

Boston Youth Farm Project

The Teacher Guide

All 48 Boston Youth Farm Project activities, one page each.

Week 1 · Kale · Science · 15 minutes

Kale Planting

Boston Youth Farm Project

Students will plant kale seeds by following each step in order and caring for their pot.

Steps

1. Have the materials prepared before the class. All the pots filled and a tray with each table's supplies ready to hand out.
2. Explain the process of planting the seeds in the soil: a. Make your soil flat, don't push too hard, just flatten, demonstrate! b. Seeds evenly spread, pat them down a little c. Put a little extra soil on top so that you can't see the seeds d. Water until it starts dripping out of the bottom (over the tray!!)
3. Go one step at a time with the students.
4. Once they are planted and watering, start cleaning up while they're finishing. Walk around and make sure they are doing it correctly.
5. Put all of the planted pots in one black tray on the rack. Make sure they wipe the desks clean.
6. Restock your table material sets with seeds and pots with soil for the next class (after class).

Teacher tip. Go slowly on seed distribution, students tend to dump. Show them the "pinch and scatter" motion.

Materials

- ☐ Dixie cup with kale seeds (1 per student)
- ☐ Filled pot of soil (1 per student)
- ☐ 1 extra container of soil (1 per 5 students)
- ☐ Filled water bottles (1-2 per 5 students)
- ☐ See video tutorials for visual instructions

Listen For

- Flattens the soil gently without pushing hard
- Uses a pinch and scatter motion to spread seeds evenly
- Waters until it drips and wipes the desk clean

Exit Question

What steps did you follow to plant your kale seeds?

Standards

5-LS1-1

Also CASEL: Responsible Decision-Making

Week 1 · Kale · Science · 6 minutes

Anatomy Of A Seed

Boston Youth Farm Project

Students will name the three seed parts and explain what each part does in their own words.

Steps

1. Hold up a single kale seed. Ask: "Everything this plant will ever be is inside here. How?"
2. Briefly explain seed anatomy: embryo (the baby plant), endosperm (the food supply), seed coat (the protector).
3. Show a cross-section diagram or draw on the board.
4. Ask: "What's the seed's one job?" → Survival and reproduction.
5. Discuss: "If a seed's job is to survive and grow, what's our job as growers?"
6. Students record the 3 seed parts in their journals and explain each in their own words.

Teacher tip. The hook ("everything it will ever be is inside here") generates genuine wonder. Pause after saying it.

Materials

- ☐ Whiteboard or chart paper
- ☐ Optional: cross-section diagram of a seed
- ☐ Student journals

Listen For

- Names the embryo as the part that becomes the plant
- Says the endosperm is the food supply for the baby plant
- Describes the seed coat as the protector

Exit Question

What are the three parts of a seed, and what does each one do?

Standards

5-LS1-1 · SEP 6

> **All of this mass exists just so that the embryo can turn into a plant. Just like a rocket ship, the outer shell and food supply are discarded after use. The seed can wait years for the right moment to germinate. Isn't it amazing?**

Week 1 · Kale · Identity · 10 minutes

My Food Story

Boston Youth Farm Project

Students will draw or write about a food connected to their family, culture, or memories and share it.

Steps

1. Say: "Every one of us has a food story, foods connected to our family, our culture, our memories."
2. Prompt: "Think of one food that means something to you. It could be something your family makes, something that reminds you of a place or person, or something you love."
3. Students draw and/or write about that food in their journals (5 min).
4. Pair share: students share their story with a partner.
5. Whole class share: 4–5 students share. Class sees the diversity of food stories in the room.
6. Ask: "What would it mean to grow something that's part of your story?"

Teacher tip. Share your own food story first, it lowers the barrier and models that all food stories are valid.

Materials

- ☐ Student journals
- ☐ Pencils
- ☐ Colored pencils (optional)

Listen For

- Tells a story about a food linked to a person or place
- Listens to a partner's story without interrupting
- Says what it would mean to grow part of their story

Exit Question

What food is part of your story, and why does it matter to you?

Standards

SL.5.4

Also CASEL: Social Awareness

> **Food is connected to who we are, where we come from, and what we love.**

Week 1 · Kale · Science · 8 minutes

The Lifecycle Circle

Boston Youth Farm Project

Students will describe the plant lifecycle and mark which stage the kale seedlings are in now.

Steps

1. Draw a large circle on the board.
2. Walk students through the plant lifecycle: seed → germination → seedling → mature plant → flower → fruit/seed → back to seed.
3. Ask students to copy the diagram in their journals.
4. Ask: "Which stage are we at right now with our kale seedlings?" → seed / about to germinate.
5. Mark the current stage on the board. Tell students: "We'll track where we are on this circle every week."
6. Ask: "What part of this lifecycle does the food we eat usually come from?" → Various: fruit, leaf, root, seed.

Teacher tip. Return to this diagram in Week 2 and 3 to track progress. Students love marking their own progress on the circle.

> **Life is a cycle: seed to plant to fruit to seed again.**

Materials

- ☐ Whiteboard or chart paper
- ☐ Markers
- ☐ Student journals

Listen For

- Names the stages in order from seed back to seed
- Says the kale is at the seed stage, about to germinate
- Names a plant part we eat, like leaf, root, fruit, or seed

Exit Question

What stage of the lifecycle are our kale seedlings in right now?

Standards

5-LS1-1 · CCC Patterns

Week 1 · Kale · Science · 10 minutes

Photosynthesis Unpacked

Boston Youth Farm Project

Students will explain in their own words how a plant uses light, water, and air to make sugar.

Steps

1. Ask: "How does a plant make its own food?"
2. Introduce photosynthesis: CO_2 + H_2O + light → glucose + oxygen.
3. Draw the equation as a story: sun gives energy, roots pull up water, leaves breathe in CO_2, the plant makes sugar to grow and releases oxygen for us.
4. Ask: "So what's the plant actually breathing out?" → Oxygen. "What does that mean for us?"
5. Students copy and label the equation in their journals in their own words.
6. Ask: "How does our rack support photosynthesis?" (Expected answer: the rack's LED grow lights provide light energy, and we provide the water, H_2O, the air in the room has CO2)

Teacher tip. The "plant makes sugar" framing resonates with students. Tie it to the taste of microgreens at harvest: "That sweetness? That's stored solar energy."

> **Photosynthesis is the engine behind all food on Earth.**

Materials

- ☐ Colored markers
- ☐ Student journals

Listen For

- Says the plant makes its own food using light, water, and carbon dioxide
- Names oxygen as what the plant gives off
- Points to the rack's lights and our watering as the plant's supplies

Exit Question

How does a plant make its own food, and what does it release?

Standards

5-LS1-1 · 5-PS3-1 · SEP 6

Week 1 · Kale · Nutrition · 8 minutes

Plants & People

Boston Youth Farm Project

Students will match what plants need to grow with what people need, and explain what food does for the body.

Steps

1. Ask: "What does a plant need to grow?" Students brainstorm individually (~1 min), then share with a partner (~1 min).
2. Class shares out; teacher captures on board: light, water, air (CO_2), nutrients, space.
3. Connect each to the rack: "How does our rack provide each of these?" Point to the light source, water spray bottle, and growing medium.
4. Draw two columns on the board: PLANTS | PEOPLE.
5. Ask: "What do people need to survive and grow?" Guide students to match: • Light → Sleep (energy to recharge) • Water → Water (same!) • Air → Air / movement / breath • Nutrients → Food (vitamins, protein, minerals) • Space → Space to grow mentally and emotionally
6. Ask: "So what is food, really, for our bodies?" → Fuel. "The same way light powers a plant, food powers us."
7. Ask: "What happens to a plant that doesn't get what it needs?" Connect: "What happens to us?"

Teacher tip. The parallel structure lands really well. Don't rush through the matching, let students make the connections themselves before you confirm them. The moment they realize water is just water is usually a laugh.

Materials

- ☐ Whiteboard or chart paper
- ☐ Markers (two colors)

Listen For

- Lists what a plant needs: light, water, air, nutrients, and space
- Matches a plant need to a human need, like water to water
- Says food is fuel for our bodies, as light is for plants

Exit Question

What do plants and people both need to grow?

Standards

SL.5.4

Also CASEL: Social Awareness

> **Plant need XYZ. Let's reflect on how that also applies to taking care of ourselves.**

Week 1 · Kale · Science · 6 minutes

Timelapse: Photosynthesis In Action

Boston Youth Farm Project

Students will watch plant timelapses and describe what the plant does with light and what it releases.

Steps

1. Tell students: "Let's watch what we're about to make happen."
2. Play the seed germination timelapse (link in Teacher Tip). Watch in silence for the first 30 seconds, then ask: "What are you noticing?"
3. Play the photosynthesis timelapse (link in Teacher Tip). Ask: "What is the plant doing with the light from our rack?" → Making sugar. Making food for itself.
4. Ask: "And what does it release as a byproduct?" → Oxygen. "That's the air we breathe."
5. Close: "In a few weeks, you'll see this happen with your own seeds. What you just watched, that's what's coming."

Teacher tip. Video links: - Seed germination timelapse: https://www.youtube.com/watch?v=c7Ya5xoy2nw - Photosynthesis in action: https://www.youtube.com/watch?v=w77zPAtVTuI Links are also embedded in the slides. Pre-load both tabs before class. Aim for 2-3 minutes of video total - you don't need to watch the whole thing.

Materials

- ☐ Seed germination timelapse video (see Teacher Tip)
- ☐ Photosynthesis explainer video (see Teacher Tip)

Listen For

- Describes what they notice while watching the seed grow
- Says the plant uses light to make sugar, its own food
- Names oxygen as what the plant releases

Exit Question

What is a plant doing with the light, and what does it release?

Standards

5-LS1-1 · 5-PS3-1 · SEP 6

Plants make their own food from sunlight, water, and air, a process we can actually watch.

Week 1 · Kale · Science · 6 minutes

How Seeds Travel

Boston Youth Farm Project

Students will name the four ways seeds travel and draw and label their favorite method.

Steps

1. Ask: "Has anyone ever had a seed stuck to their clothes, or watched a dandelion fluff blow away?" 2-3 quick shares. Then: "Seeds can't walk. They can't fly on their own. And yet they spread all over the earth. How?"
2. Show the seed dispersal slide. Introduce the four main methods: wind (dandelion, maple "helicopters" - lightweight, designed to float and spin), animals/birds (berries eaten and seeds passed through; burrs and hooks cling to fur or feathers), water (coconuts float across oceans; mangrove seeds drift on currents), and explosion (some seed pods catapult seeds when ripe).
3. Ask: "If you were a seed, which method would you choose? Why?"
4. Journal: Students draw and label their favorite dispersal method.

Teacher tip. A slide already exists for this activity. Look for it in the BYFP shared slides folder. If seed samples aren't available, the slide images alone work well. Burdock burrs are especially memorable, they're the inspiration for Velcro!

Materials

- ☐ Student journals (optional)

Listen For

- Names wind, animals, water, and explosion as ways seeds travel
- Gives an example, like a dandelion or a burr
- Explains which method they would choose if they were a seed

Exit Question

If you were a seed, how would you travel, and why?

Standards

5-LS1-1 · SEP 3 · CCC Patterns

> **Seeds have evolved ingenious ways to move through the world - wind, water, animals, and more.**

Week 1 · Kale · Science · 8 minutes

Seed Keepers

Boston Youth Farm Project

Students will explain why growing many kinds of seeds matters and choose a seed to keep.

Steps

1. Lay out the different seeds. Ask: "Why grow more than one kind? Why not just the single 'best' plant?"
2. Introduce biodiversity: many varieties mean resilience. If one crop fails to disease or drought, others survive. One kind means one point of failure.
3. Tell the human story: for thousands of years people saved the best seeds each season and passed them down - many foods we love exist because someone's ancestors kept their seeds.
4. Contrast heirloom (saved and passed down) with hybrid (bred for one purpose), simply.
5. Ask: "What would be lost if we only grew one kind of everything?"
6. Students choose a seed to 'keep,' draw it, and write why variety matters.

Teacher tip. This connects biology to heritage and identity, a natural culturally responsive moment. If students know a plant important to their family or culture, celebrate it. Pairs beautifully with 'My Food Story' (W1-H).

Materials

- ☐ The program's seed varieties + extra seed types or images
- ☐ Student journals

Listen For

- Says many kinds of plants help if one crop fails
- Explains that people saved seeds and passed them down
- Writes why variety matters next to the seed they drew

Exit Question

Why is it better to grow more than one kind of plant?

Standards

5-LS1-1 · CCC Patterns (draft, to confirm)

> **Seeds are living archives of history, culture, and biodiversity.**

Week 1 · Kale · Program · 2 minutes

Grow Lab Check-In (Week 1)

Boston Youth Farm Project

Students will answer the Grow Lab Check-In questions privately and honestly, on their own, without looking at others.

Steps

1. Read the following welcome message out loud to students: "Welcome, everyone. Over the next four weeks, you are going to do something that most people never get to do in school: grow your own food, right here in this classroom. You will plant seeds, watch them sprout, learn about where food comes from, and on our last day together you will harvest what you grew and taste it. The plants you grow belong to you. Let's begin."
2. Pre-program survey: Explain that you are going to ask four questions. Students raise their hand if the answer is yes. Count hands and record results below. "Have you ever grown your own food before?" ___ out of ___ students raised their hand. "Do you know where most of your food comes from before it reaches your plate?" ___ out of ___ students raised their hand. "When you eat, do you think about what's in your food and what it does for your body?" ___ out of ___ students raised their hand. "Do you feel connected to nature?" ___ out of ___ students raised their hand.

Teacher tip. This data is valuable for measuring program impact. Keep the results and share them with your BYFP coordinator. The survey is anonymous - no need for students to write anything down.

> **A baseline we'll return to to see how we've grown.**

Materials

None

Listen For

- Answers on their own without looking at classmates' hands
- Keeps their answer private and does not comment on others'
- Raises a hand only when the answer is truly yes

Exit Question

Why is it important to answer honestly and keep answers private?

Standards

No academic standard mapped

Week 2 · Arugula · Reflection · 2 minutes

One-Sentence Reflection

Boston Youth Farm Project

Students will write exactly one sentence that captures what mattered most from today.

Steps

1. Announce the reflection prompt (see Teacher Tip for options).
2. Students write one sentence, exactly one, in their journals.
3. Invite 2–3 to share aloud.
4. Close: "Keep that thought. We'll come back to it."

Teacher tip. Rotate prompts: "Today I noticed...", "I'm still wondering...", "One thing that surprised me...", "Something I want to try...", "Growing food makes me feel..."

Materials

- ☐ Student journals
- ☐ Pencils

Listen For

- Writes one clear sentence and stops
- Starts with a prompt like "Today I noticed"
- Shares a sentence aloud without reading extra

Exit Question

What is the most important thing you noticed today?

Standards

W.5.1

Also CASEL: Self-Awareness

> **Putting an experience into one sentence forces us to find what mattered most.**

Week 2 · Arugula · Wellness · 3 minutes

Gratitude Round

Boston Youth Farm Project

Students will name one thing from class they are grateful for, using a word or short phrase.

Steps

1. Gather students in a circle or have them stand at their seats.
2. Say: "We're going to do a quick gratitude round. Think of one thing from today's class you're grateful for, it can be something you learned, something someone did, or just a feeling."
3. Go around quickly, each student says one word or phrase.
4. Teacher closes: "That's a lot of good things in one room."

Teacher tip. Keep the pace brisk. If the circle gets slow, say "one word is perfect" to keep momentum.

Materials

- ☐ None required

Listen For

- Says one word or short phrase when it is their turn
- Names something someone did or something they learned
- Listens while classmates share their gratitude

Exit Question

What is one thing from today's class that you are grateful for?

Standards

No academic standard mapped

Also CASEL: Social Awareness, Relationship Skills

> **Gratitude, spoken out loud, strengthens community.**

Week 2 · Arugula · Science · 10 minutes

Germination Reveal

Boston Youth Farm Project

Students will observe the sprouted seedlings in silence and describe what changed since planting.

Steps

1. Before students enter, cover the rack or have them close their eyes.
2. Reveal the sprouted seedlings with a quiet "Open your eyes."
3. Give 2 minutes of completely silent observation, no talking.
4. Ask: "What do you notice? What changed? What surprised you?"
5. Students record observations in journals.
6. Discuss germination: "What happened underground that we couldn't see?"
7. Track progress on the lifecycle circle from Week 1.

Teacher tip. The silence is the activity. Don't rush it. Students who rarely engage in science often have the strongest reactions to seeing life they grew.

Materials

- ☐ Growing rack with sprouted seedlings
- ☐ Student journals
- ☐ Magnifying glasses

Listen For

- Stays quiet and looks closely during the silent observation
- Says what changed since last week using specific details
- Explains that something happened underground that we could not see

Exit Question

What did you notice that changed, and what surprised you?

Standards

5-LS1-1 · SEP 3 · CCC Cause and Effect

> **Growth happens before we can see it. Life has already started beneath the soil.**

Week 2 · Arugula · Science · 15 minutes

Arugula Planting

Boston Youth Farm Project

Students will plant arugula seeds on their own, using the steps they already know.

Steps

1. Have the materials prepared before the class. All the pots filled and a tray with each table's supplies ready to hand out.
2. Explain the process of planting the seeds in the soil: a. Make your soil flat, don't push too hard, just flatten, demonstrate! b. Seeds evenly spread, pat them down a little c. Put a little extra soil on top so that you can't see the seeds d. Water until it starts dripping out of the bottom (over the tray!!)
3. Go one step at a time with the students.
4. Once they are planted and watering, start cleaning up while they're finishing. Walk around and make sure they are doing it correctly.
5. Put all of the planted pots in one black tray on the rack. Make sure they wipe the desks clean.
6. Restock your table material sets with seeds and pots with soil for the next class (after class).

Teacher tip. Step back and let them lead. The goal of this planting is to surface their growing competence. They know what to do now. Comment on that explicitly.

Materials

- ☐ Dixie cup with arugula seeds (1 per student)
- ☐ Filled pot of soil (1 per student)
- ☐ 1 extra container of soil (1 per 5 students)
- ☐ Filled water bottles (1-2 per 5 students)
- ☐ See video tutorials for visual instructions

Listen For

- Starts planting without waiting to be told each step
- Spreads seeds evenly, covers them with soil, and waters until it drips
- Says they know what to do because they have done it before

Exit Question

What do you know how to do now that you did not know in Week 1?

Standards

5-LS1-1

Also CASEL: Responsible Decision-Making

Week 2 · Arugula · Science · 10 minutes

Systems Thinking Intro

Boston Youth Farm Project

Students will map what a kale plant needs and where each need comes from, and name systems thinking.

Steps

1. Draw a circle on the board and write "kale microgreen" in the center.
2. Ask: "What does this plant need to exist?" Draw spokes: light, water, air, nutrients, temperature, you (the grower).
3. Ask: "Where does each of those come from?" Draw another ring: electricity for lights, pipes for water, atmosphere for air...
4. Keep going one more ring: power plant, water treatment, manufacturing...
5. Ask: "Is there anything truly separate from everything else?"
6. Name it: "This is called systems thinking, seeing how everything is connected."

Teacher tip. Let students drive the brainstorm. Your job is to keep asking "and where does THAT come from?" The aha moment comes when they realize the web is infinite.

Materials

- ☐ Whiteboard
- ☐ Markers

Listen For

- Lists what the plant needs, like light, water, air, and a grower
- Asks or answers "where does that come from?" for a need
- Says that nothing is truly separate from everything else

Exit Question

What does systems thinking mean, and what is one example from our plant?

Standards

CCC Systems and System Models · SEP 6

> **Everything in nature is connected. Changing one part changes the whole.**

Week 2 · Arugula · Identity · 10 minutes

Grow Journal Design

Boston Youth Farm Project

Students will design a journal cover that shows something about themselves as a grower.

Steps

1. Give students 8 minutes to personalize their journal covers.
2. Prompt: "Your journal is going to be the record of everything you grew and noticed. Make the cover say something about you as a grower."
3. Students can draw, write, decorate however they choose.
4. Quick gallery share: students hold up covers and one person names what they see.
5. Say: "This journal is evidence. By Week 4 it will show your whole growing journey."

Teacher tip. Play quiet ambient music during this activity. It shifts the energy in the room and makes the creative time feel intentional rather than like a break.

Materials

- ☐ Student journals
- ☐ Colored pencils, markers
- ☐ Stickers (optional)

Listen For

- Draws or writes something personal on the cover
- Names what they see on a classmate's cover in the gallery share
- Says the journal is a record of what they grew and noticed

Exit Question

What does your journal cover say about you as a grower?

Standards

W.5.4

Also CASEL: Self-Awareness

> **Scientists document what they observe; our journals are a record of something alive.**

Week 2 · Arugula · Science · 8 minutes

Root Vs. Shoot

Boston Youth Farm Project

Students will tell roots from shoots and label the direction each one grows in their journals.

Steps

1. Carefully remove one seedling from the edge of a pot.
2. Show the root and the shoot.
3. Ask: "Which way is the root growing? Why?"
4. Introduce geotropism (roots grow toward gravity) and phototropism (shoots grow toward light).
5. Ask: "How does the plant know which way is up?"
6. Replace the seedling carefully. Students observe any roots visible at the bottom of the pot.
7. Students diagram root and shoot in journals and label the tropisms.

Teacher tip. Only remove 1–2 seedlings from the edge where there's crowding anyway. Treat it as a demonstration, not a harvest.

Materials

- ☐ Germinated seedlings from pot (gently remove 1–2 for demonstration)
- ☐ Magnifying glasses
- ☐ Student journals

Listen For

- Points to the root and says it grows toward gravity
- Says the shoot grows toward light
- Labels both directions correctly in a journal diagram

Exit Question

Which way do roots grow, which way do shoots grow, and why?

Standards

5-LS1-1 · SEP 3 · SEP 6 · CCC Structure and Function

Plants grow in two directions at once - roots anchor and absorb, shoots reach for light.

Week 2 · Arugula · Wellness · 5 minutes

Eating And Emotions

Boston Youth Farm Project

Students will notice how food and feelings connect and write about a time they were linked.

Steps

1. Ask: "Has anyone ever eaten something when they weren't really hungry? Why?"
2. Give a moment for a few students to share. Don't judge any answers.
3. Say: "Sometimes we eat to change how we feel - when we're bored, sad, anxious, or celebrating. This is called emotional eating and everyone does it."
4. Ask: "Does eating actually change how you feel? In the moment? An hour later?"
5. Introduce the idea: food is chemistry. Some foods spike energy then crash it. Others provide steady fuel. Our mood can follow.
6. Ask: "Can you think of a food that makes you feel good in the moment but bad later? One that makes you feel good for a long time?"
7. Journal prompt: "Write about a time food and feelings were connected for you."
8. Close: "When we grow food ourselves, we're also growing our relationship with it."

Teacher tip. This is sensitive for some students, keep it observational and curious, never prescriptive. The goal is awareness, not guilt. Share your own story briefly to model openness.

Materials

- ☐ Student journals
- ☐ Pencils

Listen For

- Shares a time they ate because of a feeling, not hunger
- Says some foods give quick energy and others give steady fuel
- Writes about a time food and feelings were connected

Exit Question

How have food and feelings been connected for you?

Standards

CHPE ME

Also CASEL: Self-Awareness, Self-Management

> **Food and feelings are connected; understanding that helps us make better choices.**

Week 2 · Arugula · Nutrition · 10 minutes

Rainbow Of Food

Boston Youth Farm Project

Students will name foods for each color of the rainbow and explain why a variety of colors matters.

Steps

1. Draw a large rainbow arc on the board with 6 color bands, or pull up the rainbow slide: red, orange, yellow, green, blue/purple, white/tan.
2. Ask: "What food is each color?" Students call out answers. Fill in the rainbow.
3. Reveal: each color in food corresponds to different nutrients and plant chemicals (phytonutrients) that protect the body in different ways. • Red (tomato, strawberry) → heart health • Orange (carrot, sweet potato) → vision, immune system • Yellow (banana, corn) → energy, digestion • Green (cabbage, peas) → bone strength, detox • Blue/Purple (blueberry, eggplant) → brain health, memory • White/Tan (garlic, onion) → immune defense
4. Ask: "What color are our microgreens? What does that tell us about what they do?"
5. Challenge: "How many colors did you eat yesterday? Let's count."
6. Close: "Eating a variety of colors is one of the simplest things you can do for your body."

Teacher tip. Don't get too deep into the science of each phytonutrient, the rainbow framework is the takeaway. Students should leave knowing: more colors = more variety of nutrients.

Materials

- ☐ Colored markers or pencils
- ☐ Whiteboard or large paper
- ☐ Food pictures or a rainbow template (optional)

Listen For

- Calls out a food for each color band
- Says different colors mean different nutrients
- Says more colors means more variety of nutrients

Exit Question

Why is it good to eat a lot of different colors?

Standards

CHPE 3.1.NE.3 · CHPE 3.1.NE.6 · SEP 8

> **Eating a wide variety of colors means getting a wide variety of nutrients.**

Week 2 · Arugula · Nutrition · 10 minutes

Processed Vs. Whole Foods

Boston Youth Farm Project

Students will tell whole foods from processed foods, rate foods on a scale, and explain why balance matters.

Steps

1. Place two groups side by side: whole foods and processed foods.
2. Ask: "What's the difference?"
3. Introduce the idea: processing means changing food from its original state. A little processing is fine (washing, cutting, cooking). A lot of processing adds ingredients our bodies don't recognize.
4. Ask: "Is a processed food automatically bad? Is a whole food automatically good?" → It depends on how much of each you're eating - it's all about balance.
5. Ask: "Where does what we're growing in this classroom fall on the spectrum?"
6. Do a quick vote: for each food shown, students rate it 1–5 on a processing scale (1 = whole, 5 = very processed).
7. Close: "We're not saying never eat processed food. We're saying: know what you're eating."

Teacher tip. Keep this judgment-free, many students' families rely on processed food for practical and economic reasons. The goal is awareness and literacy, not shame. Acknowledge openly: "Whole foods can be more expensive and harder to find. That's a real thing."

Materials

- ☐ A few food packages or pictures of packaged foods
- ☐ A few whole foods (or pictures): apple, cabbage, egg, potato
- ☐ Whiteboard

Listen For

- Sorts foods into whole and processed groups with a reason
- Rates a food from 1 to 5 on the processing scale
- Says it is about balance and knowing what you eat

Exit Question

What does balance mean when we choose foods to eat?

Standards

CHPE 3.1.NE.4 · CHPE 3.1.NE.6 · SEP 8

Understanding the difference. Reflect on the nuance. Balance is key!

Week 2 · Arugula · Science · 8 minutes

Growth Rate Analysis 1

Boston Youth Farm Project

Students will measure a kale seedling from the growing medium to the tallest leaf tip and record the data.

Steps

1. Introduce rulers. Say: "Scientists track change over time by measuring. That's what we're starting today."
2. Each student or group measures the height of one kale seedling in their tray: place the ruler at the surface of the growing medium and measure to the tip of the tallest leaf.
3. Record in journals: today's date, tray name or number, height in centimeters, and one observation (color, density, anything surprising).
4. Pool data: each group shares their measurement. Teacher records on the board as a class chart.
5. Ask: "Which trays are tallest? Any patterns? Why might some trays be growing faster?"
6. Students write a prediction: "In one week I think the height will be ___."
7. Close: "We'll measure again in Week
8. Hang onto these numbers, they'll tell us a story."

Teacher tip. This is the anchor data point for the Week 3 Growth Rate Analysis. Accuracy matters more than speed here, show students exactly where to place the ruler (at the growing medium surface, not the tray bottom). Students who measure carelessly now will be frustrated in Week 3 when their growth calculations don't add up. Make it feel like real science: tell them this is the kind of data farmers and researchers actually collect.

Materials

- ☐ Rulers or tape measures
- ☐ Student journals
- ☐ Pencils
- ☐ Whiteboard or chart paper

Listen For

- Places the ruler at the surface of the growing medium
- Records the date, tray, height, and one observation
- Writes a prediction for next week's height

Exit Question

Where do you place the ruler, and what do you predict next week?

Standards

5.MD.B.2 · SEP 3 · SEP 4 (draft, to confirm)

> **Data from our own plants tells a story about conditions, care, and life.**

Week 2 · Arugula · Science · 12 minutes

Follow The Water

Boston Youth Farm Project

Students will trace how water moves from the rack through the plant and back into the air.

Steps

1. Ask: "When you water the rack, where does the water actually go? Does it just disappear?"
2. Seal a clear plastic bag loosely over a small clump of growing greens. Leave it a few hours or overnight.
3. Return and observe the droplets inside the bag. Ask: "Where did that water come from? The plant breathed it out, that's transpiration."
4. On the board, trace the water's journey: you pour it → roots absorb it → it travels up → leaves release it as vapor → it condenses → it could fall again as rain. Label evaporation, condensation, transpiration, absorption.
5. Connect: "This same cycle happens across the whole planet. Our rack is a tiny piece of the world's water cycle."
6. Students diagram the cycle in their journals and mark where our rack fits.

Teacher tip. Set the bag up at the start of class and reveal the droplets at the end, the payoff of 'the plant made water appear' is the hook. With extra time, cover a cup of water with plastic wrap in sunlight to show evaporation and condensation directly.

Materials

- ☐ A clear zip-top bag
- ☐ The growing rack
- ☐ Student journals
- ☐ (Optional) a clear cup of water + plastic wrap

Listen For

- Says the droplets in the bag came from the plant
- Traces the water: roots, up, leaves, vapor, condenses, rain
- Marks where our rack fits in the water cycle diagram

Exit Question

Where does the water go after we water the rack?

Standards

5-LS1-1 · SEP 6 · CCC Energy and Matter (draft, to confirm)

> **Water moves through a cycle that connects all living things.**

Week 3 · Radish · Nutrition · 10 minutes

Food Origin Mapping

Boston Youth Farm Project

Students will trace the ingredients of a favorite food back to the farm and name what they share.

Steps

1. Ask: "Who had pizza, a burger, a taco, or a sandwich recently?" Get a show of hands.
2. Choose one food the class knows well, like a cheeseburger or a slice of pizza, and write it in the center of the board.
3. Ask: "What's inside this?" Break it apart into ingredients. For a burger: bun, beef patty, cheese, lettuce, tomato, ketchup. For pizza: dough, sauce, cheese, toppings.
4. For each ingredient, ask: "Where does this come from, before the store, before the factory?" Draw arrows tracing back: • Bun / dough → wheat → wheat farm • Beef patty → cow → cattle ranch (cow eats corn or grass → farm) • Cheese → cow's milk → dairy farm • Tomato sauce, lettuce, toppings → vegetable farm • Ketchup → tomatoes + sugar + vinegar → multiple farms
5. Ask: "How far did each ingredient travel to get here?"
6. Ask: "What do almost all these ingredients have in common at the very start?" → They all trace back to plants. Even the beef came from an animal that ate plants.
7. Point to the rack: "This is the same thing, just a much smaller scale. We're growing the start of food."
8. Students pick their own favorite food and trace its ingredients back to the farm in their journals.
9. Share out: who found the longest supply chain? The most surprising origin?

Teacher tip. Be curious rather than prescriptive, this isn't about judging what students eat. Celebrate the diversity of foods they mention.

Materials

- ☐ Large paper or whiteboard
- ☐ Markers (multiple colors)
- ☐ Food pictures or word cards (optional)

Listen For

- Breaks a food into ingredients and names where each comes from
- Says almost everything traces back to plants
- Explains the longest or most surprising origin in their journal

Exit Question

Where did the ingredients in your favorite food start before the store?

Standards

CHPE 3.1.NE.1 · 5-ESS3-1

> **Almost everything we eat started as a plant, grown somewhere on Earth.**

Week 3 · Radish · Science · 10 minutes

Growth Rate Analysis 2

Boston Youth Farm Project

Students will measure their plants, calculate growth since last time, and name what might change how fast trays grow.

Steps

1. Students measure the height of kale and arugula plants in their assigned trays.
2. Record today's height and calculate growth since last observation (Week 2 data).
3. Class shares data, teacher charts on board: Day 7 average height, Day 14 average height.
4. Calculate: "On average, how many millimeters per day did your plants grow?"
5. Ask: "What might cause some trays to grow faster than others?"
6. Students identify variables: seed density, light distance, watering frequency.

Teacher tip. Make this feel like real data collection, not busywork. Tell students: "Scientists do exactly this, measure, record, compare, wonder."

Materials

- ☐ Student journals (with past observations)
- ☐ Ruler
- ☐ Whiteboard or chart paper

Listen For

- Places the ruler at the growing medium and reads the height
- Compares today's height with last week's and states the difference
- Names a variable like light distance or watering as a possible cause

Exit Question

What might make some trays grow faster than others?

Standards

5.MD.B.2 · 6.SP.A · SEP 4

Comparing data across weeks reveals how care and conditions shape growth.

Week 3 · Radish · Wellness · 8 minutes

I Am A Grower

Boston Youth Farm Project

Students will describe what it means to be a grower and what they can do now that they could not before.

Steps

1. Ask: "At the start of this program, how many of you had ever grown food before?"
2. Ask: "How many of you feel like a grower now?"
3. Journal prompt: "What does it mean to be a grower? What have you learned to do that you couldn't do before?"
4. Students write for 3–4 minutes.
5. Pair share, then 3–4 share with class.
6. Ask: "What else in your life could you apply a grower mindset to?"

Teacher tip. This is a pivotal wellness moment, students are often surprised to realize they've developed real competence. Name it explicitly: "You are doing something most adults have never done."

Materials

- ☐ Student journals
- ☐ Pencils

Listen For

- Says what they can do now that they could not before
- Describes themselves as a grower in their own words
- Names another place in life for a grower mindset

Exit Question

What have you learned to do as a grower that you could not do before?

Standards

W.5.1

Also CASEL: Self-Awareness, Self-Management

> **Growing something changes how you see yourself.**

Week 3 · Radish · Science · 15 minutes

Radish Planting

Boston Youth Farm Project

Students will plant radish seeds independently and explain the steps to a classmate if asked.

Steps

1. Have the materials prepared before the class. All the pots filled and a tray with each table's supplies ready to hand out.
2. Explain the process of planting the seeds in the soil: a. Make your soil flat, don't push too hard, just flatten, demonstrate! b. Seeds evenly spread, pat them down a little c. Put a little extra soil on top so that you can't see the seeds d. Water until it starts dripping out of the bottom (over the tray!!)
3. Go one step at a time with the students.
4. Once they are planted and watering, start cleaning up while they're finishing. Walk around and make sure they are doing it correctly.
5. Put all of the planted pots in one black tray on the rack. Make sure they wipe the desks clean.
6. Restock your table material sets with seeds and pots with soil for the next class (after class).

Teacher tip. Step back and let them lead. The goal of this planting is to surface their growing competence. They know what to do now. Comment on that explicitly.

Materials

- ☐ Dixie cup with radish seeds (1 per student)
- ☐ Filled pot of soil (1 per student)
- ☐ 1 extra container of soil (1 per 5 students)
- ☐ Filled water bottles (1-2 per 5 students)
- ☐ See video tutorials for visual instructions

Listen For

- Plants without step by step reminders from the teacher
- Helps a classmate with spreading seeds or watering
- Says the steps out loud, like "flatten, scatter, cover, water"

Exit Question

What steps do you follow to plant seeds, and what can you do now?

Standards

5-LS1-1

Also CASEL: Responsible Decision-Making

Week 3 · Radish · Science · 12 minutes

Food Systems Web

Boston Youth Farm Project

Students will build a food web with yarn and explain what happens when one part is removed.

Steps

1. Role list (assign one per student, double up as needed):
2. Sun
3. Water
4. Kale seed
5. Kale plant
6. Farmer
7. Truck driver
8. Distribution warehouse
9. School cafeteria cook
10. Student / Eater
11. Compost bin Activity:
12. Each student takes a role card (or a slip of paper with their role written on it).
13. The Sun holds the ball of yarn and passes it to whoever receives energy from the sun → Soil → Kale seed → Kale plant → Farmer → Truck driver → Distribution warehouse → Grocery store worker → School cafeteria cook → Student / Eater → Compost bin → Soil → Kale plant...
14. The web is built across the room as yarn is passed.
15. Ask one person to drop their string. "What happens to the web when one part disappears?"
16. Discuss: "What would happen if the soil disappeared? The farmer? The truck driver who brings food to the store?"
17. Name this: a food system. "Everything we eat depends on this web staying intact."
18. For larger groups (12+): assign 2–3 students the same role and have each cluster hold the yarn together, showing how multiple people share the same part in a real food system.

Teacher tip. Let the dropped-string moment be dramatic. Students physically feel the web go slack. Don't rush past it.

Materials

- ☐ Ball of yarn or string
- ☐ Role cards (or slips of paper with roles written on them): farmer, trucker, store clerk, shopper, compost, soil, sun

Listen For

- Says who they pass the yarn to and why
- Describes the web going slack when one person drops the string
- Names a part like soil or the farmer and what would happen without it

Exit Question

What happens to the food web when one part disappears?

Standards

CCC Systems and System Models · 5-ESS3-1

Also CASEL: Social Awareness

Food moves through a complex web of people, land, and energy before it reaches us.

Week 3 · Radish · Wellness · 10 minutes

Letter To Future Grower

Boston Youth Farm Project

Students will write a letter to a future grower sharing what they learned and what they discovered.

Steps

1. Say: "Next year, a new group of students will use this rack. Write them a letter."
2. Prompt: "What do you wish you'd known at the start? What surprised you? What should they look for? What will they discover?"
3. Students write for 6–7 minutes.
4. Volunteers share aloud.
5. If using envelopes: collect letters to be opened by next year's class.
6. Ask: "What does it feel like to pass something on?"

Teacher tip. The idea that next year's students will actually read these letters makes this deeply meaningful. If you can commit to following through, do it.

Materials

- ☐ Student journals or lined paper
- ☐ Envelopes (optional)

Listen For

- Writes advice for someone just starting the program
- Names something that surprised them in the letter
- Says how it feels to pass something on

Exit Question

What do you wish you had known at the start of the program?

Standards

W.5.3

Also CASEL: Relationship Skills

> **What would we tell someone just starting? That question reveals what we've learned.**

Week 3 · Radish · Science · 8 minutes

The Decomposition Connection

Boston Youth Farm Project

Students will explain how decomposition returns nutrients to the soil so new plants can grow.

Steps

1. Show the spent growing medium from a pot that's been harvested.
2. Ask: "What happened to the nutrients the plant used?"
3. Explain the decomposition cycle: plants die → microbes break them down → nutrients return to soil → new plants grow.
4. Connect: "Our growing medium is designed to replace what soil does naturally in the ground."
5. Ask: "If we composted our spent growing medium, what would happen?"
6. Optional: start a small class compost container with spent growing medium.

Teacher tip. If your school has a composting program, connect it explicitly here. Students who see the full cycle, grow, eat, compost, grow again, develop a profound sense of participation in nature.

Materials

- ☐ A handful of spent growing medium
- ☐ A decomposition cycle diagram, pull up one that matches your class's level of complexity

Listen For

- Says microbes break down plants and return nutrients to the soil
- Describes the cycle: grow, die, break down, grow again
- Predicts what would happen if we composted the spent medium

Exit Question

What happens to the nutrients a plant used after it is gone?

Standards

5-LS2-1 · CCC Energy and Matter

> **Decomposition returns nutrients to the soil. Death feeds new life.**

Week 3 · Radish · Mindfulness · 4 minutes

Mindful Minute

Boston Youth Farm Project

Students will sit in stillness for one minute, breathe, and name one thing they noticed.

Steps

1. Ask students to find a comfortable seated position.
2. Say: "We're going to spend 60 seconds in complete stillness. Just breathe."
3. Ring a soft bell or say "begin."
4. One minute of silence.
5. After: "Notice anything? What came up in your mind?"
6. Brief share: 3–4 students name one thought or feeling that arose.
7. Say: "Growers have to be patient. This is practice."

Teacher tip. Don't apologize for the silence or fill it. Some students will giggle, let it pass. By Week 3 they're more ready for stillness than Week 1.

Materials

- ☐ Timer
- ☐ Optional: soft ambient sound

Listen For

- Sits still and quiet for the full minute
- Names one thought or feeling that came up
- Says growers need patience and this is practice

Exit Question

What did you notice in your mind or body during the quiet minute?

Standards

CHPE ME

Also CASEL: Self-Management

> **Stillness and patience are skills that growers and people practice.**

Week 3 · Radish · Nutrition · 6 minutes

Local Food

Boston Youth Farm Project

Students will explain why food grown nearby can be fresher and better for the planet, and where to find it.

Steps

1. Ask: "Does anyone know where the closest farm to our school is?"
2. Pull up the farmland slide, "This is a map of where the food is grown in our country." Share: most food in supermarkets travels 1,500–2,000 miles before we eat it.
3. Ask: "What has to happen for food to travel that far?" → picking early, refrigeration, packaging, trucks, fuel.
4. Ask: "What's different about food that was grown nearby?" • Fresher (picked closer to ripeness) • More nutritious (nutrients degrade with time and travel) • Better for the environment (fewer food miles) • Supports local farmers and community
5. Point to the rack: "This is the most local food possible. Zero miles."
6. Ask: "Where else could you find local food in our city?"
7. Journal: "One reason I'd want to eat more local food is..."
8. Optional: look up your nearest farmers market together.

Teacher tip. Don't frame local food as the only "right" choice, many families don't have access to farmers markets or can't afford them. Frame it as one option worth knowing about.

Materials

- ☐ Local farm or farmers market pictures (printed or projected)
- ☐ Whiteboard
- ☐ Student journals

Listen For

- Says what has to happen for food to travel a long way
- Names a reason local food is fresher or better for the planet
- Says our rack is zero miles and names a local food place

Exit Question

What is one reason to eat more local food?

Standards

CHPE 3.1.NE.1 · 5-ESS3-1

Also CASEL: Social Awareness

> **Food grown nearby is fresher, more nutritious, and easier on the planet.**

Week 3 · Radish · Science · 20 minutes

Even It Out: An Engineering Challenge

Boston Youth Farm Project

Students will define a problem, set criteria, choose a low-cost fix to even out light, and test it against data.

Steps

1. Observe together: are all the trays growing evenly? Usually the edges, corners, or lower shelves lag behind. Name the real problem: "Some plants get less light than others."
2. As a class, define the criteria (a good fix evens out the light) and the constraints (it costs nothing, we use only what we have; it can't harm the plants; it's easy for the class to keep up).
3. Brainstorm fixes that fit those limits: a weekly tray-rotation schedule, lining the sides of the rack with white paper or foil to bounce light back, or adjusting the light height.
4. Evaluate the options against the criteria and pick one to try. (Older students score them on a simple decision matrix.)
5. Put the fix in place on the real rack and predict what will happen.
6. Check it against the growth data over the next week: did the lagging trays catch up? What one change would make the fix even better?

Teacher tip. The power here is that it's a real problem on a real system, not a craft project, engineers solve the problem in front of them with the resources they have. The 'costs nothing' constraint sparks the most creativity. Rotating trays is the simplest fix and almost always works; a paper or foil reflector is a nice add-on.

Materials

- ☐ The growing rack
- ☐ Student journals
- ☐ Whatever is already in the room (white paper, aluminum foil, a rotation chart)
- ☐ A ruler

Listen For

- Names the problem: some plants get less light than others
- Compares fix ideas against the criteria and constraints
- Predicts what will happen and suggests one change to improve the fix

Exit Question

Which fix did we choose, and what would make it even better?

Standards

SEP 1 · SEP 3 · CCC Cause and Effect (draft, to confirm)

> **Designing solutions requires iteration, failure, and creative thinking.**

Week 3 · Radish · Science · 7 minutes

Flowers, Bees & The Seeds We Never See

Boston Youth Farm Project

Students will explain how flowers and pollinators make the seeds we plant, and add them to the plant lifecycle.

Steps

1. Ask: "We harvest our greens as babies, they never grow flowers. So where did the seeds in this packet come from?"
2. Reveal the missing chapter: a plant we let grow up makes flowers → flowers make seeds → but most flowers need help moving pollen. That help is pollinators.
3. Look at a flower's parts (real or diagram): petals attract, and pollen has to travel between flowers.
4. Ask: "What moves pollen?" Bees, butterflies, wind, birds. Then: "What would happen to our food if pollinators disappeared?"
5. Land it: roughly one in three bites of food depends on a pollinator. Our microgreens skip this step, but the seeds we plant don't exist without it.
6. Students journal the full cycle, including the flower and pollinator that the microgreen stage hides.

Teacher tip. The reframe, 'we never see our plants grow up', makes an invisible part of the life cycle suddenly visible. If a student has a garden or a fruit tree at home, have them report which pollinators they've seen.

Materials

- ☐ Images or a real flower (if available)
- ☐ The program's seed packets
- ☐ Student journals
- ☐ (Optional) a short pollinator video clip

Listen For

- Says seeds come from flowers on plants that grow up
- Names pollinators like bees, butterflies, wind, or birds
- Explains what could happen to our food without pollinators

Exit Question

Where do the seeds in our packet come from?

Standards

5-LS2-1 · CCC Systems and System Models (draft, to confirm)

> **Pollinators are essential partners in our food system. Without them, much of what we eat disappears.**

Week 3 · Radish · Community · 15 minutes

Who Gets To Grow?

Boston Youth Farm Project

Students will explain what makes fresh food easy or hard to get and suggest one action a community could take.

Steps

1. Ask: "Everyone in this room needs fresh food. Does everyone have the same easy access to it?"
2. Discuss what makes fresh food easy or hard to get: a store nearby or not, cost, time, transportation. Introduce the term 'food access' (older students: 'food desert').
3. Map it: where near our school can people get fresh vegetables? Where can't they easily?
4. Ask the empowerment question: "One classroom grew food with a rack and some seeds. What could a whole community do?"
5. Brainstorm real actions, a school garden, sharing seeds, a little free pantry, racks in more classrooms, and post ideas on the wall.
6. Optional civic step: students draft one sentence to a decision-maker (principal, city) proposing an idea.

Teacher tip. Handle this with curiosity, never judgment, some students may live this reality. Center agency: the point is that they are people who can change a food system, starting with the rack in this room. Pairs well with 'My Food Story' (W1-H).

Materials

- ☐ A local map or neighborhood images
- ☐ Student journals
- ☐ Sticky notes

Listen For

- Names a reason fresh food can be hard to get, like distance or time
- Points out places near school with and without fresh vegetables
- Suggests a real action, like a school garden or sharing seeds

Exit Question

What could a community do so more people can get fresh food?

Standards

5-ESS3-1 · SL.5.1 (draft, to confirm)

> **Access to fresh food is not equal. Understanding why is the first step toward change.**

Week 3 · Radish · Science · 10 minutes

Cool Food, Warm Planet

Boston Youth Farm Project

Students will explain that food has a footprint, rank foods together, and choose one change they could try.

Steps

1. Ask: "Could what we eat change the temperature of the whole planet?" Let students react.
2. Explain simply: growing, shipping, and wasting food uses energy and releases gases that warm the planet, and different foods have very different footprints.
3. Rank a few foods together from lower to higher impact. As students sort, they may notice a gentle pattern, foods that come from animals often take more land, water, and energy to produce than foods that come straight from plants. Name it as a pattern to notice, never a rule about what anyone should eat.
4. Connect to the rack: "What's the footprint of the greens we grew right here?" Basically zero miles, zero packaging, zero waste.
5. Ask: "What are two easy, real changes a person could make?" (waste less, choose local when you can, or add a few more meals that come from plants).
6. Students journal one change they could try, and why it helps.

Teacher tip. Keep it hopeful and agency-focused, not doom-and-gloom. If the plant-versus-animal pattern comes up, keep it neutral: every family eats a mix of foods for many good reasons, cultural, personal, and practical, so the goal is noticing patterns, not labeling any food 'good' or 'bad.' Connects to 'Food Origin Mapping' (W1-C) and the Food-Miles investigation.

Materials

- ☐ Board or chart paper
- ☐ A few food picture cards, include some that grow from plants (greens, beans, an apple) and some that come from animals (cheese, a burger), plus one shipped from far away
- ☐ Student journals

Listen For

- Says growing, shipping, and wasting food uses energy
- Says our rack has almost no footprint: no miles, packaging, or waste
- Names one change they could try and why it helps

Exit Question

What is one change you could try, and why would it help?

Standards

5-ESS3-1 · SEP 8 (draft, to confirm)

> **What we eat has a footprint, and choosing more plants is one of the most powerful things we can do.**

Week 4 · Harvest · Nutrition · 6 minutes

Nutrition Detectives

Boston Youth Farm Project

Students will compare ingredient lists and nutrition labels, circling the ingredients they recognize as real food.

Steps

1. Display the ingredient comparison slide: two products side by side, one with 11 ingredients, one with
3. Ask: "What do you notice? Can you recognize all the ingredients in each one? What's the difference between these two foods?"
4. Introduce the idea: the more processed a food, the longer and more unfamiliar its ingredient list.
5. Pull up the slide of the two nutrition labels for chocolate chip cookies.
6. Task: "Circle every ingredient you recognize as a real food. Put an X next to any you don't recognize or can't pronounce."
7. Share out: "Which had more circles? More X's? What does that tell you about this food?"
8. Ask: "If you grew this food yourself, how many ingredients does it have?" → One.
9. Close: "A tiny handful of these greens has more nutrition per ounce than most things in a grocery store, and the ingredient list is just one word."

Teacher tip. Avoid framing any food as "bad", focus on what nutrients bodies need and how plants provide them.

Materials

- ☐ Student journals
- ☐ Markers or pencils

Listen For

- Circles ingredients they know and puts an X by ones they do not
- Says the more processed food has a longer, unfamiliar list
- Notes that a food they grow has just one ingredient

Exit Question

What did the ingredient list tell you about each food?

Standards

CHPE 3.1.NE.3 · CHPE 3.1.NE.4 · SEP 8

> **Get a basic understanding of how to compare nutrition labels at a glance.**

Week 4 · Harvest · Nutrition · 8 minutes

Taste Vs. Nutrition

Boston Youth Farm Project

Students will sort what makes food taste good and what makes it good for the body, and find where they overlap.

Steps

1. Ask: "What makes food taste good?"
2. Brainstorm: sweetness, salt, fat, crunch, flavor. List on board.
3. Ask: "What makes food good for your body?"
4. Brainstorm: nutrients, vitamins, fiber, protein. List on board.
5. Draw two overlapping circles (Venn diagram). "Can food be both tasty AND nutritious?"
6. Fill in examples from students. Ask: "Where do microgreens fall?"
7. Challenge: "How could we make microgreens part of a delicious meal?" → students brainstorm recipes for Week 4.

Teacher tip. Key insight to surface: taste and nutrition often DO overlap. Strawberries are sweet AND packed with vitamin C. Avocados taste rich AND provide healthy fats. Sweet potatoes are naturally sweet AND high in beta-carotene. A spicy bowl of lentil soup can be delicious AND deeply nourishing. The center of the Venn diagram should fill up faster than students expect.

Materials

- ☐ Whiteboard or chart paper

Listen For

- Lists things that make food taste good and things good for the body
- Names a food that goes in the middle of the Venn diagram
- Says taste and nutrition overlap more than they expected

Exit Question

What food is both tasty and good for your body, and why?

Standards

CHPE 3.1.NE.6 · CHPE 3.1.NE.7 · SEP 8

> **What tastes good and what's good for us overlap more than we think.**

Week 4 · Harvest · Reflection · 8 minutes

Pre-Harvest Reflection

Boston Youth Farm Project

Students will compare their first journal notes with today and name three things that surprised them.

Steps

1. Ask students to open their journals to their very first observation (Week 1).
2. Give 2 minutes to read their own notes silently.
3. Ask: "What do you notice about how you were observing then vs. now? What's changed about what you pay attention to?"
4. Prompt: "Write 3 things that surprised you over these 4 weeks."
5. Share out.
6. Ask: "When you eat the microgreens today, what will you be thinking about?"

Teacher tip. ⚠ Depends on Week 1 plant observation: This activity asks students to compare their Week 4 plants to their Week 1 journal entries. If students did not complete a Week 1 observation with journal notes, substitute step 1 with: "Draw what you imagine the seed looked like when you first planted it. Now draw what the plant looks like today." The comparison between Week 1 and Week 4 entries is often striking, students see their own growth as observers. Name this explicitly.

Materials

- ☐ Student journals
- ☐ Week 1 observation notes

Listen For

- Reads their own Week 1 notes and points out a difference
- Says how their way of observing has changed
- Shares one of three things that surprised them

Exit Question

What has changed in what you pay attention to since Week 1?

Standards

W.5.1

Also CASEL: Self-Awareness

> **Before we celebrate, we pause: what changed in us over these four weeks?**

Week 4 · Harvest · Science · 20 minutes

Harvest

Boston Youth Farm Project

Students will harvest their greens carefully, keeping dirt out, and share the food they grew.

Steps

1. Have the materials prepared before the class.
2. Give the class instructions on harvesting greens. DEMONSTRATE step 3 slowly and several times in front of the whole class.
3. Say: "First we will remove any dirt. It's very important that we're not getting any dirt in our food!" Complete this step and verify before moving on. Take your time.
4. Cut the greens right above the base using scissors and place into a container.
5. Spot check for dirt on greens with each cut. Go around and make sure that no dirt is getting in the containers.
6. As students are finishing, inspect the greens for dirt and empty them into a central salad bowl.
7. Add dressing to taste and serve.

Teacher tip. Build ceremony around this moment. Don't rush it. The physical act of harvesting food you grew is one of the most powerful experiences in the program.

Materials

- [ ] Scissors
- [ ] Containers to harvest into
- [ ] Salad Dressing
- [ ] Large mixing bowl
- [ ] Tongs
- [ ] Paper plates
- [ ] Forks
- [ ] See video tutorials for visual instructions

Listen For

- Removes dirt before cutting and checks each cut
- Cuts right above the base and places greens in the container
- Says "we grew this" while sharing the salad

Exit Question

What did it feel like to eat food you grew from seed?

Standards

5-LS1-1

Also CASEL: Responsible Decision-Making

> **We grew this. From seed to food.**

Week 4 · Harvest · Community · 10 minutes

Circle Of Learning

Boston Youth Farm Project

Students will finish a sentence about what they learned and listen to classmates while holding the talking piece.

Steps

1. Arrange chairs in a circle.
2. Introduce the talking piece (a seed, a handful of microgreens, anything meaningful).
3. Go around: each student completes one of these sentences: "I used to think... but now I know..." "The thing I'll remember most is..." "Growing food taught me..."
4. Teacher goes last.
5. Close with a moment of silence to honor what was shared.

Teacher tip. The talking piece creates weight and ritual. When students hold it, they tend to speak more thoughtfully. Don't rush the pauses.

Materials

- ☐ None required

Listen For

- Finishes a sentence like "I used to think... but now I know..."
- Listens quietly while someone else holds the talking piece
- Names what they will remember most about growing food

Exit Question

What did growing food teach you?

Standards

SL.5.1

Also CASEL: Social Awareness, Relationship Skills

> **Learning is more powerful when we share it with each other.**

Week 4 · Harvest · Community · 8 minutes

Teach It Forward

Boston Youth Farm Project

Students will write one key fact or tip on an index card and teach it to a classmate.

Steps

1. Each student writes one key fact, tip, or lesson learned on an index card.
2. Share with the class: "If you had 30 seconds to teach a friend the most important thing you learned, what would it be?"
3. Cards are displayed in the classroom or donated to the school hallway.
4. Ask: "How would this school change if every classroom had a growing rack?"
5. Close: "You know things now that you didn't know 4 weeks ago. That knowledge belongs to you forever."

Teacher tip. Save the best cards, they make beautiful content for the school newsletter, parent communication, or BYFP social media (with permission).

Materials

- ☐ Student journals
- ☐ Index cards
- ☐ Markers

Listen For

- Writes one clear fact or tip on the card
- Explains their card in about thirty seconds
- Says they know things now that they did not four weeks ago

Exit Question

What is the most important thing you would teach a friend?

Standards

SL.5.4

Also CASEL: Social Awareness

> **The best way to know something is to teach it to someone else.**

Week 4 · Harvest · Science · 10 minutes

Data Synthesis

Boston Youth Farm Project

Students will combine four weeks of measurements into a chart and write a three-sentence summary of what it shows.

Steps

1. Students compile their 4 weeks of measurements into one chart.
2. Class pools data on the board: average heights per week across all trays.
3. Ask: "What story does this data tell?"
4. Identify: "Which tray grew fastest? Which week saw the most growth? Any anomalies?"
5. Discuss: "What would we do differently if we ran this experiment again?"
6. Students write a 3-sentence data summary in their journals.

Teacher tip. Frame this as real scientific work. Scientists analyze data to improve future experiments, that's exactly what students are doing.

Materials

- ☐ Student journals (all 4 weeks of observation data)
- ☐ Whiteboard or chart paper

Listen For

- Reads the chart to say which tray or week grew the most
- Describes the story the data tells in a full sentence
- Suggests one thing to do differently next time

Exit Question

What story does our growth data tell?

Standards

6.SP.A · SEP 4 · SEP 5 · W.5.2

All our data together tells a story we couldn't see in any single observation.

Week 4 · Harvest · Community · 20 minutes

The Classroom Farm Stand

Boston Youth Farm Project

Students will compare harvest and growing costs in simple numbers and pitch a farm stand idea to share what they grew.

Steps

1. Weigh or count the class harvest. Share what microgreens actually sell for at markets.
2. Calculate: what is our harvest 'worth' at that price? Roughly what did it cost to grow (seeds, medium, water, electricity, give simple numbers)?
3. Introduce value: cost to make vs. price to sell is the beginning of a business.
4. In groups, design a 'farm stand', name it, set a price, decide who they'd sell to or share with (the office? families? another class?), and make a quick sign.
5. Each group pitches their farm stand to the class in 30 seconds.
6. Decide as a class what to actually do with the harvest, sell, gift, or share, and say why.

Teacher tip. Keep the numbers simple and the tone playful, this is about seeing yourself as someone who can create value, not about profit. If your school allows it, actually running a one-day stand or gifting the harvest to the front office is a powerful real-world close.

Materials

- ☐ The harvest (or its weight/count)
- ☐ Student journals
- ☐ A teacher-provided market price for microgreens (e.g., a small container sells for a few dollars)
- ☐ (Optional) calculators, paper for signs

Listen For

- Says what it took to grow the harvest, like seeds and water
- Pitches a farm stand with a name, a sign, and who it is for
- Gives a reason to sell, gift, or share the harvest

Exit Question

What will we do with our harvest, and why?

Standards

SL.5.4 · W.5.2 (draft, to confirm)

> **Sharing what we grew turns a personal accomplishment into a community one.**

Week 4 · Harvest · Program · 2 minutes

Grow Lab Check-In (Week 4)

Boston Youth Farm Project

Students will answer the Grow Lab Check-In questions privately and honestly, on their own, without looking at others.

Steps

1. Post-program survey: Explain that before eating, you want to ask a few questions to see what changed over the past four weeks. Students raise their hand if the answer is yes. Count hands and record results below. "Do you know where most of your food comes from before it reaches your plate?" ___ out of ___ students raised their hand. "When you eat, do you think about what's in your food and what it does for your body?" ___ out of ___ students raised their hand. "Do you feel connected to nature?" ___ out of ___ students raised their hand. "Would you want to grow your own food again after this?" ___ out of ___ students raised their hand. "Has this program changed the way you think about food?" ___ out of ___ students raised their hand.

Teacher tip. This data is valuable for measuring program impact. Keep the results alongside your Week 1 pre-survey and share both with your BYFP coordinator.

Materials

None

Listen For

- Answers on their own without looking at classmates' hands
- Keeps their answer private and does not comment on others'
- Raises a hand only when the answer is truly yes

Exit Question

Why is it important to answer honestly and keep answers private?

Standards

No academic standard mapped

> **How has our thinking, confidence, and connection to food changed over four weeks?**

Week 4 · Harvest · Nutrition · 6 minutes

It's All About Balance!

Boston Youth Farm Project

Students will use the car and fuel idea to explain why balance means most food choices are whole foods.

Steps

1. Open with the essential question: "If food is fuel, what kind of car does your eating build?"
2. Pull up slide
3. Walk through the four rows: Row 1: All junk food → breaking-down car Row 2: Still mostly no whole foods → beat-up car Row 3: Good amount of whole foods → decent car Row 4: Mostly whole foods → really nice car
4. Pause on the "really nice car." Highlight the nuance: "Even the really nice car takes a road trip snack. It's not about never eating junk, it's about what makes up most of your fuel, most of the time. That's balance."
5. Turn and talk: "Which car are you most like right now? Which car would you like to build? No wrong answers, just honest reflection."
6. Bring it back to agency: "Every meal, every snack is a choice. Most of the time, go for the premium fuel. And enjoy the road trip snack when you want it, that's what balance means."
7. Close with a quick share-out or journal prompt: "One whole food I could add to my week to upgrade my car is _____."

Teacher tip. The car metaphor lands best when you lean into the nuance. The goal is not to make students feel guilty about eating junk food. It's to help them understand that balance means most choices are nutritious, not that treats are forbidden. Celebrate small shifts and honest self-reflection over perfection.

Materials

- ☐ Student journals
- ☐ Markers or pencils

Listen For

- Says food is fuel and compares it to a car
- Explains that balance means most of the time, not never treats
- Names one whole food they could add to their week

Exit Question

What whole food could you add to your week, and why?

Standards

5-LS1-1 · SEP 4 · 5.MD.B.2

> **A balanced plate means a variety of whole foods that fuel our bodies and minds.**

Any Week · Any Week · Mindfulness · 3 minutes

Emotion Check-In

Boston Youth Farm Project

Students will name or point to the emotion that matches how they feel and notice it quietly.

Steps

1. Display the emotion wheel.
2. Say: "Before we do anything today, let's check in. Point to or name the emotion that best matches how you're feeling right now."
3. Give 10 seconds of silent reflection.
4. Say: "Thanks for that honesty. Now let's grow something."

Teacher tip. Move fast, this should feel like a warm ritual, not a therapy session. Keep your own emotion visible to model vulnerability.

Materials

- ☐ Student journals (optional)

Listen For

- Names an emotion from the wheel in a few words
- Takes the ten seconds of quiet without talking
- Points to a feeling instead of saying "fine"

Exit Question

What emotion did you name today, and how did it feel to say it?

Standards

No academic standard mapped

Also CASEL: Self-Awareness, Self-Management

> **Naming how we feel helps us show up fully.**

Any Week · Any Week · Science · 3 minutes

Wonder Wall Update

Boston Youth Farm Project

Students will write one question about plants, food, or nature and post it on the Wonder Wall.

Steps

1. Each student gets one sticky note.
2. Prompt: "Write a question you have, about plants, food, nature, or anything from today."
3. Students post to the Wonder Wall.
4. Teacher quickly reads 2–3 aloud and says: "We'll try to answer these before the program ends."

Teacher tip. Return to the Wonder Wall at the start of Week 4 and let students see how many questions got answered naturally through the program.

Materials

- ☐ Sticky notes (2 colors)
- ☐ Pen or marker
- ☐ Wall or board space

Listen For

- Writes a real question, not a statement
- Asks about plants, food, or something from today
- Reads a classmate's question and says what they wonder too

Exit Question

What is one question you have that we have not answered yet?

Standards

SEP 1

Also CASEL: Self-Awareness

> **Questions are as valuable as answers. Curiosity grows alongside plants.**

Any Week · Any Week · Mindfulness · 2 minutes

Box Breathing Break

Boston Youth Farm Project

Students will practice box breathing for four rounds and notice how their body feels afterward.

Steps

1. Ask students to sit up tall, feet flat on the floor.
2. Say: "We're going to do four rounds of box breathing, the same technique used by athletes and astronauts to calm their nervous system."
3. Guide: • Breathe IN for 4 counts (teacher counts slowly: 1–2–3–4) • HOLD for 4 counts • Breathe OUT for 4 counts • HOLD for 4 counts
4. Repeat 3–4 times.
5. After: "Notice anything different? Your body just shifted."
6. Say: "You can do this anytime, before a test, when you're upset, before you eat. Your breath is always with you."

Teacher tip. Do it with them, close your own eyes. It models that this is for everyone, not just students. The hold is where the calm happens, don't rush past it.

Materials

- ☐ No materials needed

Listen For

- Breathes in, holds, breathes out, and holds, counting to four
- Says their body feels different or calmer afterward
- Names a time they could use this breathing, like before a test

Exit Question

When could you use box breathing, and what changed for you?

Standards

CHPE ME

Also CASEL: Self-Management

> **We can use our breath to calm our bodies anywhere, anytime.**