

## DESCRIPTION

Students will further define the concept of close to the source foods and extend the definition to include locally grown foods. Students will discuss the ahupua'a system as an example of a sustainable food system and will explore and compare various modern day food systems by mapping the journey of two bananas. Students will evaluate the food miles, environmental and nutritional impacts of imported versus locally grown foods and discuss the benefits of eating close to the source foods grown in Hawai'i.

**TIME:** 45 minutes

**SUBJECT:** Science, Social Studies

## LEARNING OBJECTIVES

After this lesson students will be able to:

- Recognize the ahupua'a system as a sustainable food system that fostered environmental stewardship.
- Evaluate the environmental impacts of different modern day food systems.
- Identify the nutritional benefits of eating locally grown foods.
- Describe the interdependent relationships between food systems, health, and the environment.

## ACADEMIC STANDARDS

SC.2.8.2, SS.2.5.1, SS.2.7.4

\*A detailed list of the Academic Standards can be found in the Unit Overview document.

## LESSON OUTLINE

- I. Introduction (3 minutes)
- II. The Ahupua'a System (10 minutes)
  - Natural Resources & Environmental Stewardship
- III. Banana Skit (5 minutes)
- IV. Modern Day Food Systems (15 minutes)
  - Food System Mapping with Picture Cards
- V. Comparing Food Systems (5 minutes)
  - Which Banana is Closest to the Source? Student Worksheet
- VI. Close to the Source Snack & Gifts (3 minutes)
  - Imported and Locally Grown Bananas
  - Reusable Gift, optional
- VII. Closing (2 minutes)



## KEY TERMS AND CONCEPTS

**Ahupua'a** – A traditional Hawaiian division of land; typically pie shaped, extending from mountains to the sea, following the contours of the watershed

**Distribution Center** – A place that collects food from farmers and manufacturers and sells it to retail food outlets

**Environment** – The surroundings in which a person, animal or plant live

**Farm** – An area of water or land dedicated to raising food

**Food Miles** – The distance food travels from where it is grown to where it is finally eaten

**Loss of Nutrients** – Decreased nutritional value on a food due to exposure to light, heat, air, or time

**Natural Resources** – Materials that come from nature, such as water, minerals, trees and plants

**Packaging** – The material in which food is contained, displayed, transported or sold

**Pollution** – The introduction of harmful substances into the environment

**Processing Plant** – Place where food is processed, packaged, and/or made into new foods

**Stewardship** – To take care of something; to preserve and protect the environment and use natural resources sustainably

## LESSON MATERIALS

### Core Supplies:

- 'ĀINA In Schools apron with name tag
- Kōkua Hawai'i Foundation cloth bag
- Laminated 'ĀINA Food Guide Poster
- Copy of 'ĀINA In Schools Student Workbook
- Knife (plastic lettuce knife)\*
- Cutting board
- Non-latex gloves
- Napkins
- Garbage/compost bag

### Lesson Supplies: (May be shared with 6th grade)

- Vocabulary Cards (5)
- Ahupua'a Poster (available at [kamehamehapublishing.org](http://kamehamehapublishing.org))
- Banana Skit Script Sign (2)
- Imported Banana Sign (1)
- Local Banana Sign (1)
- Food System Mapping Cards (25 total): Farm, Truck (3), Farm Truck (1), Processing Plant, Packaging (2), Boat, Plane, Distribution Center, Grocery Store, Farmers' Market, Car, Bike, Home, Pollution (6), Loss of Nutrients, Plastic Bag, Reusable Bag

### Teaching Team to Provide:

- Serving tray (or use top of bin as tray)
- Snack ingredients: local and imported bananas
- 1 imported banana and 1 local banana to use as props
- Clothesline/clothespins, magnets, or tape for Food Systems Mapping activity.

*\*Please do not bring knives on campus. The only knives allowed are those that are plastic and very well attended by an adult.*

### Banana Preparation

Please wash bananas. Use a marker to draw a line down the length of the imported bananas. Both types of banana will be cut into 1"-2" lengths with the peel left on (see below for approximate quantities). Serve students one section of each type of banana on a napkin.

### INGREDIENT QUANTITIES NEEDED

How much to buy	Up to 20 students	Up to 30 students	Up to 40 students
Local Apple Bananas (Short)	7	11	14
Imported Bananas (Long)	4	6	8

### ACCOMPANYING DOCUMENTS

- Student Worksheet: Which Banana is Closest to the Source?
- Take Home Letter: Banana Sorbet Recipe
- Family Activity: Plastic Free Hawai'i
- Resource Guide: Healthy & Waste-Free Lunches

### ADVANCE PREPARATION

- Lead docent to contact teachers to confirm date/time of the lessons.
- Review lesson content, roles and shopping needs with docent team.
- Shop for snack ingredients and review materials needed for lesson.



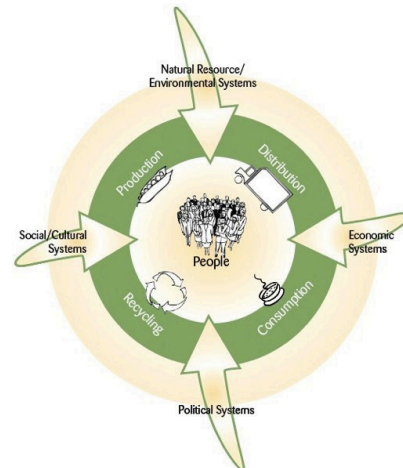
## BACKGROUND INFORMATION

Hawai'i's children suffer from obesity rates that in certain communities are double the US average rates of obesity provided by the Center for Disease Control and Prevention. Obesity in childhood is a strong predictor of obesity in adulthood, and is also strongly associated with serious health problems such as diabetes, kidney disease, hypertension, and cardiovascular disease.

Hawai'i's environmental health is also at risk. Agriculture in Hawai'i has undergone a dramatic transformation over the past twenty years. In the face of rising fossil fuel costs and shipping's contributions to global climate change, almost 90% of Hawai'i's food is still imported. The concept of "**Food Miles**" is the estimated distance food travels from farm to plate. Most food travels from the farm to distributor to store to consumer via ship, trains, trucks, and planes increasing emissions of carbon dioxide and greenhouse gases from fossil fuel based transport.



As an island state, we should also be very concerned about how much waste we are producing because of our food choices and where it will go. Nowhere should the lessons of sustainability be more obvious or more necessary than on an island.



Food system diagram from the 2005 San Francisco Collaborative Food System Assessment by the San Francisco Food Alliance.

### Food Systems

"The food system spans the activities, people, and resources involved in getting food from field to plate, from agriculture through nutrition and beyond. Along the way, it intersects with aspects of public health, culture, society, policy, and the environment." (From Johns Hopkins Center for a Livable Future's Food System Primer.)

The **ahupua'a system** was traditionally used by Hawaiians to create and maintain a sustainable community by sharing food and other resources and working within the natural rhythms of the environment. Within this system, Hawaiians were able to live off the abundance of the land while respecting and preserving their natural environment.



Many **modern day food systems** rely upon foods grown and produced unsustainably that are imported from far away places. Fortunately, there is a growing sustainable food movement in Hawai'i, the US, and worldwide. This multi-faceted movement works to ensure that all people have access to healthy, culturally appropriate foods that are grown and

## BACKGROUND INFORMATION

## CONTINUED

distributed in ways that give back to the environment, save energy, and protect biodiversity. The ahupua'a system and as well as other global ancestral traditions can help to inform the ways we grow and distribute food today.

Schools can play an important role in addressing childhood health and our food system by helping children learn to make healthy choices early in life that they can carry with them to adulthood. By reconnecting children to the land through gardening, nutrition lessons, and field trips to modern and ancestral farms, we can also instill in them an appreciation for farmers and the land and natural resources that sustain them. Purchasing locally grown foods and encouraging students to eat locally can improve their health and the health of the environment.

In addition to knowing where our food comes from, it is also important to know how our food is grown. When shopping for fruits and vegetables it is helpful to know which types of produce are more likely to be exposed to pesticides since pesticides can have an impact on both our health and that of the environment. The Environmental Working Group's "Dirty Dozen" is a list of most likely contaminated fruits and vegetables to be aware of. The "Clean 15" is a list of fruits and vegetables that are among the least likely to be contaminated by pesticides. In 2020, these were:

**The Dirty Dozen:** Strawberries, Spinach, Kale, Nectarines, Apples, Grapes, Peaches, Cherries, Pears, Tomatoes, Celery, Potatoes

**The Clean 15:** Avocados, Sweet Corn\*, Pineapples, Onions, Papayas\*, Sweet peas (frozen), Eggplant, Asparagus, Cauliflower, Cantaloupes, Broccoli, Mushrooms, Cabbage, Honeydew Melons, Kiwis

\* "A small amount of the sweet corn, papaya and summer squash sold in the United States is produced from GE seedstock. Buy organic varieties of these crops if you want to avoid GE produce."

-Environmental Working Group



Other considerations to make when choosing foods are whether they were grown organically and whether foods have been genetically modified. **Organic farming** uses nature-based techniques to maintain soil fertility and excludes or strictly limits the use of manufactured inputs such as pesticides, fertilizers, and genetically modified organisms. **Genetically modified foods**, also known as **GMO's**, are often grown with more chemical pesticides and have not been proven safe in long-term human studies.

## References:

- "Ahupua'a." [kumukahi.org/units/ka\\_honua/onaepuni/ahupuaa](http://kumukahi.org/units/ka_honua/onaepuni/ahupuaa)
- "Chemical Pesticides and Human Health: The Urgent Need for a New Concept in Agriculture." [doi.org/10.3389/fpubh.2016.00148](https://doi.org/10.3389/fpubh.2016.00148)
- "Food System Primer." [foodsystemprimer.org](http://foodsystemprimer.org)
- "GE Food and Your Health." [centerforfoodsafety.org/issues/311/ge-foods/ge-food-and-your-health](http://centerforfoodsafety.org/issues/311/ge-foods/ge-food-and-your-health)
- "Hawaii's Food Security and Food Self-Sufficiency Strategy." [files.hawaii.gov/dbedt/op/spb/INCREASED\\_FOOD\\_SECURITY\\_AND\\_FOOD\\_SELF\\_SUFFICIENCY\\_STRATEGY.pdf](https://files.hawaii.gov/dbedt/op/spb/INCREASED_FOOD_SECURITY_AND_FOOD_SELF_SUFFICIENCY_STRATEGY.pdf)
- "Shopper's Guide to Pesticides in Produce." [ewg.org/foodnews/](http://ewg.org/foodnews/)

## INTRODUCTION

3 MINUTES

*"Hello again, we are..." State docent names.*

*"Do you remember our last lesson? We learned about WHOLE GRAINS, which are CLOSE TO THE SOURCE ENERGY FOODS that also protect our bodies with their vitamins, minerals and fiber. We matched whole grains with their processed pair and learned to look for the word 'whole' on food labels."*

*"During our last lesson you got to taste a whole grain cracker and hummus! Raise your hand if you liked it?"  
Wait for a show of hands.*

*"Good! I'm so glad you enjoyed it. It was a close to the source snack because the cracker was made of whole grains with no parts taken away."*

*"Today's lesson will incorporate what you've learned so far about close to the source foods and how your food choices affect not only your health but your environment too. We can keep our bodies healthy and also help to protect our environment by choosing close to the source foods that are grown here in Hawai'i."*

*"Let's begin by discussing how Native Hawaiians have lived sustainably in these islands for thousands of years!"*



## THE AHUPUA'A SYSTEM

10 MINUTES

*"In traditional Hawaiian culture, there have been ways of ensuring that people lived in a harmonious relationship with their ENVIRONMENT: the land, its fresh water, and the ocean."*

*"Hawaiians traditionally have divided the islands into land districts shaped like triangular pie slices called AHUPUA'A. Most AHUPUA'A cover three main regions: the mountains, the lowlands, and the shore. This system was designed to allow each community equal access to the limited NATURAL RESOURCES of the islands."*



Ahupua'a Poster

Ask the students, "Who can give me some examples of NATURAL RESOURCES that the Hawaiians used?" Accept two or three responses.

Desired answers: Water, food, air. Some other responses might include fish, drinking water, bananas, coconuts, etc.

*"Hawaiians depended on the land and the ocean to provide them with food and shelter. They needed the natural resources from all three regions on the island."*



*"There were no stores and restaurants for the people to obtain the items they needed, so they shared resources. The ahupua'a system allowed for the sharing of all resources within a community."*

*"The foods they ate were very close to the source because they were fresh, whole and minimally processed and did not have to travel far before they were eaten. In addition, if foods had to be transported they were protected by other plants such as ti leaves, not cardboard or glass containers."*

### DOCENT NOTES

- Refer to the Ahupua'a poster throughout the lesson. Hang it on the board if possible.
- Hold up vocabulary cards when each Key Word is explained.

*"Early Hawaiians worked hard to protect their natural resources such as water and the land that produced their food, and they enjoyed the food that protected and nourished their bodies from illness and disease. It was a harmonious relationship! They took good care of their ENVIRONMENT."*

*"Taking care of the environment was necessary for survival. Who can give me some ideas for how we can take care of our environment?" Accept a few answers.*

Possible answers: Keep oceans and fresh water streams clean; don't litter; recycle.

*"STEWARDSHIP means to take care of something and ENVIRONMENTAL STEWARDSHIP means to take care of the environment, or the surroundings in which you live."*

*"Hawaiians relied on their ahupua'a system because that was all they had. Today, people have many different choices and options for finding what they need. There are many grocery stores from which to buy our food."*

*"Our islands are in the middle of the Pacific Ocean so how do you think the grocery stores get the food that they sell to us?"*

Desired answer: by boat/ship/shipping container, airplane, etc.

*"Right! There are also farmers who grow food in Hawai'i and then sell it to us at farmer's markets and grocery stores, or we can grow some food in our own gardens."*

## BANANA SKIT

5 MINUTES

*“Today we are going to talk about how our food gets to our plate if we don’t grow it ourselves, like Hawaiians traditionally did, and what effects that has on our environment and our health. To begin I’m going to tell you a story of two bananas.”*

As you read the play, you may hold up an actual imported banana and local apple banana (optionally decorated



in costume and “make-up” with markers), use the printed visual aids of the two banana characters, or dress up two student volunteers.

Remember to be respectful of all cultures. Please do not use stereotypical accents when delivering the skit.

\*See Additional Resources for a link to Honolulu Theatre for Youth’s production of this skit.

### “A TALE OF TWO BANANAS” SCRIPT

**NARRATOR:** (In a neutral voice) *“It was midnight on the kitchen counter and the house was completely quiet when suddenly the silence was broken...”*

**LANI:** (In a peppy, little girl voice) *“Ah, excuse me, my name is Lani Local Banana and I couldn’t help but notice you have a sticker on you that says you’re imported from Ecuador. Wow!! How did you get here?”*

**IGGY:** (In a melancholic, tired voice) *“Oh, I am pleased to meet you, Lani! My name is Iggy Imported Banana and how I got here is a long story. Are you sure you really want to hear it?”*

**LANI:** *“Oh yes, I really do!”*

**IGGY:** *“Well, it all began weeks ago on my beautiful banana plantation in Ecuador. I was hanging out with my bunch and life was good. We were growing very nicely with all the sun and rain we needed.”*

*“Then one day, the farmer came along with his big machete, and cut us down when we were still GREEN. Then he threw us into his truck with many other green bunches of bananas!”*

**LANI:** *“Oh my goodness! Poor Iggy!”*

**IGGY:** *“So then we were bumped along a dusty dirt road for a very long time until we came to this big building. And there they threw us into cardboard boxes and then put our boxes into big containers and into an even bigger truck. They shut the doors on us and it was all dark and very stuffy.”*

*“Again we traveled for a long time until we came to the port. Then our container was lifted onto a very big boat and for many days we were on the sea.*

*“Up and down, side to side. Oh it was not a good feeling at all, I can tell you that.”*

*“Then finally we arrived here in Hawai‘i. We were moved off of the boat onto another truck and taken to a distribution center. This is where they, they ...”*

**LANI:** *“They what?”*

**IGGY:** *“You will not believe this Lani, but they put us in a room and they sprayed us with ethylene to ripen us. And we started to turn from green to yellow. Can you imagine that?!”*

*“After that I went on one more truck that took me to the grocery store, where this nice family bought me. Then they put me in a plastic bag and brought me home in their car....and that’s how I got here.”*

**LANI:** *“Oh Iggy, that was a very long journey. You must be exhausted!”*

**IGGY:** *“Lani, tell me your story. How did you get here?”*

**LANI:** *“My story is pretty short, and not nearly so dramatic! I was just hanging out with MY bunch, right here at a local farm in Hawai‘i! We were growing nicely, and getting ripe on our tree...just a nice yellow! Then the farmer harvested our bunch and put us on a truck and in about 10 minutes we were at the Farmers’ Market. That’s where this nice family bought me and then brought me home in their car. And that’s my story!”*

*“Well I guess we better rest now, it’s getting pretty late. Good night Iggy.”*

**IGGY:** *“Good night Lani.”*

## MODERN DAY FOOD SYSTEMS

15 MINUTES



*“Now we’re going to look more closely at Iggy Imported Banana and Lani Local Banana’s stories and what it took to get them to your plate. Each of you will get a card with either a place, mode of transportation, or an environmental or nutritional impact on it, and together we will map Iggy and Lani’s journey from the banana farm to your house.”*

Pick one student to hold the Iggy banana sign. Distribute food system cards to the rest of the students in the class. Have students remain seated until their card is called.

Call up the student holding the “Farm” card and have them place it on the far left side of the clothesline or whiteboard. Have the student holding the “Home” card place it on the far right side of the clothesline or board to illustrate Ecuador’s distance from Hawai’i.



### Imported Food System

*“Iggy the Imported Banana was harvested several weeks ago from a farm in Ecuador when he was still green. First he went by truck to a processing plant, where the large bunches are cut into smaller “hands” of bananas, like this.” — Call up students with a “farm truck” and “processing plant” card.*



*“At the processing plant, Iggy got a sticker put on him to tell the consumer where he came from. He was also wrapped in plastic bags, and packed into a cardboard box.”*

### ACTIVITY TIPS AND KEY

As you recount the journey of Iggy the Imported Banana, call students up one at a time to place their cards in the correct food system order. Use magnets/tape on the board or string with clothespins to hold cards as students bring them up. The transportation cards should be placed between the location cards. The student holding Iggy the Imported Banana should travel with the cards as they are added.

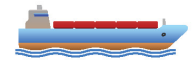
#### Food System #1: Imported banana from Ecuador

1. Farm
2. Farm Truck (Pollution)
3. Processing Plant (Packaging)
4. Truck (Pollution)
5. Ship or Plane (Pollution)
6. Truck (Pollution)
7. Distribution Center (Packaging & Loss of Nutrients)
8. Truck (Pollution)
9. Grocery Store (Plastic Bag)
10. Car (Pollution)
11. Home

~ 6000  
MILES

*\*See Key for Food Systems #2-4 on page 11.*

*“A processing plant sends food all over the place to different countries and states, including Hawai’i. On the mainland, they use trucks and trains for transportation. For Iggy the Imported Banana to get to Hawai’i he was put on a bigger truck to go to the dock or airport and then put on a ship or plane to get to Hawai’i.” — Call up the students with the “truck”, “ship” and “plane” cards.*



*“Once Iggy made it to Hawai’i, another truck took him to the distribution center on the island. This is where Iggy and the other bananas were sprayed with ethylene to ripen them from green to yellow. Then the distribution center repackaged the bananas into different boxes and then another truck transported Iggy to the grocery store.” Call up the students with the “truck”, “distribution center”, “truck” and “grocery store” cards.*





**MODERN DAY FOOD SYSTEMS**

**CONTINUED**

*"Finally a nice family went to the grocery store and bought Iggy the Imported Banana and drove him home." — Call up students with the "grocery store," "car" and "home" cards.*



*"Wow! That's a long journey for a banana, isn't it? If you add up all the miles it took Iggy to get from Ecuador to the home, you get Iggy's FOOD MILES... which is close to 6,000 miles. The distance it takes to get food from a farm to your plate is measured in FOOD MILES."*

**Environmental Impacts**

*"FOOD MILES are important because they show us the environmental impact of importing our food."*



*"Transportation takes fuel and what does burning fuel do to our environment?"*

Desired answer: Pollution!

*"Yes, transportation such as trucks, planes, and ships burn fuel in order to move, and burning fuel produces pollutants that go into our air."*



Invite the students with the "pollution" cards to come up and put their cards next to each form of transportation in the food system on the board.

*"POLLUTION is one example of an environmental impact from our food system. Food PACKAGING is another. It is often necessary to package food to keep it fresh and protected from moisture, insects or bumps and bruises. Foods that travel far distances must be packaged to keep them safe."*

*"Packaging is often applied to foods at the processing plant and then again at the distribution center."*

Invite the students with the "packaging" cards to come up and place the cards next to the "processing plant" and "distribution center" on the board.



*"Why does packaging impact our environment?"*  
 Entertain a few student answers.

*"There are two main reasons. Packaging uses natural resources and creates waste."*

*"What kind of natural resources does food packaging come from?"*

Possible answers: plastic (oil), paper (trees), glass, aluminum

*"When this packaging is thrown away it creates waste. What can we do to eliminate waste from packaging?"*  
 Entertain a few answers.

Desired Answer: Practice the 3 R's – Reduce, Reuse and Recycle!

*"The family that purchased Iggy used a plastic bag to bring him back from the store."*

Invite the student with the "plastic bag" card to stand next to the "grocery store."



*"What could this family have done differently to reduce this waste?"*

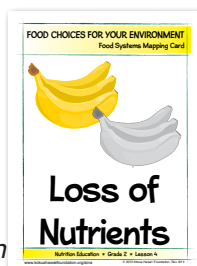
Desired answer: Bring a reusable bag!

## MODERN DAY FOOD SYSTEMS

CONTINUED

**Nutritional Impacts**

"Great! In addition to these environmental impacts, there are also nutritional impacts on Iggy because of his long journey. Bananas that have a long distance to travel are usually picked while they are still green so that they ripen on the way or they are sprayed with ethylene at the distribution center to accelerate ripening. This way Iggy is yellow and ripe when he is at the store."



Food System Mapping Card

Invite the student with the "loss of nutrients" card to come up and place it next to the "distribution center" on the board.

"When food is removed from a plant before it is ripe and has to travel a long way, there is a **LOSS OF NUTRIENTS**. When we eat foods that are close to the source, but are also picked closer to ripeness, they contain higher levels of nutrients and are better for our bodies. One way to do that would be to buy fruits and vegetables that don't have such a long way to travel, like those grown and picked here in Hawaii!"

**Local Food Systems**

"Now we are going to compare the journey of Lani Local Banana to Iggy the Imported Banana." Hold up the locally-grown banana and/or the Lani Sign.

"Now what if Lani Local Banana was sold at the grocery store. What parts of Iggy's journey could you cut out?"

Desired Answer: The truck to the port and the boat or plane he took to get to Hawai'i.

"Right! So the truck to the port plus the ship or plane to Hawai'i and their pollution would go away."

Remove the following cards from the board: Truck #2, Pollution #2, Container Ship, Plane, Pollution #3.

"This means locally grown bananas have fewer **FOOD MILES** than imported bananas because they traveled less to your plate. Less travel means less **POLLUTION!**"

"If a locally-grown banana is bought at the grocery store does it still go to the processing plant and distribution center or do farmer's drop it off themselves?"



Desired answer: Yes!

"Yes, they still go to the processing plant and distribution center.

Ask the students, "Does anyone remember Lani's journey to the Farmer's Market? Which things can we take out from here?"

Entertain a few responses. Lead students to the idea of removing the processing plant and distribution center and their associated environmental and nutritional impacts. The list should end up with following 8 cards: farm, truck, pollution, farmer's market, plastic bag, car, pollution, home.

Summarize the nutritional benefits and decreased environmental impacts as you move Lani past each card:

"Here we have a locally grown banana that was picked while ripe, which means it's fresh and full of nutrients! There was no **LOSS OF NUTRIENTS** Also, since Lani was bought directly from the farmer she didn't have to go to the processing plant or distribution center. This creates less damage to the environment in the form of **PACKAGING** and **POLLUTION** compared if we bought Lani at the grocery store."

"Does anyone have an idea on how to reduce our impact on the environment even more?"

**MODERN DAY FOOD SYSTEMS**

**CONTINUED**

Entertain a few responses. Lead students to the idea that they could cut out the pollution by walking or riding a bike to the Farmer's Market or by not using a single use plastic bag.



Replace the "car" card with the "bike" card and remove the second "pollution" and "plastic bag," replacing it with the "reusable bag" card.

*"Wow! Look at how much damage I didn't do to the environment by riding my bike instead of driving my car to the farmer's market! I produced no air pollution and got some exercise and there is no packaging because I brought my own bag!"*



*"Who can figure out how to shorten Lani's journey even more and completely reduce our environmental impact?"*

Desired Response: Grow your own food at your house!

*"Yes, if you had a banana patch in your backyard, you could simply walk outside and pick bananas."*



Take away the farm, "truck," "pollution," "farmers' market," and "bike" cards leaving only "home". Point out that there is a banana tree in the picture of the house.

*"This food system would have ZERO FOOD MILES! Wow, that is really close to the source isn't it! And there was no pollution, packaging, or loss of nutrients as a result. Growing our own food is great for our bodies and our environment."*

**ACTIVITY KEY**

**Food System #1: Imported banana from Ecuador**

1. Farm
2. Farm Truck (Pollution)
3. Processing Plant (Packaging)
4. Truck (Pollution)
5. Ship or Plane (Pollution)
6. Truck (Pollution)
7. Distribution Center (Packaging & Loss of Nutrients)
8. Truck (Pollution)
9. Grocery Store (Plastic Bag)
10. Car (Pollution)
11. Home

**~ 6000 MILES**

**Food System #2: Locally-grown banana sold at the Grocery Store**

1. Farm
2. Farm Truck (Pollution)
3. Processing Plant (Packaging)
4. Truck (Pollution)
5. Distribution Center (Packaging, Loss of Nutrients)
6. Truck (Pollution)
7. Grocery Store (Plastic Bag)
8. Car (Pollution)
9. Home

**LESS THAN 100 MILES**

**Food System #3: Locally-grown banana sold at the Farmer's Market**

1. Farm
2. Farm Truck (Pollution)
3. Farmer's Market
4. Plastic or Reusable Bag
5. Car (Pollution)
6. Home

**LESS THAN 100 MILES**

**Food System #4: Locally-grown banana grown in Home Garden**

1. Home Garden

**0 MILES**

## COMPARING FOOD SYSTEMS

5 MINUTES

### WHICH BANANA IS CLOSEST TO THE SOURCE?

*“Now we are going to practice what we have learned. Everyone please turn to the Which Banana is Closest to the Source? Student Worksheet in your workbook.”*



Guide students through each step of the worksheet:

1. Which banana is ripest when it is picked? Color the fruit of that tree.
2. Which banana used the least amount of fuel, traveling the least number of miles to the store? Color the leaves of that tree.
3. Which banana used the least amount of packaging to get to the store? Color the trunk of that tree.

The plant that is colored in is CLOSEST TO THE SOURCE.

Students begin work on the worksheet while the assistant docent passes out the food samples. Students can continue working while they are eating their snack.



Student Worksheet		Name: _____
WHICH BANANA IS CLOSEST TO THE SOURCE?		Class: _____ Date: _____
Lesson 4 – Food Choices For Your Environment		
 Hawai'i Banana	 Imported Banana	
1) Which banana is picked the ripest and has the most vitamins? <input type="checkbox"/> Hawai'i-Grown Banana <input type="checkbox"/> Imported Banana	2) Which banana used the least amount of fuel, traveling the least number of food miles to the store? <input type="checkbox"/> Hawai'i-Grown Banana <input type="checkbox"/> Imported Banana	3) Which banana used the least amount of packaging to get to the store? <input type="checkbox"/> Hawai'i-Grown Banana <input type="checkbox"/> Imported Banana
Color the <b>FRUIT</b> of that tree!	Color the <b>LEAVES</b> of that tree!	Color the <b>TRUNK</b> of that tree!
4) Circle the banana tree that is closest to the source.		
<small>Nutrition Education • Grade 2 • Lesson 4            www.kokuahawaiifoundation.org            Copyright © 2014 Kōkua Hawai'i Foundation. All Rights Reserved. (Rev. 7/21)</small>		

Which Banana is Closest to the Source?  
Student Worksheet

### DOCENT NOTES

- See the 'ĀINA Food Guide video at [kokuahawaiifoundation.org/ainavideos](http://kokuahawaiifoundation.org/ainavideos) for a discussion on the concept of eating close to the source.

## CLOSE TO THE SOURCE SNACK

3 MINUTES

### DOCENT NOTES

- Point out that anyone with a known allergy to any of the food items should not touch or sample it. By this age, kids should know this about themselves, but please bring it to the attention of the teacher who can make sure that any students with known allergies or intolerances do not receive snacks.
- You may use the Lesson Supply Bin lid as a serving tray.
- Give a snack to the teacher and any other classroom aides.
- Please refrain from verbalizing your own food preferences and be aware of your body language and facial expressions. These subtle cues have a big impact on a child's willingness to try foods!
- Encourage the students to try the snack. Remind them of the "no yuck" rule: they can choose not to try any foods they wish, but if they do try them, they must keep their personal opinions to themselves.

Distribute food samples on paper napkins:

- 1-2" section of imported banana
- 1-2" section of locally-grown banana

As students are trying their food sample, ask what they think of each. Engage the students while they are eating by asking questions such as:

- Do the fruits look different?
- Is there a difference in taste?
- Where could they find the local fruit on island? (Farmers' markets, some grocery stores...)



Remind students that both bananas are close to the source foods and that while the locally grown banana is preferred, both are great food choices.

### TOTE BAG NOTES

Hawai'i educators who would like to give reusable bags to their students as part of this lesson may apply for a Kōkua Hawai'i Foundation Mini-Grant to do so. Reusable water bottles are another item that may be provided to students to empower them to reduce waste by reusing.

#### Optional Activity: Gifts - Reusable Tote Bag

*"One thing we can do that's even better than recycling is RE-USING. These tote bags are for you to use again and again at the farmer's market or the store so you don't have to take a paper or plastic bag which uses our natural resources and goes into our waste stream."*



*"By doing our best to reduce, reuse, and recycle, we can take care of our island home and protect our land and water."*

*"And by doing our best to find foods grown in Hawai'i we can be sure that they are closer to the source and typically fresher and more nutritious than foods shipped to us from across the ocean."*

Give gifts to the classroom teacher for distribution to the students later. Make sure there is one bag for each student and the classroom teacher.





Growing healthy keiki, schools, and communities  
A program of the Kōkua Hawai'i Foundation

## CLOSING

2 MINUTES

### Provide a quick review:

- Native Hawaiians have a tradition of environmental STEWARDSHIP, protecting their NATURAL RESOURCES and eating locally grown food.
- “FOOD MILES” describe the distance your food travels from the farm to your home. More food miles usually means more environmental impact.
- Environmental impacts of our food include POLLUTION and PACKAGING.
- LOSS OF NUTRIENTS occurs in foods that travel long distances and/or are picked before they are ripe.
- CLOSE TO THE SOURCE = Locally grown, fresh produce that is better for your body and the environment!

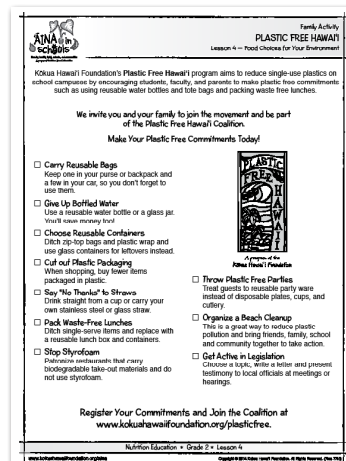
### Review the Take Home Letter and follow-up activities:

- “Share the take-home letter with your family and try making the banana sorbet recipe together. It’s an easy treat you can make using local apple bananas.”
- “Review the Plastic Free Hawai'i Family Activity together and make sure you bring your reusable bag on shopping trips to the grocery store and farmers’ market.”
- Encourage students to create their own recipe using locally grown produce, especially Hawaiian canoe plants like mai'a (banana), kalo, 'ulu (breadfruit), and 'uala (sweet potato). Students may use the ĀINA Recipe Challenge form at the end of their ĀINA Nutrition Student Workbooks to share their creations. Kōkua Hawai'i Foundation will select recipes to feature in future blog posts, newsletters, and cookbooks.



Thank the students for doing such a great job!

THANK YOU!



Plastic Free Hawai'i  
Family Activity

## DOCENT NOTES

- **Pack your trash!** Please leave the classroom cleaner than you found it by removing all lesson-based trash. We don't want to add any burden or extra trash for the teachers or custodians so please do not throw away any trash in the classroom garbage. Instead:
  - Collect napkins and any leftovers.
  - Uneaten bananas and/or peels may be composted if composting is available at the school.
  - Use the garbage bag in the Lesson Supply Bin to remove all lesson-related food items from the classroom.
- Please do not leave any food in the supply bin. Perishable props have been known to get moldy and smelly when left in the bin after the last lesson.
- Please complete your online docent survey for this lesson. This is valuable feedback that helps to improve our program.
- Please collect any ĀINA Recipe Challenge submissions and turn in to KHF staff at the next docent training.

## ADDITIONAL RESOURCES

### Books

- ***My Hawaiian Farm*** by Pearl Maxner  
Tells the story of a year in the life of a young girl growing up on a Hawai'i farm.
- ***Right This Very Minute: A table-to-farm book about food and farming***, by Lisl Detlefsen  
A celebration of food and farming inspiring readers to learn about where their food comes from.
- ***To Market, To Market*** by Nikki McClure  
As a mother and son shop, readers learn how each food was produced, and how it got to the market.

### Lesson Plans & Curricula

- **Aloha 'Āina Curriculum, Pacific American Foundation:** [thepaf.org/alohaaina](http://thepaf.org/alohaaina)  
Culturally relevant lessons on the ahupua'a system inspiring keiki to care for the land.
- **"Farmer Freeze Tag," Big Green:** [biggreenathome.org/weekly/farmer-freeze-tag](http://biggreenathome.org/weekly/farmer-freeze-tag)  
Get active while thinking about food systems. This is a fun take on freeze tag.
- **"Strawberries and Pesticides," The Edible Schoolyard Project:** [edibleschoolyard.org/strawberries-and-pesticides](http://edibleschoolyard.org/strawberries-and-pesticides)  
This lesson explores the history and impacts of pesticide use in strawberry farming.

### Videos

- **"ĀINA Food Guide," Kōkua Hawai'i Foundation:** [kokuahawaiifoundation.org/ainavideos](http://kokuahawaiifoundation.org/ainavideos)  
Explore the categories of the ĀINA Food Guide and the choosing Close to the Source Foods.
- **"Closer to the Source," Honolulu Theatre for Youth:** [membership.htyweb.org/food-episode](http://membership.htyweb.org/food-episode)  
Based on HTY's production "Grinds: The Story of Food in Hawai'i," this episode (24 min.) is a fun take on eating local. Be sure to check out their rendition of this lesson's Banana Skit (3 min.)!
- **"Field to Fork - Why Local Food Matters":** [youtube.com/watch?v=xS1SKiypHME](http://youtube.com/watch?v=xS1SKiypHME)  
Four short animated videos from the UK about food miles.
- **True Food TV:** [howgrow.org/foods](http://howgrow.org/foods)  
A series telling the stories of several foods from field to fork.

### Additional Resources

- **"Food System Primer," Johns Hopkins Center for a Livable Future:** [foodsystemprimer.org](http://foodsystemprimer.org)  
Short readings on food system topics with links to resources to help educators dig deeper.
- **"Issues Page," FoodPrint:** [foodprint.org/the-total-footprint-of-our-food-system/issues/](http://foodprint.org/the-total-footprint-of-our-food-system/issues/)  
Covers the most pressing issues in food production and how these issues are interconnected.
- **"I Value Food," Sustainable America:** [ivaluefood.com/resources](http://ivaluefood.com/resources)  
Several resources for reducing food waste.
- **"Shopper's Guide to Pesticides in Produce," Environmental Working Group:** [ewg.org/foodnews/](http://ewg.org/foodnews/)  
Ranks pesticide load of many fruits and vegetables.
- **US Food Sovereignty Alliance:** [usfoodsovereigntyalliance.org](http://usfoodsovereigntyalliance.org)  
Advocates for healthy, culturally appropriate food, produced in an ecologically sound manner.

Find more at  
[kokuahawaiifoundation.org/ainalessons](http://kokuahawaiifoundation.org/ainalessons)