workers in solar installation.



Energy Efficient Buildings

[Vancouver creates a Zero Emissions Building Plan](#) to make buildings in the City more efficient.



Reducing Meat and Dairy Consumption

Scientific study shows the [impacts of the meat and dairy industry](#) on the Earth.



Active Transportation

Forms of [active transportation](#) can lower [greenhouse gas emissions](#) with added health benefits.



Mangrove Reforestation

In many countries, coastal communities are [replanting mangrove forests](#) to act as carbon sinks and barriers to rising sea levels, waves, and storm surges.

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LOCAL LESSONS FOR A COOL CLIMATE

Climate Solutions

At each station, collect information to answer the following questions.

Solution 1 _____

1. What is the solution being proposed?
2. Is it a mitigation or adaptation strategy or both? Explain.
3. At what scale could this solution be applied (local, regional, national, global)? Explain.

Solution 2 _____

1. What is the solution being proposed?
2. Is it a mitigation or adaptation strategy or both? Explain.
3. At what scale could this solution be applied (local, regional, national, global)? Explain.

Solution 3 _____

1. What is the solution being proposed?
2. Is it a mitigation or adaptation strategy or both? Explain.
3. At what scale could this solution be applied (local, regional, national, global)? Explain.

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Solution 4 _____

1. What is the solution being proposed?
2. Is it a mitigation or adaptation strategy or both? Explain.
3. At what scale could this solution be applied (local, regional, national, global)? Explain.

Solution 5 _____

1. What is the solution being proposed?
2. Is it a mitigation or adaptation strategy or both? Explain.
3. At what scale could this solution be applied (local, regional, national, global)? Explain.
4. What would be required to implement this solution?

Arguments for implementing this solution

Arguments against implementing this solution



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LOCAL LESSONS FOR A COOL CLIMATE

Solutions Notetaking

As the group in the center of the class discusses the following solutions, take notes addressing the following questions.

Solution _____

1. What arguments are being made *for* the solution?
2. What are the arguments being made *against* implementing the solution?
3. Would this solution require individual or political/collective action or both?

Solution _____

1. What arguments are being made *for* the solution?
2. What are the arguments being made *against* implementing the solution?
3. Would this solution require individual or political/collective action or both?

Solution _____

1. What arguments are being made *for* the solution?
2. What are the arguments being made *against* implementing the solution?
3. Would this solution require individual or political/collective action or both?

Solution _____

1. What arguments are being made *for* the solution?
2. What are the arguments being made *against* implementing the solution?
3. Would this solution require individual or political/collective action or both?

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My Climate Profile (Solutions)

Continue your climate story, but this time think about solutions. Will you need to adapt to climate change? If so, how and why? Are there things you are already doing or can do to mitigate climate change or work toward solutions? Are there actions you can take individually to work toward solutions to climate change? Are there actions you can take as a part of a group or community? How might your individual actions and community actions be connected?

[illegible]

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My Climate Profile Grading Rubric

	Advanced	Proficient	Intermediate	Needs Improvement
Communication Effectiveness	The writing expresses ideas exceptionally well, is clear, and engaging. It is well focused and includes several rich, supporting details and examples.	The writing expresses ideas clearly and is easy to understand. Includes some supporting details and examples.	The writing expresses the main ideas. Includes some detail, but lacks supportive examples.	The writing fails to communicate ideas clearly and lacks focus. It does not include detail and supporting examples.
Critical Thinking	Demonstrates a thorough understanding of the subject matter and masterfully uses the ideas learned in the activities to draw insightful conclusions.	Demonstrates understanding of the subject matter and uses the ideas learned in the activities to draw insightful conclusions.	Demonstrates some understanding of the subject matter and uses the ideas learned in the activities to draw conclusions.	Does not demonstrate understanding of the subject matter and fails to draw any meaningful conclusions.
Content: Causes and Impacts of Climate Change in the Local Context	Thoroughly considers the causes and impacts of climate change locally and proficiently uses examples to explain these concepts.	Considers some causes and impacts of climate change locally and includes examples to explain these concepts.	Names some causes and impacts of climate change, but does not identify examples.	Does not show understanding of causes or impacts of climate change.
Content: Solutions to Climate Change in the Local Context	Thoroughly considers solutions to climate change and proficiently uses examples to explain possible action.	Considers some solutions to climate change and uses examples to explain possible action.	Names solutions to climate change but does not use examples to explain possible action.	Does not consider solutions to climate change and does not use examples to explain possible action.
Connection to Oneself and Community	Demonstrates deep reflection and complex understanding of how climate change affects them, their family, and their community.	Reflects on climate change and demonstrates understanding of how climate change affects them, their family, and their community.	Shows some understanding of how climate change affects them, their family, and their community.	Fails to reflect in any significant way and does not consider how climate change affects them, their family, and their community.