CLIMATE GENERATION

2024 EDITION

FOOD SOLUTIONS: CLIMATE CHANGE ACTION FOR K-2

Educator Letter

Dear educator,

We need to introduce climate change in elementary grades if we are to prepare our students for a changing world. Young students have likely heard about climate change from their caregivers or in the media; and if not, they have almost certainly experienced events related to climate change, whether they are severe like a wildfire or more everyday like unusually warm temperatures. Climate change education in younger grades is essential for validating these often scary or confusing experiences and fostering caring, engaged students who understand the importance of climate action.

K-2 climate change education develops students' fundamental skills and knowledge that will lead to future climate literacy; supports students during times of fear and uncertainty; and introduces age-appropriate actions to be part of creating climate resilient communities. There are many ways elementary educators can help students navigate climate change issues. Activities like making observations, collecting data, media literacy, and understanding weather and seasons are necessary building blocks for students to later explore climate change in-depth. And the scaffolding goes beyond science and math concepts; socio-emotional learning skills are also foundational to climate literacy. Students need to develop empathy for living beings, practice caring for others, and recognize that there is unfairness in how people live and are treated in order to develop a complex systems-level view of climate justice and to understand the issues on local, national, and global scales.

Talking about difficult topics like systemic unfairness and the unpredictability of a changing world may bring up intense emotions in students.

Leaning into conversations about climate change (especially climate solutions) will validate students' concerns, help them process their emotions, and provide reassurance that positive actions are being taken by adults to address climate issues. In addition, by incorporating coping strategies into climate lessons, educators can demonstrate ways to embrace and work through emotions during challenging conversations.

When students work together to make their community a better place, they feel empowered to be part of climate solutions without feeling pressure to save the world alone. Group action is key in elementary school so that young students, who often have little control over their household's decisions, don't feel responsible for changing their caregiver's behaviors. Working collectively to address local climate change impacts also shows students where they have capacity to make change, rather than focusing on adult-centric actions like driving less or abstract concepts like conserving water.

In this resource, we've chosen to focus on food. Food is a great introduction to climate change because it is relevant and personal to students. However, it's important to be sensitive to students' relationships with food; we highly suggest you read Appendix B for tips on talking about food in thoughtful and culturally responsive ways. Local, place-based actions such as composting or planting vegetables are things that young students can do as a group to see tangible, positive changes in their community. Food can also serve as a way to build from students' existing climate change knowledge as they explore a more specific topic with many connections to weather, pollination, habitats, and other foundational climate concepts. By engaging our students in critical thinking and problem solving about complex issues like our food system and climate change, we prepare them to be leaders and participants in making their communities more resilient to climate change, now and in the future.

Thank you for your commitment to climate change education!

Climate Generation Education Team

Acknowledgements

A collaboration between Climate Generation and three elementary educators.

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About Climate Generation

Climate Generation is a nationally connected and trusted nonprofit centering climate justice in climate literacy, climate change education, youth leadership, and community engagement to accelerate action on the climate crisis. Urgent and rapid action on climate change is needed to ensure a habitable world for generations to come, and education and engagement are effective and critical tools for empowering action. Our organization was founded by polar explorer, Will Steger, based on his powerful eyewitness to climate change and his history of inspiring educators and classrooms to engage in adventure learning. Climate Generation empowers individuals and communities to engage in solutions to climate change, and we do this by igniting and sustaining the ability of educators, youth, and communities to act on the systems perpetuating the climate crisis. Climate change is a highly complex issue, and just and equitable solutions cannot be found if we proceed with the climate science and policy lens alone. By overcoming disinformation, centering anti-racism and equity in education, and personalizing and localizing climate change action, we can activate individuals, as well as build resilient communities. Climate Generation is committed to addressing the intersection of climate change and economic, social, and racial disparities, and working closely with partners who understand this interface.

Climate Change Education Program Mission

Quality climate change education requires a holistic approach, one that speaks to the complexity of the climate system and investigates how political, economic, and social systems influence the impacts and solutions of climate change. Our education program integrates Western science and Indigenous ways of knowing, centers justice and anti-racism, supports the leadership of youth and frontline communities, and doesn't rely on fear, but rather focuses on solutions.

We recognize educators are critical messengers of climate literacy, and schools and non-formal organizations are the foundation through which climate change education and action can take place. We aim to:

- Build confident and empowered climate-literate educators that take action on the systems perpetuating the climate crisis through their work and personal lives.
- Lead a network of formal and non-formal educators that share interdisciplinary resources, pedagogical tips, and inspiration across North America.
- Create new instructional and curricular resources that support educators teaching intersectional and interdisciplinary climate change education.
- Support an anti-racist educator community by connecting educators to stories of leadership and climate change solutions from racially, economically, and socially marginalized communities, including youth, communities of color, and low-income communities.

We accomplish this by developing interdisciplinary curricula and instructional resources that support state and national education standards, create virtual and in-person professional development opportunities featuring resources and pedagogy from leading experts in climate change education, and develop education partnerships across disciplines and institutions that lead to deep structural changes in practice.

Instructional Curricular Resources

Climate Generation offers a variety of instructional resources to aid both formal and non-formal educators in teaching interdisciplinary climate change education, including curriculum, videos, and toolkits. Climate Generation's suite of Grades 3-12 curriculum resources support national and Minnesota state standards, the Next Generation Science Standards (July 2014), and the climate and energy literacy principles. The curricula have been reviewed by scientists, professional educators, and organizations. All lessons have online connections in the form of videos, articles, and other content. Each of these resources are interdisciplinary and can be used across the curriculum, including in science (especially Earth science, geography, biology, ecology, and environmental science), math, history, social studies, English Language Arts, media, and art classes.

Our toolkits are an excellent source of information and resources on an array of sociopolitical, environmental, climate justice, and personal reflection topics. Each toolkit is uniquely structured based on the topic. Toolkits provide background information around a timely issue, resources such as articles and videos to share with students, and a template or activity guide for actionable steps in the classroom and beyond. Toolkits can be used as preparatory work for an educator to explore a given topic; as a collection of trusted supplemental resources for a science, English Language Arts, social studies, or history classroom; and as a guide for extracurricular clubs and organizations looking to take climate action. Download our curriculum suite and toolkits for free at: climategen.org/curricula-resources

Professional Development Opportunities

Teach Climate Network & the Summer Institute for Climate Change Education

Climate Generation coordinates a North American network of educators dedicated to teaching climate change. The Teach Climate Network provides teaching tips, resources, inspiration, and community networking with educators from all disciplines, grade levels, and educational settings through e-newsletters, monthly virtual webinars, and regular professional development opportunities. Educators can sign up to join the Teach Climate Network to stay connected with us. Teach Climate Network workshops are archived and accessible via our YouTube channel. Learn more and join us: go.climategen.org/teachclimatenetwork

The Summer Institute for Climate Change Education, hosted annually since 2006, is the Teach Climate Network's cornerstone education conference that provides educators with tools to communicate climate justice-centered climate change education in the classroom. The Institute features training to address and teach emerging current topics and networking opportunities to build a community of mentors dedicated to climate change education.

Regional cohorts facilitated by climate change education leaders from across North America develop the framework, themes, and workshops of the Institute annually, as well as host a day dedicated to place-based climate change education and ongoing support throughout the year. Central to the goals of the Summer Institute are providing educators with workshops that feature climate change solutions, interdisciplinary education, intergenerational exchange and justice-centered lessons. Learn more about the Summer Institute: go.climategen.org/summerinstitute

Curriculum Development & Coaching

We offer curriculum development and coaching workshops for schools, districts, and other educational settings seeking to integrate climate change and climate justice into their curriculum and programming. Curriculum coaching workshops are tailored to each situation, including planning meetings and listening sessions to help assess the needs of the group, as well as collaborative, discussion-centered workshops and optional one-on-one support. Climate Generation facilitates interactive virtual or in-person workshops where educators explore climate change education foundations, develop climate change-centered lesson plans, and edit or update existing curriculum. Contact us to set up a listening call at education@climategen.org.

Custom Workshops

Climate Generation staff would love to work with your school, school district, or other educational setting to design a workshop focused on a variety of topics related to climate change, climate justice, or misinformation. Email us to set up a listening call at education@climategen.org.

About this Resource

This resource project began in response to elementary educators telling Climate Generation staff that they want to teach about climate change, but feel they don't have the knowledge or resources to do so effectively. After reviewing numerous resource hubs, we found that climate change resources for kindergarten through second grade (K-2) were minimal, and that fewer still addressed climate or environmental justice.

We wanted a resource that reflected elementary educators' and students' needs; and who better to connect with than those working in the classroom? We put out a call to find elementary educators with an interest in climate change education. Climate Generation selected three stellar educators working in different parts of the US to collaborate in developing and writing our resource. Educators attended four group meetings, led by Climate Generation staff and partners, in which they explored various key considerations for early childhood climate change education and worked together to design an outline for the resource. After weeks of planning, writing, and editing, *Food Solutions: Climate Change Action for K-2* is ready to share!

The resource development team chose food as our main topic for several reasons:

- Food is a relevant, relatable topic for all students.
- This resource can serve as a standalone unit or a deeper dive after completing our *Healthy Habitats* curriculum, as food is one of the four main components of habitat. Look for the flower icon for suggestions for connecting these lessons to *Healthy Habitats*!

- Food and climate justice are intertwined. Depending on your students' contexts, discussions could come up around the structural causes behind hunger and food insecurity and possible solutions; cultural connections to food; how different values play a role in families food choices; and how all of these factors (and more) are impacted by climate change.

- A food theme lends itself to the incorporation of Indigenous Knowledge and Traditional Ecological Knowledge, as food naturally involves people's lived experiences and community-based concerns. Learning about food, particularly food native to a place, helps us recognize humans as part of nature and consider our relationships to other living beings. In addition to these general approaches, you could build reciprocal relationships with local tribal members who could incorporate vocabulary in local tribal languages and share traditional foods and food growing/gathering practices. Integrating Indigenous ways of knowing and learning supports a more culturally sustaining learning environment for all students.

- Food is a topic that can be easily localized and personalized to students' lived experiences. Student-generated stories, ideas, and inquiry can be at the forefront.

- There are a number of tangible, collective climate actions that K-2 students can take part in related to food, connecting them to local, place-based solutions.

Coping techniques are important for students to ensure that they develop healthy ways of dealing with emotions, and are essential when learning about climate change, which can inherently bring up stress in students. While they will not solve everything, sharing coping and mindfulness activities throughout your lessons will help students stay more emotionally regulated and give them tools for dealing with difficult emotions as they grow. When you introduce these exercises, be sure to encourage students to use them any time they are feeling overwhelmed, anxious, angry, sad, etc. This will help normalize the use of coping techniques to deal with big emotions, and can improve students' ability to learn and engage in content. Look for the heart icon throughout the resource!

How to Use this Resource

This resource is made up of three lessons which are designed to build off of one another. You will need to complete at least portions of all three lessons in order to cover how food and climate change are connected in a way that is cohesive and supportive of students' mental health. The lessons should be taught sequentially. Lessons 1, 2, and the first segment of Lesson 3 can be done in back-to-back class periods. To implement your class' action plan in Lesson 3, you will likely need to set aside additional time outside of the activities to prepare, depending on whether you need administrator approval, supplies, volunteers, etc.

The resource loosely follows the NGSS 5E model of instruction. However, in Lesson 3 you will notice a deviation from this model during the action project portion.

Standards

Academic Content Standards	LESSON 1	LESSON 2	LESSON 3
SOCIAL JUSTICE STANDARDS (LEARNING FOR JUSTICE)			
Social Justice Standards for K-2			
ID.K-2.2 I can talk about interesting and healthy ways that some people who share my group identities live their lives.	X	X	
ID.K-2.5 I see that the way my family and I do things is both the same as and different from how other people do things, and I am interested in both.	X	X	
DI.K-2.8 I want to know about other people and how our lives and experiences are the same and different.	X	X	
DI.K-2.10 I find it interesting that groups of people believe different things and live their daily lives in different ways.	X	X	
JU.K-2.12 I know when people are treated unfairly.	X	X	
JU.K-2.14 I know that life is easier for some people and harder for others and that reasons for that are not always fair.	X	X	
AC.K-2.16 I care about those who are treated unfairly.	X	X	
AC.K-2.17 I can and will do something when I see unfairness–this includes telling an adult.		X	X
AC.K-2.20 I will join with classmates to make our classroom fair for everyone.			X
NGSS PRACTICES			
1) Asking questions (for science) and defining problems (for engineering)	X	X	X
2) Developing and using models	X	X	
3) Planning and carrying out investigations			X
6) Constructing an explanation (for science) and designing a solution (for engineering)			X
8) Obtaining, evaluating, and communicating information			X

Academic Content Standards	LESSON 1	LESSON 2	LESSON 3
NGSS CROSS-CUTTING CONCEPTS			
1) Patterns		X	
2) Cause and effect	X	X	X
6) Stability and change	X	X	X
NGSS DISCIPLINARY CORE IDEAS			
Life Sciences Disciplinary Core Ideas			
LS1.C: Organization for matter and energy flow in organisms	X		
LS3.A: Inheritance of traits	X		
LS3.B: Variation of traits	X		
LS4.D: Biodiversity and humans	X		
Earth and Space Sciences Disciplinary Core Ideas			
ESS1.C: The history of planet Earth	X	X	
ESS2D: Weather and climate	X	X	
ESS2E: Biogeology	X	X	
ESS3C: Human impacts on Earth's systems	X	X	
Engineering Design Disciplinary Core Ideas			
ETS1.A: Defining and delimiting engineering problems			X
NGSS PERFORMANCE EXPECTATIONS			
Life Science			
K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.	X		
1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	X		
2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.	X		

Academic Content Standards	LESSON 1	LESSON 2	LESSON 3
Earth and Space Sciences			
K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.	X		
K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.			X
K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.			X
2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	X	X	
Engineering Design			
K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.			X

C3 Framework for Social Studies State Standards (Grades K-2)	LESSON 1	LESSON 2	LESSON 3
DIMENSION 2: APPLYING DISCIPLINARY CONCEPTS AND TOOLS			
D2.Civ.9.K-2. Follow agreed-upon rules for discussions while responding attentively to others when addressing ideas and making decisions as a group.	X	X	X
D2.Civ.10.K-2. Compare their own point of view with others' perspectives.	X	X	X
D2.Eco.4.K-2. Describe the goods and services that people in the local community produce and those that are produced in other communities.	X	X	
D2.Geo.4.K-2. Explain how weather, climate, and other environmental characteristics affect people's lives in a place or region.	X		

C3 Framework for Social Studies State Standards (Grades K-2)	LESSON 1	LESSON 2	LESSON 3
D2.Geo.5.K-2. Describe how human activities affect the cultural and environmental characteristics of places or regions.	X	X	
D2.Geo.6.K-2. Identify some cultural and environmental characteristics of specific places.	X		
D2.Geo.8.K-2. Compare how people in different types of communities use local and distant environments to meet their daily needs.	X		
D2.Geo.11.K-2. Explain how the consumption of products connects people to distant places.	X		
DIMENSION 4: COMMUNICATING CONCLUSIONS AND TAKING INFORMED ACTION			
D4.6.K-2. Identify and explain a range of local, regional, and global problems, and some ways in which people are trying to address these problems.		X	X
D4.7.K-2. Identify ways to take action to help address local, regional, and global problems.			X
D4.8.K-2. Use listening, consensus-building, and voting procedures to decide on and take action in their classrooms.			X

Lesson 1

WHERE DOES OUR FOOD COME FROM?

AGE LEVEL:	Grades K-2
TIME NEEDED:	2 40-minute class periods Period 1: Engage, Explore, Explain Period 2: Elaborate, Evaluate
MATERIALS:	• Pencil for each student • Coloring supplies • Chart paper or access to whiteboard • Avocado seed (or other fruit with obvious seeds) • Interactive slide deck: Where does my food come from? (see Appendix A) • Plush toy of the fruit you chose (optional) • Pictures of each step of the food growing and distribution process • *Right this Very Minute* by Lisl H. Detlefsen www.youtube.com/watch?v=OF2V43qd4Yc
VOCABULARY:	**Air pollution:** Particles or gases in the air that are not good for the planet or human health. They often come from vehicle exhaust, factories, dust, pollen, mold, wildfires, or other burning materials. **Caring:** The act of feeling or being kind and concerned for yourself and others' wellbeing. We can care for ourselves, other people, other living beings, and the planet. **Climate:** What we expect the weather and seasons to be like in a place based on observed weather patterns over time. Climate changes relatively slowly compared to weather, but is changing more rapidly now due to human activities. **Food:** Any nutritious matter that we eat to give us energy to grow, move, and repair our bodies. The food we eat determines what types of energy sources our bodies use.

VOCABULARY:	**Processed Foods:** Foods that are changed from their raw, natural state. This can include foods that are cooked, pasteurized, frozen, canned, dehydrated, have added sugar, oil, or salt, or have added preservatives, vitamins, colors, or flavors. **Seeds:** The small parts produced by plants from which new plants grow. **Sustainable foods:** Foods that help us take care of the planet and people who grow, harvest, eat, and make food. Sustainable foods are climate solutions because they reduce fossil fuel use and greenhouse gas emissions and help us adapt and prepare for current and future climate impacts by increasing food security. Alternatively, you could use the phrase "Earth-friendly foods". **Weather:** What is happening outside today–it could be rainy, snowy, windy, sunny, etc. Weather is what you get no matter what you expect to happen based on climatic norms. Weather changes relatively quickly.
STUDENT LEARNING OUTCOMES:	By the end of the lesson, students will be able to: • Identify at least three places in their community where people can access food. • Define the differences between weather and climate. • Model how food gets from a farm to a grocery store. • Name at least two ways we can grow and transport food in sustainable ways.
EDUCATOR PREP:	• Understand how to prep for avocado seed propagation (video). • Access books and/or videos you're going to use. • Find a paper or digital map of your community that displays places where food is grown or distributed. • Find a world map and familiarize yourself with where avocados grow in Mexico and Central America.

Where does our food come from?

Background:

Food is essential for our overall well being. From growing strawberries in the garden with grandma, eating school lunch with friends in the cafeteria, to cooking a family recipe for a birthday or celebration, food is an integral part of our daily lives, and many practices center around it. Educating students on where our food comes from empowers students to enrich their diets with **sustainable** and nourishing foods that are good for both their bodies and the planet. Having **sustainable food** means that we are able to maintain the same growing, harvesting, transporting, and eating practices for a very long time because we're able to feed everyone and make sure we have enough clean soil, water, air, etc. so that everyone can live well. This care extends to plants and animals in nature that we aren't raising for food, people who grow and share our food, and all non-living beings. We encourage you to introduce the term "sustainable" to your students, as it is a common term in the media and when talking about climate change. However, we recognize this is a challenging vocabulary word for K-2; you may prefer to go with the term "Earth-friendly".

In this resource, sustainable foods could be:

- Foods grown or raised without fossil fuel-based pesticides, fertilizers, or pharmaceuticals (organic).
- Locally grown foods, including home, school, and community gardens.
- Crops grown by farmers who use crop rotation, crop diversity, cover crops, low-till, and other regenerative soil practices to keep their soil healthy.
- Wild, native, or foraged foods.
- Seafood caught in as humane and species-specific ways as possible, and that avoiding overfishing.
- Legally fished or hunted animals that are harvested within set limits.
- Livestock raised on smaller farms with enough space, fed a natural diet (like grass for cows), and grazed using practices that support the local ecosystem.
- Certified fair trade products that meet standards around worker pay and treatment.
- Foods with no packaging or packaging that is recyclable or compostable.

Sustainable food practices are climate solutions! We can reduce greenhouse gas emissions by transporting food less distance (which uses fewer fossil fuels), eating foods that are less energy-intensive to make; reducing food waste; reducing food packaging (which is often plastic, a petroleum product); and growing foods in ways that support our local ecosystems and prevent air and water pollution. Sustainable food practices also help us adapt to climate change by allowing more localized control over our food access, the ability to plant different crops based on changing conditions, and supporting the health of ecosystems, leading to increased resilience after extreme weather events or other climate impacts. Check out the Fifth National Climate Assessment to learn more about food systems and climate change.

Activities:

Part 1: Where does our food come from?

Engage (10 min)

Spark students' engagement by showing an avocado (or whatever fruit you choose to use) and asking students to identify what it is. Ask students how to say avocado in their language (if you're in a multilingual classroom). Pass the avocado around if possible so everyone has a chance to see and feel it up close. Ask students questions like, "Do you know what this is called? Do you like to eat it? How do you eat it? What does it taste like? Where does an avocado come from?" Use a chart paper or a whiteboard to record students' responses.

Explore (20 min)

1. Once students identify that the avocado comes from a **seed** (or if they do not know, show them the avocado seed), follow up by explaining that it comes from a tree. Avocados carry a big seed that's inside the fruit, and that seed grows more avocado trees. Ask students to observe the seed, noting its size, shape, color, and texture. Have them make predictions about how this tiny seed provides the food that we can purchase at the store or eat at a restaurant. What does the seed need to grow into an avocado tree? Show a time lapse video of seeds growing, such as these videos of avocados or tomatoes sprouting.

Healthy Habitats Connection!

Elaborate further with students by thinking about what seeds need to grow. In doing so, you can review the four main components of habitat shared in *Healthy Habitats!* Answers may include:

- Food in the form of sugars (created by the plant using energy from the sun)
- Fresh water
- Shelter (Appropriate temperature, protection from pests and strong winds/hail)
- Space to grow/access sunlight

Ask students to compare this list of needs with what their own bodies need. Do we need nutrients from food? Sunshine? Water? Shelter? Space? Emphasize that just like people, plants are happiest and thrive best when they have all their needs met.

Take students outside with their *Healthy Habitats* journals to look for seeds in their schoolyard habitat. Collect as many different types of seeds as possible. Ask students to journal about what types of seeds they found, where they found them, and what they think might eat them. Ask students to think about why seeds might be different sizes and shapes. If relevant to your learning objectives, discuss seed dispersal adaptations (puffy seeds on dandelions are wind-dispersed, whereas heavy seeds like acorns are meant to be planted in the soil, etc.). Based on these observations, how do they think an avocado seed would be dispersed if it weren't cultivated by humans? Why?

2. Using another chart paper or whiteboard, ask students, "where do we get food in our community?" Take a few thoughts right away. Students might come up with answers such as grocery stores, restaurants, food delivery services, school, food pantry, farmers' markets, grandma's house/kitchen, etc. Record responses. Then, share a paper or digital map of your community that has at least a few identifiable places related to food. Have students point out what they see—perhaps farmland, or a farmer's market, a grocery store, etc. Record students' findings on a whiteboard or chart.
3. You may also wish to do a brief activity where students sort out where different foods come from. You can use the slide deck in Appendix A or you may use chart paper and physical images. If students suggest the ground, gardening, or farms, focus on those answers and ask them to elaborate. If not, prompt them to think more deeply about how food got to the store or market, and where it was before, so that they understand that food comes from the Earth (sometimes directly, from a seed in the ground, or from animals eating things that also grow and live on Earth).
4. Show students a few pictures of farms and diagrams of how food gets transported. Try this image from Washington Grown or this image from Sandia Seed Company.

Explain (10 min)

1. Say that we've explored where food is in our community. Have you ever wondered why some food at the store is in cans and jars and some (fruits and vegetables) can sit out in their natural form/as a whole food? Or how we can transport food without it spoiling or rotting?
2. Explain that sometimes, we make changes to foods so that they last longer and can travel better. For example, bananas are picked while they're green or underripe and then shipped in refrigerated containers. When they arrive near their destination, they are put in a room that fills with ethylene gas to promote ripening; after a few days, they will turn yellow. We can also dry, freeze, or can fruits and vegetables so they don't spoil. Other times, a factory makes something that the earth couldn't make on its own; for instance, cereals take corn, wheat, or rice from a farm and blend them with other ingredients, some of which were human-created in a lab, to make what we see in a cereal box. We can also make changes so that foods not only last longer, but look and taste different. For example, foods that come from restaurants are often fried in oil and have lots of added salt and sugar. Foods that are changed from their original state in any way are called **processed foods**. A food is **ultra-processed** when it has ingredients and additives that aren't found in nature, like food dyes, hydrogenated oils, corn syrup, etc.
3. Bring in some foods and see if students can sort out which are fresh foods and which are processed. Examples could be: apples, potatoes, broccoli, carrots, cheese, french fries, candy, jelly, etc.
4. Explain that in the next class, we will look at the journey food makes to our plates in more detail, and will talk about ways we can make sure that journey is good for people and the planet.

Part 2: Food and Climate

Elaborate (30 min)

1. Circle back to the avocado. Introduce the origins of the avocado and on a map, show that avocado trees originate from Mexico and Central America and grow in warm **climates**. Compare this to your regional climate, and ask if they think avocados could grow outside where you are. Why or why not? This CIAT world map of food's origins may be fun to explore! Use it to help students see the diversity of crops around the world and to compare traits of plants and animals in different climatic regions.
2. Pause here to introduce or review the vocabulary climate and weather. **Climate** is what you expect, and **weather** is what you get! You dress for the weather every day based on what it's like outside. But climate is what you could guess would happen in any given month or season based on past experience and weather data. There are different climates in different parts of the world.

3. Play a quick game to help students differentiate the terms. Read the following statements out loud and have students share whether they think it's describing weather or climate. Have students make a "c" or "w" shape with their hands or arms to answer the questions from their seats.

    - In some countries, there is a dry season and a rainy season. (Climate!)
    - Today it is windy. (Weather!)
    - I wear a coat, hat, and mittens in winter because it's usually cold and snowy. (Climate!)
    - Tomorrow is going to be very sunny. (Weather!)
    - It is hot and dry in the desert most of the time. (Climate!)
    - This is the rainiest July day we've ever had. (Weather!)

Healthy Habitats Connection!

If your class completed the *Healthy Habitats* curriculum, now would be a great time to revisit the discussion about climate and weather and the KWL chart about climate change from Lesson 2. Students could even add to the chart what they now know or want to know about climate as it relates to food.

4. Next, ask students to consider how we get avocados to eat if we do not live in the climate that they need to grow. Students might suggest boats, planes, cars, semis, trains, growing it in a hoop house garden, etc. Encourage students to think about what happens when a bunch of avocados arrive in the US from Mexico. Does the truck drive to every grocery store in the US? No! There would need to be more planes/trucks/trains to transport some of the avocados to every city, and then even more transportation to get them to each grocery store. Ask students what they think of this process; is it easy or hard to transport food from far away?
5. Ask students if they've heard them about air pollution. Explain that air pollution is anything in the air that isn't good for people or the planet (they might have experienced smog, smoke, dust, etc.). Air pollution often comes from car or truck exhaust. What do they think creates more air pollution: getting an avocado from the grocery store or picking an apple from a tree in their backyard? Transporting food takes a lot of fuel like gas for trucks and planes, and using gas causes air pollution. Ask them to think about why this matters, and say that you will talk more about this idea in the next lesson.

Talking about air pollution may bring up stressful feelings for students. Consider a mindfulness/coping exercise here (see Appendix D) like the Internal Weather Check in, Box Breathing, or the Butterfly Hug.

Student/Teacher Choice:

Choose one (or both!) activities depending on how much time you have and your students' preferences.

Option 1 (10 min): Read the story, *Right this Very Minute* by Lisl H. Detlefsen (or show the video) to expand upon the ideas for how food arrives on our plates.

Option 2 (20 min): Model a food's journey with a skit! Use the avocado (or perhaps a stuffed plush version of an avocado or another food) to have students act out all the steps needed to transport the chosen food to their hometown. Note that this is a very simplified, generalized version; if you or your students have more steps to add in, great!

1. Share printed images of the general steps that some food takes to get to a grocery store (see Appendix A). You may wish to magnet or pin them to a board so that everyone can see them. Have 1-2 student volunteers put the pictures in the correct order to help illustrate the process as other students act it out.
2. **Planting:** Farmers have to prepare for new plants each year. Ask students to remind you where plants often come from–seeds! Have them list off what a farmer would need to think about to help the seeds grow into plants (sun, nutrients/food, water, soil, shelter, space). Have a volunteer play a farmer planting and watering seeds while the volunteers at the board put the "planting" picture first in line.
3. **Growing:** Ask a volunteer to start with the chosen food. Where are they growing? (Ex: If you're using an avocado, the fruit would be on a tree in Mexico. Have someone act out being the tree while the "avocado" volunteer hangs the avocado off their "branches").
4. **Harvesting:** Ask students, "what happens when the food is ready to harvest?" (Ex: Someone would hand-pick the avocado [choose another volunteer] and put it in a basket).
5. **Transporting:** How does the food travel to its next stop? (Ex: Avocados are best shipped in refrigerated trucks). Choose someone to take the food from the harvester and "drive" the food to its next destination. Consider if the food you've chosen needs to be transferred to another form of transportation (like from a boat to a truck), or whether, like the avocado, it can make the journey in one form of transport.
6. **Processing:** Referring to the remaining pictures on your board, ask students what they think comes next. Cleaning and processing! Remind students that **processed food** means anything that changes the food from its original, natural state. This can include washing, cooking, preserving, or adding to it. Many foods go through a factory that can wash them and possibly package them (and add all those stickers we see on produce). Ask 2 volunteers to act out washing and preparing the food. (Ex: avocados are washed; samples are tested for quality; they're sorted between blemished or bruised avocados–which go to a different facility to become guacamole–and unbruised ones; and have a sticker stuck to them).

7. **Distributing to retail:** Next, the food would be transported to a grocery store. How might that be done? Usually at this point it would be in a truck. Have the processors give the food to a new truck driver and have them "drive" to someone at a "grocery store" to deliver the food.
8. Thank all volunteers and turn everyone's attention to the board with the images. Review the process of how your chosen food travels to your local grocery store.

9. After the book or skit, summarize the lesson. Food gives us the energy to live and grow. Food starts out by being grown (plants), raised (livestock), or harvested (ex: seafood, foraged foods like mushrooms). Sometimes food stays as it was, and other times it is **processed**, or changed from its original state. It is important to eat the rainbow (a variety of foods) to take care of ourselves.
10. Food helps us care for ourselves; and we also have a responsibility to care for our food! Caring for our food in a way that helps all living and nonliving beings (including the people who grow our food) is known as sustainable farming. **Sustainable food** means that we are able to keep doing the same growing, harvesting, transporting, and eating practices for a very long time because we're able to feed everyone and make sure we have enough clean soil, water, air, etc. so that everyone can live well. This care extends to plants and animals in nature that we aren't raising for food, people who grow and share our food, and all non-living beings. Sustainable foods usually make less air pollution, which helps everyone be healthier and keeps our planet from getting as warm and warming up too quickly.
11. Return to the (real) avocado from the intro. Put toothpicks into the avocado seed and then set it into the water. Tell the class you will document the seed's growth and journey by caring for your own avocado plant! Though it won't produce avocados because it doesn't have everything it needs in a classroom, it should grow into a plant! Take time to observe the avocado each day, asking students how it compares to a "parent" or adult tree. Does it look similar or different from an adult avocado tree?

Evaluate (10 min)

Ask students how they think we can eat, buy, and prepare foods that are sustainable/Earth-friendly, or that care for people and the planet. Use your anchor chart or whiteboard to refer back to the foods discussed to categorize which foods students think are sustainable and why. How can we be caring when we grow, move, and eat our food?

Extend:

Literacy and Health Connections:

- ☐ Ask students if they can survive by only eating one item (take from food examples given to you by students). Students most likely will say "Nooo!" Ask, "why not?". Students might suggest that you need a variety of foods to support your body; ask them to elaborate.
    - Introduce the book, *I Can Eat a Rainbow* by Olena Rose or bilingual book option: *Comiendo el Arcoíris* by Patricia Barrera Boyer to introduce the importance of eating the rainbow - eating a variety of nutrient-rich foods to strengthen your body and give you energy.
    - Use the Eat a Rainbow Food Journal worksheet (see Appendix A) to show on a whiteboard or anchor chart to document the foods you (collectively) have eaten this week. Alternatively, consider drawing or printing a large rainbow on the board and having students add stickers, printed photos, or drawings of foods they've eaten that correspond to a color of the rainbow. Did your class eat a rainbow? If so, you could celebrate with pictures of rainbows or do a rainbow craft!
- ☐ Read *My Magical Foods* by Becky Cummings.

Social Justice Discussion:

- ☐ Have students dive deeper with a think-pair-share reflection and conversation, such as: What happens if you cannot or do not have access to your favorite foods (or much food at all)? Consider natural disasters (hurricanes, floods, etc), an adult losing their job, moving, etc. What can we do to help people who do not have easy access to food? How can we protect the land and foods we have so that we can continue to keep our earth healthy and provide food for ourselves and families?

Online Connections:

- ☐ Have students explore different breakfasts around the world.
- ☐ Watch kids try different types of sustainable foods.

Outdoor Connections:

- ☐ Head outside on at least five different days to observe the weather (students could do this during recess and report back too!). If possible, use a thermometer and anemometer to record temperature and wind speed and a rain gauge or meter stick to collect rain or snow data; if you don't have equipment, that's okay! Students can make observations such as whether there is cloud cover or any precipitation, how warm or cold they feel relative to the previous day, whether they feel a light or strong breeze, etc. For an even deeper dive, have students record and share their data with the Community Collaborative Rain, Hail, and Snow Network (CoCoRHaS)! This could also be done as a pre-lesson introduction to weather before starting Lesson 1.
- ☐ Continue to explore seeds, pollination, and seed dispersal methods outside your school. See the *Healthy Habitats* Connection for a starting point.

Lesson 2

WHAT'S ON MY PLATE THAT GROWS IN THIS PLACE?

WHAT'S ON MY PLATE THAT GROWS IN THIS PLACE?

AGE LEVEL:	Grades K-2
TIME NEEDED:	2 40-min class periods Period 1: Engage, Explore, Explain Period 2: Elaborate, Evaluate
MATERIALS:	For each student • Pencil and eraser • Coloring materials • My Favorite Meal worksheet • My Wheel of Seasonal Food worksheet • Local Food in my Neighborhood worksheet (see Appendix A for worksheets) • A pair of scissors • Paper Fastener/Brad • Optional: blanket or jacket for global warming demonstration. • Book: *What's your Favorite Food?* by Eric Carle and friends, youtu.be/ypE-XFT1Lws or *Which Food will you Choose?* By Claire Potter, www.youtube.com/watch?v=t8LvxFNHPbE
VOCABULARY:	**Air pollution:** Particles or gases in the air that are not good for the planet or human health. They often come from vehicle exhaust, factories, dust, pollen, mold, wildfires, or other burning materials. **Climate:** What we expect the weather and seasons to be like in a place based on observed weather patterns over time. Climate (especially temperature and precipitation) determine what can grow in a place. **Local food:** A locally or regionally produced food product eaten less than 400 miles from its origin or within the state in which it is produced. Some places define local foods as those produced within 100 miles or less.

VOCABULARY:	**Seasonal food:** Seasonal food can include foods available during different months in the year. Yearly temperature variation affects the production cycles of fruits and vegetables, so, in any given region, different foods grow better at different times of the year. Seasonality can be defined as globally seasonal (i.e., produced in the natural production season but consumed around the world) or locally seasonal (i.e., produced in the natural production season and eaten within the same climatic zone).
STUDENT LEARNING OUTCOMES:	By the end of the lesson, students will be able to: • Identify what types of food are grown locally. • Draw or model what foods are available seasonally in their area. • Describe why local and seasonal foods are sustainable (better for people and the planet).
EDUCATOR PREP:	• Print the activity worksheets (1 per student and some extras). • Use the Seasonal Food Guide website to research local produce in your area. • Prepare enough coloring materials, scissors, and fasteners for each student. • Have one or more of the books ready for the read-aloud activity. • Research seasonal produce in your local area. You can use this Seasonal Food Guide: www.seasonalfoodguide.org/

What's on my plate that grows in this place?

Background:

There are many benefits to eating locally sourced foods in season. It supports the local economy, reduces the amount of **air pollution** and food waste caused by transportation and storage, and often provides fresher and more nutritious foods. Eating locally may reduce an individual's or community's climate impact too, as it can reduce greenhouse gas emissions from food transportation, storage, and packaging, depending on the circumstance (p. 48). Local foods can also help a community be more resilient to climate impacts, since they have access to food that isn't dependent upon global supply chains, self-support their local economy, and can grow and store food in ways that help them adapt to and prepare for climate disturbances. In addition, **local foods** can help us develop a deeper connection to our place and a greater appreciation for the unique regions we live in.

But what does "local food" mean? Local foods are usually given directly from the farmer to the consumer; for example, a farmer's market or a pick-your-own apple orchard. The US Food, Conservation, and Energy Act of 2008 defines local foods as a locally or regionally produced agricultural food product that travels less than 400 miles from its origin or is consumed within the state in which it is produced (p. 245). Some organizations define local foods as those produced within 100 miles of where they're consumed. It is important to remember that food systems that exist and operate in diverse populations are complex, and using distance to define local foods could be limiting.

In this lesson, it may be helpful for your class to discuss what "local food" means to them, and agree on a definition together that's applicable to your region.

Eating locally typically means eating more seasonally as well. **Seasonal foods** include those available during certain months in the year. Temperature variation over the year affects the production cycles of fruits and vegetables, so, in a particular region, different foods grow better at different times of the year.

Seasonality can be defined as globally seasonal (i.e. produced in the natural production season of a country but consumed anywhere in the world) or locally seasonal (i.e., produced in the natural production season and consumed within the same climatic zone). Some regions are better at growing certain foods than others due to the soil type, the climate (temperature and precipitation patterns) during the growing season, cultural traditions and knowledge of certain growing practices, and other elements specific to the area. In the Midwest, for example, eating seasonally may look like buying kale and spinach in early spring, picking fresh strawberries in early summer, switching to raspberries and then blueberries in late summer, and then cooking squash and potatoes in the fall and storing root vegetables for winter.

Seasonal eating can also include foraging or harvesting native, wild-growing foods. If you have relationships built with local tribal community members, seasonal eating is an excellent way to share Indigenous cultural connections to food in your region. For example, many Ojibwe in Minnesota practice traditional lifeways such as maple sugaring in the spring, fishing in the summer, and harvesting manoomin (wild rice) in the fall; many Minnesotans have learned and follow these seasonal eating patterns.

While eating locally and seasonally grown foods has many benefits, it is not always practical or economical to eat just those foods. Many communities do not have access to these foods due to cost or lack of nearby food sources. In many regions, there is a limited variety of foods available at certain times of the year. A balanced diet may require selecting foods sourced elsewhere (e.g. through the grocery store).

Activities:

Part 1: Introducing local foods

Engage (10 min)

1. Use one of the suggested books for a read-aloud (or use the links for online reading) to get students thinking about favorite foods and food variety. Books you might consider are: *What's your favorite Food?* (Eric Carle and friends) or *Which Food will you Choose?* (Claire Potter).
2. Engage the students by asking, "What is the best meal you've ever had?" Model this by sharing your own favorite meal. Then, have students share with a partner. Encourage them to come up with a full meal, and not just one food item. This meal could include a dish with multiple ingredients, like soup or pizza, or a multi-course meal you might eat during a holiday. Walk around to different groups and ask, "Why did you like this meal so much?"

Explore (10 min)

1. Give the students a few minutes to draw a picture of their favorite meal.
2. Then, ask the students to write or draw as complete a list as possible of the ingredients of this meal. Push them to be as detailed as possible, and to guess about ingredients if they're not sure. Encourage them to ask you and each other if they have questions or need help.
3. Have each person share two or three of the ingredients from their list with a partner. Walk around the room to listen in. If their answers include foods that consist of several ingredients (for example, ice cream), push them to think about what this item consists of (i.e. cream, sugar, and any flavoring like vanilla or strawberries).

Explain (10 min)

1. Ask students to circle one of the ingredients they shared with a partner. Have them close their eyes and think about what they know about this ingredient. Where might it come from? What do they think this place looks like?
2. Ask the students to talk about the foods they drew. Challenge the students to circle all the foods they think are grown close to where they live in a new color.
3. You may wish to pause to have a group discussion of what the class wants to define as "close". It could be something grown in their neighborhood or grown anywhere in their state, for example. Explain that these are called **locally grown** foods. Are most of the foods they enjoy grown locally, or are they grown somewhere else in the world?

4. Circle back to **air pollution**. Explain that one way air pollution happens is when we burn things like fuel for cars, airplanes, trains, boats, etc. Air pollution (which is made up of different gases, or different types of air) goes into the air and wraps around the earth like a blanket. When you're cold, how do you feel when you put on a blanket? Warmer than before, right? What if you put on three or four blankets? Eventually you might feel sweaty and too hot and would need to take off some blankets. Just like blankets, we need some of these gases to keep Earth just the right temperature; but if we put too many blankets on top of the Earth, it starts to heat up a lot!
5. If your students have jackets handy, model this rather than discussing! Have everyone put on their coat (alternatively, have one volunteer put on a coat or blanket) and then run in place or do jumping jacks. How do they feel? Probably warmer than before! What happens if they take the blanket/coat off? They start to cool down! The gases in the air are like that; they trap heat. Some heat-trapping layers are helpful so we don't get too cold; but it's also possible to get too hot with too many layers!
6. Summarize: this is one reason why it can be positive to choose local foods. They don't travel as far and don't cause as much air pollution, which helps us keep Earth at a good temperature. When Earth stays at a "just right" temperature, our local climate stays predictable and we can keep growing the foods we expect to grow where we live. Local foods are one way to choose **sustainable foods** that are good for people and the planet! Ask students if they can think of other ways food can be sustainable.

Part 2: Exploring local and seasonal foods

Elaborate (35 min)

1. Choose a local food that is well-known to your students and only grows seasonally in your area. Ask them if they think farmers can grow this food all year long. Why or why not? Answers may include that it's too cold and snowy or that it gets too hot and dry for the crops to grow well. Reemphasize that the **climate** of a place determines what can grow there. If the climate changes, so do the foods that can grow or live in a place.
2. Next, explore seasonal foods. Hand out copies of the Seasonal Food Wheel student pages (see below or Appendix A). Challenge students to identify crops and other farm products (like honey, milk, or eggs) they believe are sourced locally in your area and when they are in season. Guide them to think about the climate in your area and what crops and animals need to grow up healthy.
3. You can use resources like the Seasonal Food Guide which links to seasonal calendars by state. Depending on students' age and access to technology, you may choose to do this as an individual research project or as a class. You could also bring in a basket of seasonal produce for the students to use as their starting points if an online search isn't feasible. If you have a school garden or orchard, heading outside to visit it and identify produce would be a great alternative!
4. For each crop or product they find, have students draw and label it on the circle in the months or seasons it is available.

To give students a stretch and movement break and relieve any tension from the lesson, wrap up with a mindfulness/coping activity. We recommend the Energy Exchange (Composting) activity in Appendix D.

Healthy Habitats Connection!

Bring your students back outside to their local schoolyard habitat to make observations with their journals, this time thinking about what local, seasonal foods might be available to people by foraging for wild edible plants! Choose one or two edible plants to look for. Common plants are dandelions, red and white clovers, pine needles, or berries like wild raspberries. This activity would of course depend on your school's policies around eating outside foods during school hours, but by checking in with your facilities teams, principal, and students' guardians, you could ensure that everyone is comfortable with the gathering of wild edible plants in a safe space at school. You can make easy, tasty dandelion fritters by dipping them in pancake batter and pan frying them in oil! Check out Forager Chef for recipe ideas. Have students write and/or draw pictures of what they found and whether they liked the foraged meal.

Make sure to check with the landscaping and facilities teams to confirm that no pesticides or herbicides were sprayed and that you can easily identify the plants you want to collect. Wash anything you pick before consuming. Visit Appendix C for more tips about teaching outside!

Evaluate (5 min)

Use students' Seasonal Circles to assess their understanding of what is local and seasonal. Did they find foods available in your area and place them in the appropriate months or seasons? Did they sufficiently identify sources of local food in your area?

Extend:

Literacy Connections:

- Read books like *Saturday at the Food Pantry* by Dianne O'Neill or *Maddi's Fridge* by Lois Brandt to introduce students to food insecurity and hunger. Discuss how hunger occurs for many reasons, how it takes much work to solve the problem, and how many people are working to learn why people are hungry and to find ways to ensure that there is good food all year long for everyone. People in the community can work together so that everyone will have enough food to eat.
    - Invite students to think about how their communities (either the school or the places they live in) are affected by the availability of food, whether it is because of financial reasons or climate impacts like drought and flooding. Have these conversations based on student observations, experience, and inquiry to avoid overwhelming them. You can use this video from Soul Pancake to have them consider this.
- Extend students' learning by having them work collaboratively on a local food resources booklet. Begin by asking students to think of general categories of places where people could get local, seasonal food (like farmers' markets, community kitchens, community gardens, CSAs, grocery stores, school cafeterias, or restaurants).
    - Divide the class into teams, with each team researching nearby places in one of the categories. Teams may check out websites like the Local Harvest.
    - Give teams copies of the Local Food worksheet (in Appendix A) to list the best resources they find. Ask for volunteers to draft 2–3 paragraphs on the importance of eating local and seasonal foods. Assemble the completed student pages into one booklet. Make stapled copies of the booklet for students to take home.

Social Studies Connection:

☐ Create an "I Can…" board using Post-its or an online board to promote a positive outlook on problem solving. Based on what students were most concerned about from the lesson, challenge them to think about what actions they can do to be part of the solution. For example, they might consider solutions to hunger, air pollution, or a warming planet. You can use Post-it notes on a wall or an interactive online board.

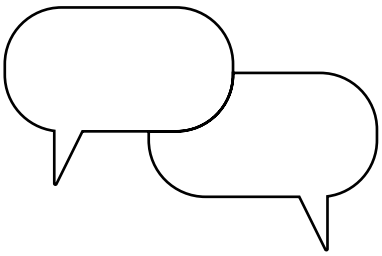
After School Connection:

☐ Research/Create a Recipe: Invite students to find a recipe like their favorite meal that uses locally sourced food. They can interview their family members and friends for ideas. Encourage them to try out the recipe at home and then share their experience.

Name: _____

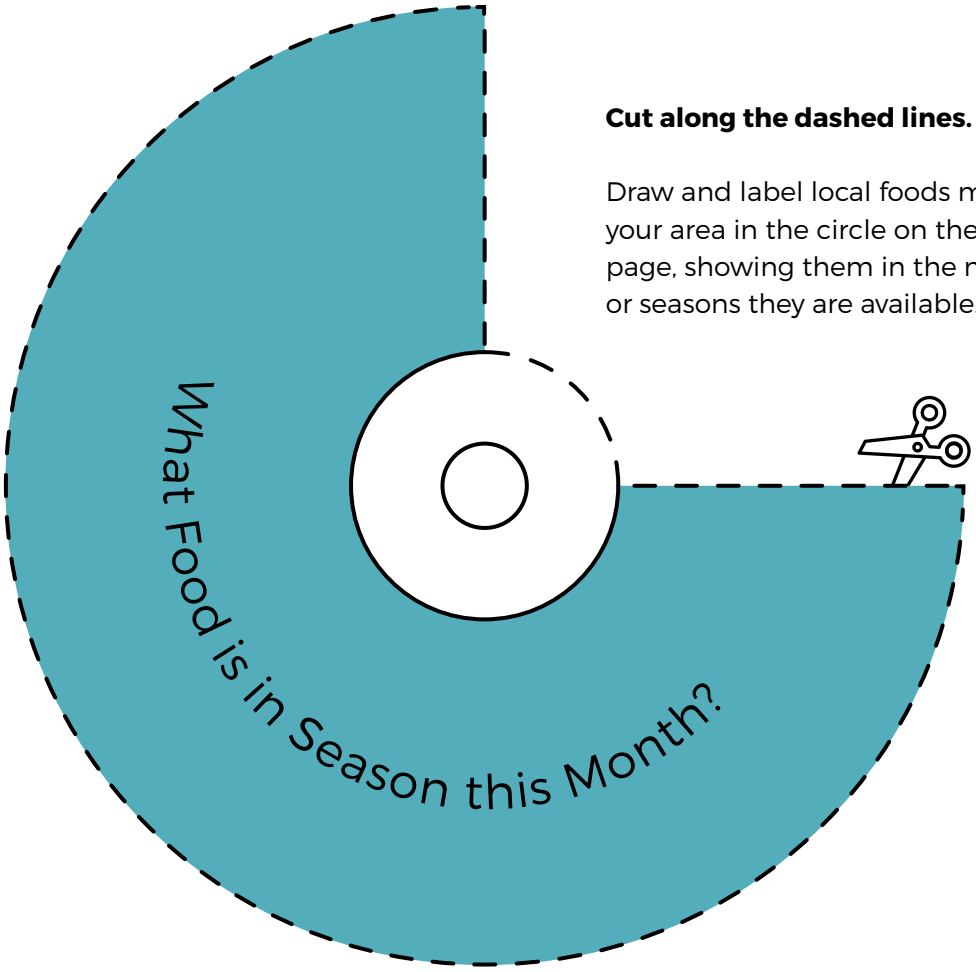
My Favorite Meal

What is the best meal you have ever had? Draw or write about it in the space below.



Talk about the foods you drew or listed. **Circle** all the foods that are grown **locally**. Are most of your foods grown **locally**, or are the grown somewhere else in the world?

My Wheel of Seasonal Food



Cut along the dashed lines.

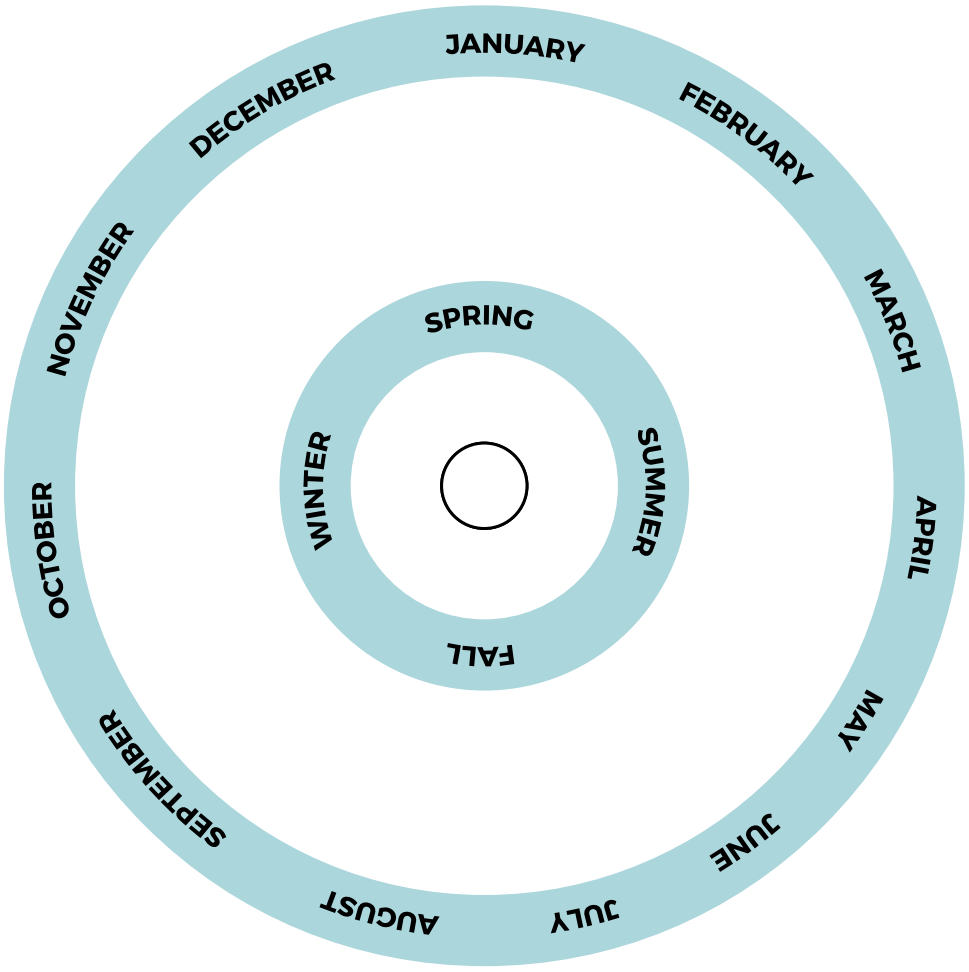
Draw and label local foods made in your area in the circle on the next page, showing them in the months or seasons they are available.

Adapted from Nourish Food + Community Curriculum, pp. 32 and 33;
www.nourishlife.org/teach/curriculum/

Name: _____

My Wheel of Seasonal Food

Draw and label local foods produced in your area in the circle showing them in the months or seasons they are available. Line up the top and bottom Seasonal Food Circles and attach them in the center with a paper brad fastener.



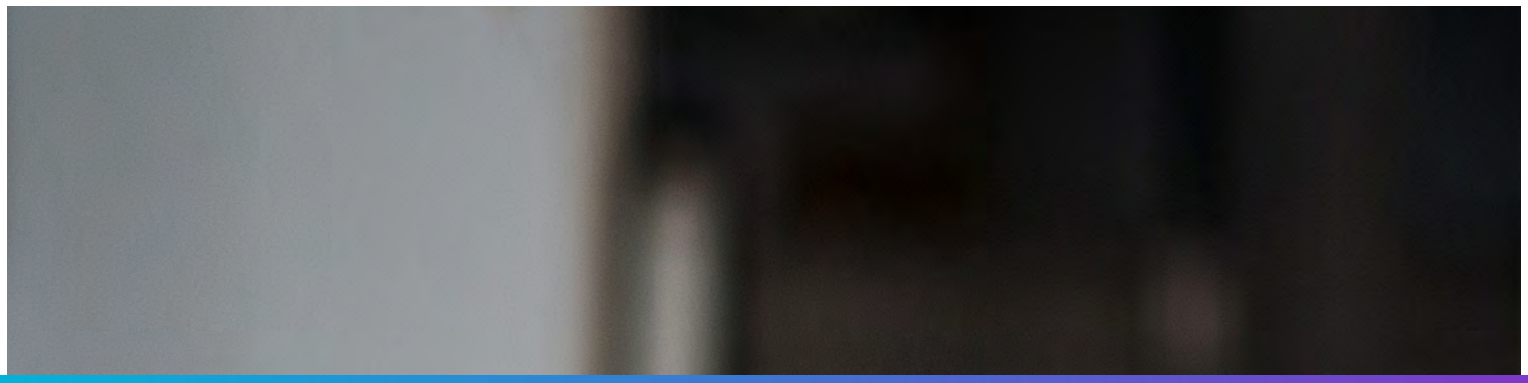
Adapted from Nourish Food + Community Curriculum, pp. 32 and 33;
www.nourishlife.org/teach/curriculum/

Local Food in My Neighborhood

Where can I find locally grown food in my neighborhood?
Research places where you can find local food. Write as much information as you can in the spaces below.

Name of Place: Type of place: (community garden, market, grocery, food pantry, restaurant) Describe the place:	Name of Place: Type of place: (community garden, market, grocery, food pantry, restaurant) Describe the place:
Name of Place: Type of place: (community garden, market, grocery, food pantry, restaurant) Describe the place:	Name of Place: Type of place: (community garden, market, grocery, food pantry, restaurant) Describe the place:

Adapted from Nourish Food + Community Curriculum, pp. 34; www.nourishlife.org/teach/curriculum/



Lesson 3

HOW CAN WE SUPPORT SUSTAINABLE FOOD AT OUR SCHOOL?

HOW CAN WE SUPPORT SUSTAINABLE FOOD AT OUR SCHOOL?

AGE LEVEL:	Grades K-2
TIME NEEDED:	2 40-minute class periods, plus time to implement an action project
MATERIALS:	• Pencil, paper, and clipboard for each student for the interview • Chart paper or a whiteboard • Any materials your class identifies as necessary for their action project • Action Plan template (see Appendix A)
VOCABULARY:	**Composting:** Recycling natural waste (like food scraps, leaves, or manure) to make fertilizer that helps plants grow and promotes soil health. **Food waste:** Excess food or food scraps that are thrown in the garbage instead of being used. **Packaging:** Anything that contains or covers a food item, such as a cardboard box, plastic tub, or plastic wrap. Some packaging is more sustainable than others. **Food transportation:** Moving food to a different location from where it was grown. **Plant-based eating:** A diet of mostly (but not all) plants. This includes grains, legumes, fruits, and vegetables. Some people who consider themselves "plant-based eaters" still consume meat and dairy, but plants make up a larger portion of their plates.
STUDENT LEARNING OUTCOMES:	By the end of the lesson, students will be able to... • Identify a local, school-based food issue. • Design an action plan to address the issue at their school. • Take collective action to support sustainable food systems.

HOW CAN WE SUPPORT SUSTAINABLE FOOD AT OUR SCHOOL?

EDUCATOR PREP:

- Have anchor chart or board space for recording student ideas.
- Talk to the cafeteria staff about a class interview, and come up with questions for the interview.
- Print or be prepared to write out the Action Plan template.

How can we support sustainable food at our school?

Background:

The best place to start for elementary-level climate action is at school. At school, students can work collectively with trusted adults and their peers to make positive changes that directly impact their own lives. After exploring food transportation and local and seasonal foods, students may have lots of ideas for doing something to make their school food system more sustainable.

There are many food-related climate solutions that K-2 students can collectively address (food waste reduction and composting, reduced packaging, buying locally, gardening, reducing consumption of meat and other high-greenhouse gas-producing foods, learning to preserve food, organic, small-scale farming, etc.).

The following are common food-based climate solutions that your class may be interested in:

Food waste is often overlooked when we talk to students about our global impact on our environment, but it is a great way to get students involved and really interested in the ways they can help, even at a young age. Food waste contributes to climate change because rotting waste in landfills releases methane, a potent greenhouse gas. According to Project Drawdown, food waste is the second-most effective way for individuals and households to bring down greenhouse gas emissions. Food waste includes edible foods that were not eaten, as well as scraps of foods considered inedible (bones, fruit rinds or peels, etc.). Reducing food waste at school can go in many directions. It could involve a student-led waste audit; installing compost bins in every classroom or in the cafeteria; educating the school about the safety and value of eating blemished fruit; learning how to store and preserve food; learning how to store different types of foods to maintain freshness; informational posters and prizes for collectively reducing food waste during lunch; donating leftover cafeteria food to a community kitchen or afterschool program; or partnering with a local farm to give food scraps to livestock. Get creative!

Packaging is very fossil-fuel-intensive to produce, and much of it is made of plastic, which is an oil-based product., Therefore packaging is a great choice for a student climate action project! Try installing or improving recycling systems in your classrooms and cafeteria; switching to glass and aluminum when possible, which are easier and less expensive to recycle and reuse almost indefinitely; working with cafeteria staff and administrators to switch to silverware or compostable cutlery and plates; removing vending machines that sell food in plastic; or partnering with a local farm or community garden to deliver fresh produce with less packaging.

Food transportation contributes a lot to greenhouse gas emissions because of the fossil fuels used to operate modes of transportation (and often to refrigerate the food). Consider projects that reduce how far food needs to be transported; aim for a Local Foods Day in your cafeteria once a week or once a month; partner with local farms, community supported agriculture, or community gardens as food vendors; invite tribal community members or wild edible experts to share aspects of their seasonal growing and harvesting practices; start a school garden, plant fruit trees, or grow vegetables and fruits in the classroom.

Plant-based eating is the number one action that individuals and households can take to reduce greenhouse gas emissions, according to Project Drawdown. Eating plant-based can reduce greenhouse gas emissions by reducing demand for meat (which contributes to methane emissions, deforestation, and high energy production, transport, and processing costs). Think of the impact a whole school could have! It is possible to make a big difference by even cutting back on meat purchases just at school breakfasts; starting a Meatless Monday event; or offering plant-based snacks or cooking demonstrations that highlight how delicious fruits and veggies are.

When teaching about food-based actions, it is important to recognize and respect different decisions that people make and reiterate to our students that everyone's food choices are personal and valid. We also need to be aware of our students' cultural, medical, and economical differences when teaching about food, so as not to bring shame or blame on any students. The activities below focus on collective actions rather than individual's food waste or packaging, because students don't often have control about the portion sizes they're given or the packaging their food is in. See Appendix B for suggestions for supporting your students' healthy relationships with food.

When teaching about climate change, it is imperative to not bring a sense of doom to the students but be positive about solutions and ways they can help within their communities. Remember to be truthful and factual. Do not share more than the students seem ready for and always let them lead with questions. Remember to be solution-oriented.

Based on your economic and cultural location, this lesson can be amended to your area. Building a compost area or a school garden may not be feasible at your school, for example, but growing a few potted tomatoes or strawberries might be! Make sure to include different and varied ways of completing these activities and be sensitive to food allergies as well as cultural food needs.

Taking action to educate students about food issues and how they affect them in their everyday life is crucial for them to understand what they can do to make a difference. As the teacher, you can guide your students to ways they feel may be most effective in making a change or impact, with the resources and knowledge made available to you, in your local area.

Activities:

Part 1: Prepare for an action project

Engage and Explore (20 minutes)

1. Ask students, "what would you like to know about food at our school?" Get 2-3 answers from students. Say that you are going to learn more today by talking to the people at school who spend the most time with our school food–the cafeteria staff!
2. Have students go to the cafeteria to interview the staff and collect information on ways the students can help support sustainable food at school. With older students, you could have them write some of their own questions. For younger groups, you may wish to provide all questions in advance and structure the interview more. The interview will help you and your students better understand where food is sourced at the school and why; what some real and perceived barriers are to making changes; and opportunities to improve the school food system! Here are some example questions to ask:

- What is your name (if not known)? How long have you worked here?
- What's your favorite part of your job?
- Where do the fruits and vegetables for our cafeteria come from? Meat and dairy? Pre-packaged (processed) foods? ("Where" can refer to the company/farm that provides the food and the country or state of origin.)
- What kind of packaging does the food come in (boxes, plastic wrapped, etc.)?
- What is the farthest distance you think any food travels to get here?
- Who decides who we buy food from and how much?
- Do you serve any local or seasonal foods at lunch? Why or why not?
- What happens to recycling/trash/compost after it's put in the bin?
- What happens to extra food that wasn't eaten during lunch? Why?
- What do you like about how our cafeteria makes and serves food?
- What do you wish we could do differently in the cafeteria?

3. Thank the cafeteria staff for their time!
4. If your students were really excited by excursion to another part of the school, they may need a moment to reset. Share a mindfulness/coping strategy to help everyone settle back into their seats, such as the Shake it Off activity in Appendix D.

Explore and Explain (20 minutes)

1. Once you're back in the classroom, explain that you are going to explore some ways to make positive changes at your school. The goal: take an action that makes your school food more sustainable/ Earth-friendly!
2. Have students split into groups or work as a whole class. Brainstorm ideas about what they can do to support sustainable foods at their school. Help students make connections between what the cafeteria staff shared and what solutions might exist at your school. Refer back to Lessons 1 and 2 if students need reminders about possible actions (like eating locally).
3. Make a list on an anchor chart or whiteboard. If students need support, refer to the suggestions in the background section, choosing those you feel are feasible for your students given your budget, resources, time, learning objectives, etc.
4. Have students indicate their favorite action project options by raising their hand or drawing a star next to their choice. Help steer students to an attainable action goal. Once everyone has voted, make a final selection. Celebrate your decision and get excited for the action planning process!

Part 2: Develop an Action Plan (40 min)

1. Now that you have an idea for a food-based climate solution, take time to think about how you will accomplish this goal. Give students time to do group research into the problem they want to solve. This could mean interviewing school staff, volunteers, or students (possibly interviewing the cafeteria staff again with more pointed questions); doing internet or book research (with support from educators); bringing in a speaker to share more about the topic; or doing a walk-through of the school building or grounds to get a better sense of what is needed.
2. Then, come back as a class to develop a plan! Consider using the template below (or something similar) to ensure that students have thought of all the details.
3. You will likely need another class period (or portions of additional class periods) to fully implement your project.
4. Reflect on the action project. What went well? What would you do differently next time? Have your students share their findings and recommendations with any staff, volunteers, or other classes who helped coordinate the project. Then, celebrate your accomplishments!

Extend:

Literacy Connections:

- ☐ *Save the Scraps* by Bethany Stahl
- ☐ *My Green Lunch* by Colleen Hord
- ☐ *Jaden's Impossible Garden* by Mélina Mangal

STEM Connections:

- ☐ Watch **Kids v scientist: Food and Climate Change | BBC Studios** to deepen your discussions of how food and climate change intersect.
- ☐ Have local farmers or community gardeners visit and discuss how food and climate are connected. See Appendix B for more ideas of community contacts who could present.
- ☐ Waste sorting activity
    - Print or draw labels on three jars or paper bags. Label them Trash, Recycling, and Compost.
    - Use the pictures in the Waste Sorting worksheet (Appendix A) for your items or draw and cut out items that can be composted, recycled or thrown in the trash. Have the students play in groups or as a class. Place the pictures face down and have students turn pictures over one at a time. Discuss what the picture is and whether or not it should be thrown in the trash, recycled, or composted. Then place the picture in the corresponding bag or jar. This could be used as an assessment tool or as a pre-assessment to gauge familiarity with these items and terms.
    - Invite students to fill in their ideas for reducing food waste using Ways I can Reduce my Food Waste Worksheet. See Appendix A.

Action Plan Template

WHAT are we going to do (Action Idea)?

WHY is this project important to us and our school?

WHO is going to help us?

WHEN will we start? When will we work on it? When will the project be completed?

WHERE will our action take place? Where will we work on this project? Where will we go to get what we need for the project (equipment, volunteers, funding, etc.)?

HOW will we know the project is done? How will our school look/sound/feel different? How will we feel when we accomplish our goal?

Appendix A: Lesson Worksheets and Supplemental Materials

Lesson 1: Where does our food come from?

Where does my food come from? Slides
Eat the Rainbow Food Journal (for Literacy and Health extension activity

Lesson 2: What's on my plate that grows in this place?

My Favorite Meal
My Wheel of Seasonal Food
Local Food in my Neighborhood
Food Journey Activity Photos

Lesson 3: How can we support sustainable food at our school?

Action Plan Template
Waste Sorting (for STEM extension activity)

Appendix B: Talking to Students about Food

Food can be a great way to gently introduce climate change to K-2 students. However, it requires a sensitive approach that takes into account your students' individual situations and identities, including access to food. We encourage you to talk with your school or district counselor or health instructor for further recommendations. Here are some tips and considerations to keep in mind when teaching this curriculum (or any other lessons about food):

Frame relationships to food in an equitable and positive way. There are lots of ways we can positively talk about food that welcomes differences among students' cultures, practices, and access to food options. Try some of the following messages:

- Let's be curious about trying new foods!
- We should celebrate our differences! Let's explore our favorite cultural dishes and why they're important to us.
- Eating a variety of foods helps us feel good. Eat the rainbow!
- Moderation is key. We don't need to eat 50 carrots at a time to get the benefits of carrots, and we don't need to eat ice cream every day. Treats are fine, but it is possible to have too much of a good thing!

- Food is a fuel that helps us learn, move, and grow.
- Everyone is in a different situation and can help Earth in different ways. We all have different needs, so we shouldn't expect everyone to make all the same food choices (Ex: plastic straws are necessary for some people to eat safely; eating meat is deeply ingrained in some people's cultures and identities).
- Exploring how to grow and store food can help us be better prepared for climatic changes (growing a garden or raising veggies indoors, learning how to can food, having a citywide disaster preparedness plan around getting food to people in need, etc.).
- We can make changes together about our food systems as a way to help Earth (asking the cafeteria about food and packaging choices, eating less meat, composting and recycling, trying local foods, etc.)
- We can make a lot of positive changes together at our school! We are members of our school community (and broader communities) and can be part of asking for and making change.

Avoid characterizing food/food systems in ways that could lead to guilt or shame about food choices. We need to be careful to avoid some common pitfalls of food discussions to ensure we aren't harming some students, including:

- Categorizing foods as "healthy and unhealthy" or "good and bad" can lead to shame, guilt, low self-esteem, and in some cases, eating disorders.
- Generalizing about how people in other places eat (this can lead to racist stereotypes or labeling some cultures as having "good" or "bad" diets).
- Implying that only some food choices can be seen as a "climate solution" or naming some foods or products as "eco friendly" and others as "bad" for the planet–students don't have much control over what foods are purchased, and shouldn't feel pressured to change their families' eating habits on their own. Plus it is all very contextual (for example, not all local foods or organic foods have a lower carbon footprint than their distant/conventional counterparts; plastic packaging may be the only option for some people in some circumstances, etc.).
- Alluding to certain foods (or reducing food intake) as a way to lose weight; this assumes heavier people are undesirable the way they are and can lead to issues with self-esteem, bullying, eating disorders, and fad diets that harm students' health.
- Talking about how foods are impacted by climate change (drought, floods, pests, etc) can lead to climate anxiety if given as a big scary list with no collective actions that can be taken. We don't want to give students the idea that we are going to run out of food or lose all our favorite foods to climate change. Instead, focus on what is going well and what solutions are already in place locally to relieve fear and anxiety. Books can gently introduce concepts like extreme weather or food insecurity.

Consider your students' backgrounds and unique relationships with food. We have been socialized to believe certain things about food, our bodies, and our culture from a young age. Our students have too. This can impact how they perceive a lesson about growing food, nutrition, or food choices as a climate solution. Identities, beliefs, and situations that might be in your classroom include:

- Students who are uncomfortable with their weight and/or have an eating disorder.
- Students dealing with food insecurity and hunger.
- Cultural differences that may lead some students to feel ashamed of the foods they bring to school that are different from those in the dominant culture (especially if bullying is left unchecked).
- Students who recently immigrated and can't find their favorite cultural ingredients and dishes.
- Students with food-related climate anxiety, which could be for many reasons, such as:
  - Anxiety about the lack of control they have over foods purchased and how they might impact our planet.
  - Fear that the world is going to run out of food due to climate impacts.
  - Concern for others who are food insecure or suffering from hunger.

Each situation and individual student will be different. However, it's important before embarking on a food-based lesson to think about which issues might be on your students' minds and to find resources that can support them. This could include finding books about the issue at hand; speaking to the school counselor or student caregivers ahead of time; and thinking about emotional coping skills and techniques you can share throughout the lessons to support students. You may also wish to set aside time in your lessons for emotional processing, whether that's journaling time, group share-outs, or one on one check-ins with students you have concerns about.

Community Sources on Food Justice and Food Education

There are many external and internal resources and organizations who may be able to do outreach events with your students to help them learn more about food and food justice. Check for state, local, and regional sources for the following:

- **University Extension programs**
  - **Agricultural Extension** offices and staff exist in many counties across the US. They may be able to provide resources, training, and possibly programming for your class.
  - Master Gardeners are trained volunteers who have agreed to support gardening activities in their community.
  - Master Naturalists are also volunteers trained in the ecology of the local biome.

APPENDIX B

- **Local food co-ops and community education programs** often host experts in food-related matters such as cooking, farming, and nutrition to lead community classes. They may be able to present to your class or have suggestions for who to reach out to!
- **Local food banks and community kitchens** can provide a lot of insight, background information, and resources about food security in your community. They are also potentially a place for a field trip to learn more.
- **Community Supported Agriculture (CSA)** is a system in which community members buy a season of produce upfront from a farmer, and then receive regular boxes of produce throughout the growing season. This model supports the local economy and keeps small farmers in business because the community ensures their income regardless of what kind of crop yields they have each year. This makes it easier for farmers to recover after poor harvests. Many CSA farmers are eager to engage with their community and teach about their practices. It could be an opportunity for an in-class or virtual presentation, or even a field trip to a nearby farm!
- **Your local waste management company** may offer municipal composting and could provide resources, outreach programs, or a field trip opportunity to learn more about composting.
- **Organizations** like the National Gardening Association and Kids Gardening can provide resources, training, and grant opportunities for starting or maintaining a school garden!
- **Your school counselor(s), or nurse(s), or health educator(s)** may have resources on supporting students experiencing hunger or eating disorders and can be a great contact for these students. They may also be able to talk to students about food issues.
- **Cafeteria staff** understand the inner workings of your school food system. They are a great resource to help students learn more about how their current food system works and why. Have them share with your class!

The following resources informed our recommendations and may be helpful to you as you're using this lesson or planning your own food-based learning experience:

Rethinking Nutrition Education for Kids

The Hidden Mental Health Impact of Cultural Food Insecurity

Getting to the Why: Service Learning for Social Justice: a story about how a school approached conversations about hunger and helping those who are hungry.

Appendix C: Tips for Teaching Outside

Learning outside the classroom has numerous benefits for students! Outdoor activity can improve students' physical and mental health, which can positively impact their learning. To reap the greatest benefits, it's important to prepare yourself and your students for your outdoor space. A few considerations:

- Pre-Activity Preparation
  - Consider how climate and environmental justice may be felt and noticed by your students, and how you can talk about it with them in age-appropriate ways. This curriculum from EcoRise can help introduce young students to the concepts of environmental injustice.
  - Get to know your school grounds. Walk around the area and get to know what resources are available. If you have trails, walk them to make sure you know how to navigate back to the building.
  - Time how long it takes you to get from the place you want to visit (such as the school garden beds or compost pile) back to your classroom, walking at a leisurely pace. You can generally assume that you will need an additional 10 minutes to walk with a group of K-2 students.
  - Though on many school grounds, dangerous plants and animals are eradicated, it's still smart to know which kinds of plants or animals might pose a risk to your students in your region. In some areas, plants like poison ivy and poison oak may be alongside trails. In some parts of the US, there are species of spiders or snakes to watch out for. However, these animals are typically wary of humans and are usually scared away by loud children. Bring a knowledgeable staff member or identification guides to help you check for potential animal dens or poisonous plants.

    - Set up a backpack to help you carry personal medical supplies (like epi pens), a first aid kit, a radio or cell phone, and extra outdoor clothes if needed. You can also use it to carry students' journals and writing utensils so that they don't get lost in transit.
    - See if you can get another staff member to accompany your class during your activity.
    - If needed, let your administrator or co-teachers know when and where you will be.
- Weather
    - It is safe to bring students outside in nearly all kinds of weather as long as they are dressed for it. This can be a challenge for many schools, and you may need to determine whether the conditions are acceptable given your students' attire. You can also make some small adjustments to keep your students comfortable, such as:
        - Asking students to complete activities under a built shelter or trees on rainy days if they do not have waterproof gear.
        - On hot days, having students stay in shady areas like under a shelter, the shady side of a building, or under trees. You could also bring a spray bottle or spray fan to mist students. Have students bring water bottles or take frequent water breaks at a nearby water fountain.
        - See if your school can set up a program to keep clean hats, boots, mittens, raincoats, etc. available for outdoor excursions. There may be grants for this, or you can use clean lost and found items.
        - Teach your students ways to keep warm, such as staying dry (no mittens in the mouth!); shrugging their shoulders and dancing to keep blood flowing to their extremities, tucking their hands into their armpits, and finding shelter to block the wind.
        - Shorten your trips outside if there is extreme heat, cold, or rain.
    - Make sure you have proper clothes for the weather too! You will be a better teacher if you are comfortable.
- Expectations
    - Create community agreements about outside behavior before going outside. Using a large piece of paper posted on the wall, document students' suggestions for rules they agree to follow and those they want others to follow when outside. This is a great resource to build upon after several trips outside and can be a great reflection tool when returning from an outdoor trip. See our suggestions for expectations you might want to share below.
    - Give students boundaries. You can use obvious outdoor markers, like "please stay between the big tree and the orange slide", or "please stay next to your garden bed"; or you can set out cones to mark boundaries for exploration.
    - Give students time updates so they know when they have 5 minutes left outside, 1 minute, etc. This can be a hand signal and/or you calling out. This can help students prepare so that they're ready to come back to you when you call!

    - Have a callback sound and signal when it is time for students to return to you. For example, you could raise your arm in the air and blow a whistle, or agree on something that you call out, such as "1,2,3, return to me!" Students can then call "1, 2, return to you!" so that anyone who missed your signal has another chance to hear that the activity is over.
    - Consider setting up a buddy system. Pair students up and tell them they should always be able to see each other. They are in charge of letting you know if their buddy has returned at the end of the activity.
    - If your students are investigating water (for example, a school pond), prepare them with firm expectations about what is safe and unsafe. If they are on a dock, for instance, they should lie on their bellies if they are going to look over the edge or collect water samples. If possible, providing students with waders and going into a shallow area is a nice way to ensure no one falls overboard! Their expectation then is not to go in above a certain line on their boots, or that water shouldn't come over the edge of their boots. Have multiple staff and a life preserver on hand as additional safety precautions.
    - Tell students they are not allowed to eat anything they find outside. Some berries look like ones we like to eat but are actually poisonous. An exception would be if you are working in the garden or are collecting wild edibles as a class! Children typically understand this. If there are any poisonous plants or animal dens in your area, keep those out of your boundaries or point out where they are and why it's important to keep a respectful distance.
    - Encourage students to be respectful of nature by leaving nature as good or better than they found it. This includes not picking flowers or pulling leaves off of trees, keeping rocks out of pockets, picking up trash, etc. You can set this expectation by explaining that everything we see in nature is part of the habitat, and animals need plants and rocks to survive. Consider having a trash bag handy in your backpack in case students find any trash; tell them to leave things that aren't safe to touch (such as sharp items).
- During the activity
    - Go over the community agreements and remind students of your expectations while inside, and then remind them of key points once you're outside.
    - Travel to your chosen area. Depending on your comfort level, this can look like having an adult in the front and back of the line, asking students to hold onto a rope, or being clear about a marker (like a tree) they can run to and then stop for further directions (hint: if you make running ahead a game, students are less likely to run ahead when they're not meant to!).

- If you need to talk through an activity before students begin, invite them to sit down so they are comfortable.
- Make sure you are facing the sun so that your students aren't distracted by squinting at you.
- Watch your students for signs of hypothermia, heat exhaustion, frostbite, and sunburn.
- Trust your students. Give them space to explore and find their own special hideouts (even if you can't see them!). Students who struggle to follow directions in a classroom often feel more relaxed outside and engage more in outdoor activities. Remember, students don't want to get lost or be left behind by the class!

Appendix D: Coping Skills and Mindfulness Exercises

Unless otherwise noted, these exercises were adapted from *All the Feelings Under the Sun: How to Deal with Climate Change* by Leslie Davenport. Weave them into the beginning, middle, and end of your lessons to help students navigate their emotions during class. Though these exercises alone won't be enough to calm every student feeling stressed about climate change or food issues, teaching them coping practices gives them a set of tools they can turn to for any stressful situation.

Box Breathing

Adapted from the National Institute of Health

1. Breathe in for four counts.
2. Hold for four counts.
3. Breathe out for four counts.
4. Repeat 3-4 times or more as you get used to the practice.

APPENDIX D

Internal Weather Report

1. Have students check in with themselves about how they are feeling.
2. Invite students to think of what that feeling would be if it were a type of weather. For example, they might feel sunny, cloudy, foggy, stormy, etc.
3. Have students either draw that type of weather on a piece of paper or give them printed images to choose from.
4. Have students share with the class, a partner, with you, or reflect for themselves on how they're feeling. If students are sharing more privately, find a way for students to share their weather report with you so that you can validate their feelings and give them support as needed.
5. Consider doing this as a pre-post activity during an emotionally intense lesson.

Butterfly Hug

1. Silently and to yourself, rate your current stress level on a scale of 0-5, 0 being not stressed at all and 5 being very stressed.
2. Cross your arms over your chest, resting your fingers on either side of your collarbone.
3. Cross your thumbs so that you create a butterfly shape, with your thumbs being the body of the butterfly and your hands its wings. If you wish, you can close your eyes or let your gaze fall to the ground.
4. Lift each wing, one at a time, and gently tap your left collarbone, then your right. Leave the butterfly body on your chest. Keep going back and forth.
5. Take a deep breath into your belly, and slowly release. Take three or four more deep breaths.
6. Think about a place that's special to you, where you feel calm and safe. Picture what it's like to be in that place–sights, sounds, smells, etc. Imagine yourself there as you keep gently flapping your butterfly wings and breathing deeply.
7. Spend 2 minutes or so doing this, and then open your eyes (if closed) and observe the space around you. Rate your stress level again. Did it change?
8. Thank students for trying the Butterfly Hug.

Shake it Off

1. Ask students if they've ever seen a dog shaking off, maybe after a bath, or maybe if it was stressed about something. Dogs shake sometimes to relieve stress and tension, and it works for people too! Tell students "we're going to shake stress away just like dogs do! We'll start by shaking out each part of our body separately and then try putting it all together".
2. Start by moving your head from side to side (gently).
3. Allow the movement to go into your shoulders. Shrug/wiggle your shoulders.
4. Let the movement spread into your arms, then your hands and fingers, and really shake them!
5. Wiggle your torso.
6. Shake one leg/foot, then the other.
7. Now put it all together, and try shaking in a faster, more fluid way like a dog!

Energy Exchange (Composting)

Adapted from a practice led by Marie Michael, somatic coach and embodiment facilitator.

1. Stand or sit with your feet hip width apart, with your arms at your sides.
2. Ground yourself by feeling your feet on the ground and your breath in your body.
3. As you breathe in, you can invite nutrients and healing energy from the Earth by moving your hands in a scooping motion to draw the energy up from the ground and then turning your palms face up and pulling the energy up to your shoulders.
4. As you breathe out, you can turn your palms the other way, face down, and with strong arms push down, letting go of whatever energy you need to give away. Push the energy all the way down to the ground, giving it to the earth for composting.
5. Repeat 3-7 times. Drawing in nutrients and healing energy, letting go and asking Earth to compost the energy that isn't helping you right now.
6. Take a moment to thank Mother Earth for composting and supporting you!

APPENDIX E

Appendix E: References

Vocabulary definitions and activities adapted from or informed by the following sources:

Lesson 1:

climatekids.nasa.gov/air-pollution/

www.dictionary.com/browse/caring

science.nasa.gov/climate-change/what-is-climate-change/

www.mayoclinichealthsystem.org/hometown-health/speaking-of-health/processed-foods-what-you-should-know

www.generationgenius.com/food-energy-basics-lesson-for-kids/#:~:text=Food%20is%20any%20nutritious%20substance,energy%20sources%20our%20bodies%20use.

dictionary.cambridge.org/us/dictionary/english/seed

Lesson 2:

Macdiarmid JI. Seasonality and dietary requirements: will eating seasonal food contribute to health and environmental sustainability? Proc Nutr Soc. 2014 Aug;73(3):368-75. doi: 10.1017/S0029665113003753. PMID: 25027288.

If it says locally grown, does that mean it is from my community? American Farm Bureau Foundation for Agriculture. (n.d.). www.agfoundation.org/questions/if-it-says-locally-grown-does-that-mean-it-is-from-my-community

The local food movement: Definitions, Benefits & Resources. (n.d.). digitalcommons.usu.edu/cgi/viewcontent.cgi?article=2693&context=extension_curall

climatekids.nasa.gov/air-pollution/

Lesson 2 books:

Stewart, W., & Engel, C. (2018). *What's on your plate? Exploring the world of food*. Sterling Children's Books.

YouTube. (2021, December 21). *What's on your plate?* Exploring the world of food by Whitney Stewart. YouTube. www.youtube.com/watch?v=HeTldqQELo0

Potter, C., & Busby, A. (2021). *Which food will you choose?* Featherstone.

YouTube. (2021a, December 1). *Which food will you choose. read-aloud.* YouTube. www.youtube.com/watch?v=t8LvxFNHPbE

Carle, E., Aki, Arsenault, I., Barrager, B., Cordell, M., Davies, B., Katz, K., Keller, L., Menéndez, J., & Pizzoli, G. (2019). *What's your favorite food?* Godwin Books, Henry Holt and Company.

"What's your Favorite Food" - read aloud. YouTube. (2020, November 18). youtu.be/ypE-XFT1Lws

O'Neill, D., & Magro, B. (2021). *Saturday at the Food Pantry*. Albert Whitman and Company.

YouTube. (2023, December 11). *Saturday at the Food Pantry | Kids Read Aloud books | Classroom read aloud books*. YouTube. www.youtube.com/watch?v=b8moMy-PfDk

Brandt, L., & Vogel, V. (2022). *Maddi's fridge*. Flashlight Press.

YouTube. (2021, November 8). *"Maddi's Fridge" read by Jennifer Garner*. YouTube. https://www.youtube.com/watch?v=To07TjBnrNY

Curricular resources:

Sense of Plate Unit Plan (website version). (n.d.). coe.hawaii.edu/stems2/wp-content/uploads/sites/3/2022/07/Jess-STEMS%5E2-Sense-of-Plate-Unit-Plan-Website-Version-1.pdf

Curriculum - nourish: Food + community. Nourish Food + Community Curriculum Comments. (n.d.). www.nourishlife.org/teach/curriculum/

Food system curriculum. The Food Project. (n.d.). thefoodproject.org/curriculum/food-system/

Seasonal Food Guide. (n.d.). www.seasonalfoodguide.org/

Lesson 3:

www.nrdc.org/stories/composting-101

Stahl, B. (Hord, C. (2020). *My green lunch*. Britannica Digital Learning. 2020). *Save the Scraps*. Bethany Stahl.

BBC Studios. (2023, April 27). *Kids v scientist: Food and Climate Change | BBC Studios* [Video]. YouTube. www.youtube.com/watch?v=SR10WLr826U

Pace, A. (2019, May 1). *Compost and recycling sorting activity for preschoolers – with printable*. Happy Hooligans. happyhooligans.ca/compost-recycling-sorting-activity/

Resources | GrowLaCrosse. (n.d.). growlacrosse.org/resources/ https://pbsnc.pbslearningmedia.org/resource/ee18-sci-foodwst/kids-go-green-reducing-food-waste/

www.climategen.org