



# The Missing Food Mystery

## Workshop Activity 2

This Workshop was funded in part by a WRRED grant from the Department of Ecology

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How to read the notes:

1. Teacher script is indicated by **T: and is bolded**.
2. Teacher actions are shown in *(parenthesis and italics)*
3. Opportunities for ORAL STUDENT RESPONSES or written student responses in the MYSTERY DATA LOG are shown in ALL CAPS.

**Teacher (T): Over the next few days (or weeks) we are going to solve a mystery together. What is a “mystery”?**

ORAL STUDENT RESPONSES.

**T: Yes, a “mystery” can be a kind of story, or it can mean something that is puzzling or hard to understand.**

**T: We are going to engage in six activities to explore food waste and simple actions we can take at home and at school to keep food from going missing.**

## Missing Food Mystery Workshop

### Activity 2: What happens so we can eat bananas?



**T: We'll investigate one of my favorite foods, the banana! Does anyone else like bananas?**

ORAL STUDENT RESPONSES.

**T: We'll look at bananas today because bananas are the most popular fruit in the United States.**

*(Teacher takes out 1) a fake banana or 2) a photo of a banana.)*

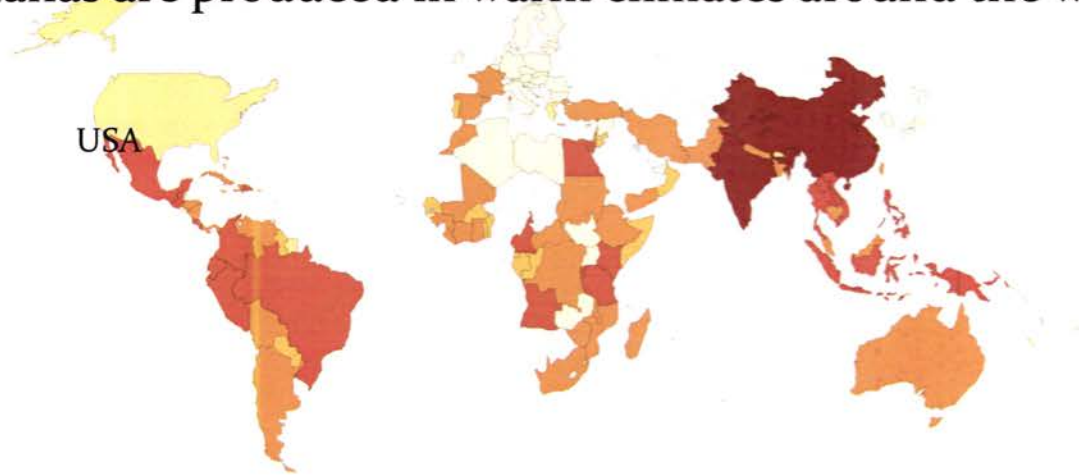
**T: Where are bananas grown?**

ORAL STUDENT RESPONSES.

*(Teacher responds to students' ideas)*

**T: Let's look at a map.**

Bananas are produced in warm climates around the world.



The darker the color, the more bananas are grown.



Source: Food and Agriculture Organization of the United Nations

OurWorldInData.org/agricultural-production • CC BY 3

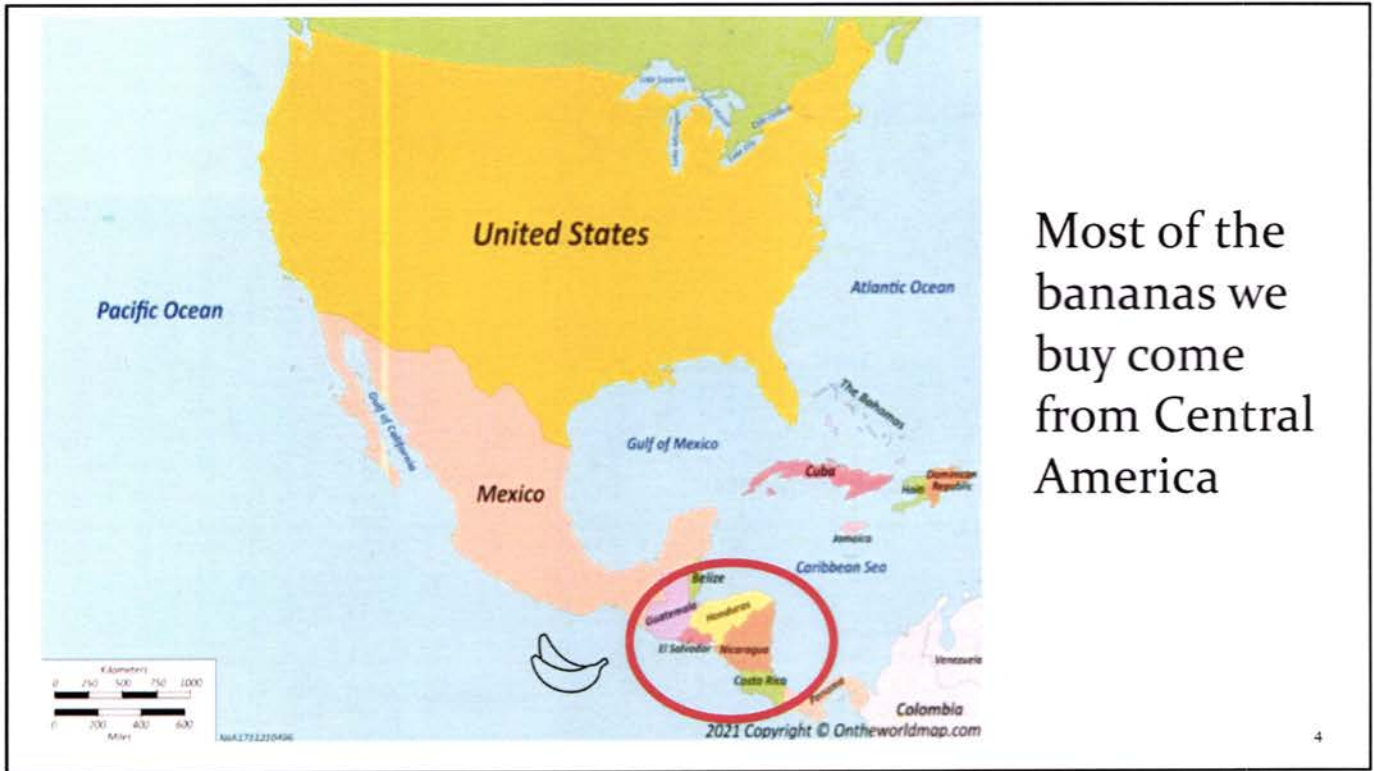
**T: Bananas need very warm climates to grow so they are grown in tropical parts of the world.**

ACTIVITY 2A: MYSTERY DATA LOG: STUDENTS HAVE THE MAP IN THEIR LOG AND CIRCLE THE AREA WHERE THE MOST BANANAS ARE GROWN. (Asia and India)

**T: Where do you think the bananas we eat come from?**

ORAL STUDENT RESPONSES



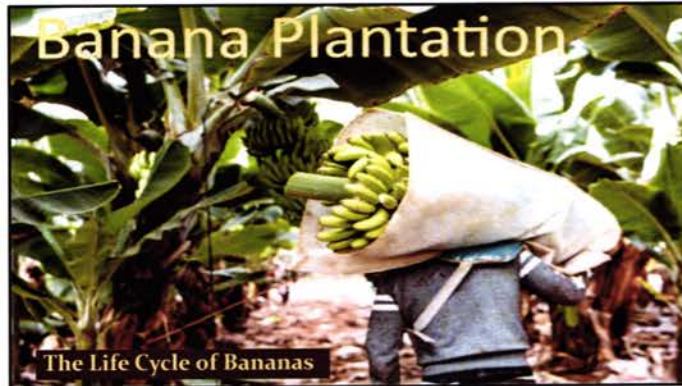


Most of the bananas we buy come from Central America

**T:** On this map we can see a red circle where most of the bananas we eat come from. Does anyone know what this part of the world is called?

#### STUDENT ORAL RESPONSES

**T:** Yes, most of the bananas we get in our stores are grown, in a region called Central America, which includes the countries Honduras, Costa Rica and Guatemala.



**T:** Let's investigate something called "the life" cycle of a banana! The term lifecycle means all the things that go into making or growing something from its very beginning to the end when it gets disposed of.

**T:** Bananas are grown in areas called Banana Plantations. In the US we grow apples and pears and other fruits in areas called orchards. But in Central America they are called plantations.

*(Teacher engages students in a hands-on demonstration and describes the resources used to grow, transport and sell bananas using either sample props or photographs, that are given to student volunteers to hold as the life cycle of a banana is explained.)*

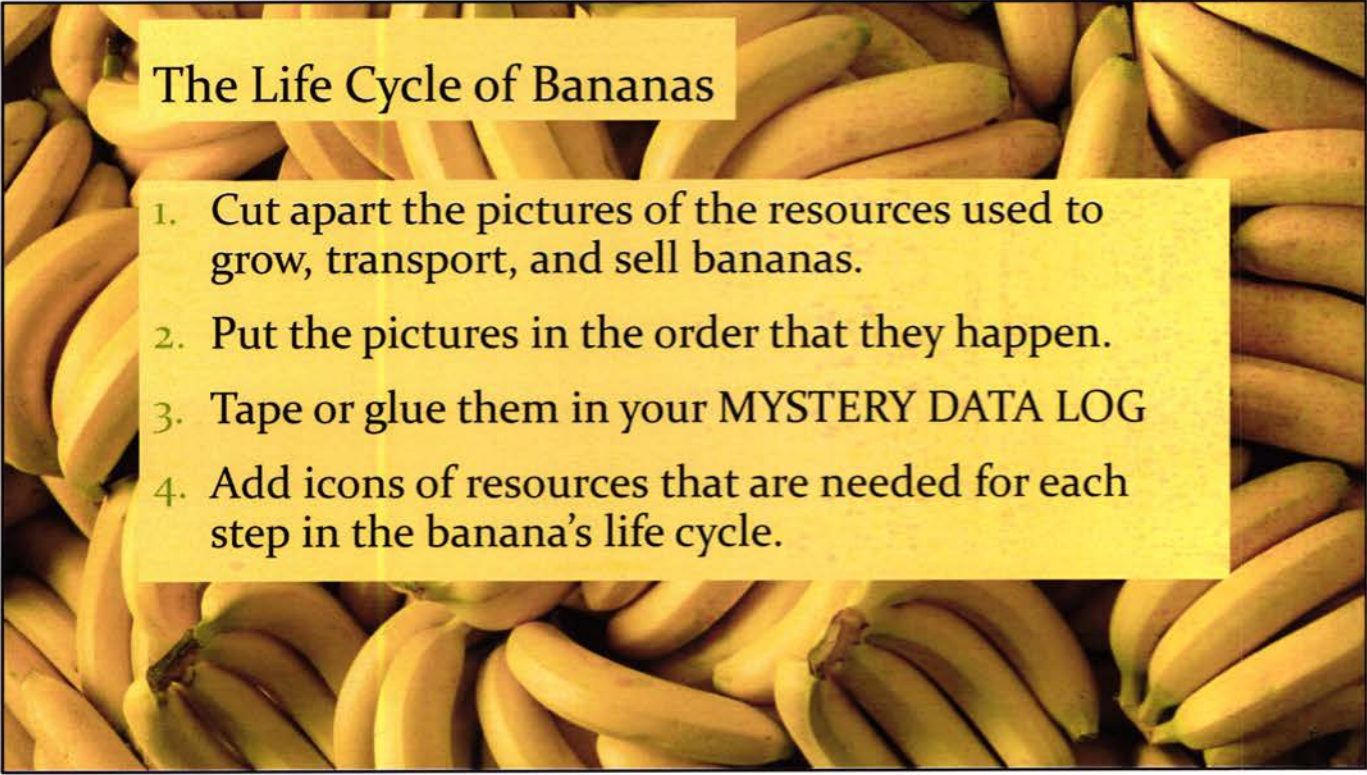
*(Teacher holds up the sign "Banana Plantation" and selects 5-8 volunteers. Volunteers stand in a line where everyone can see the demonstration. )*

1. **T:** First, to grow bananas we need farmers, and they need farm equipment- like tractors. *(Teacher hands tractor and farmer to first volunteer)* and of course, we'll need some gas for our tractor *(gas can to first volunteer)* plus we'll need to water the trees, so they grow big and strong *(watering pail to first volunteer)*.
2. **T:** Once the bananas are grown, we'll need some farmers to help pick the crop and package the bananas, so they are ready to ship *(Workers and plastic wrapping or other shipping material to 2<sup>nd</sup> volunteer)* Great! Once the bananas are packed up and ready to ship, we'll need a truck *(truck to 2<sup>nd</sup> volunteer)* and some gas of course *(gas to 2<sup>nd</sup> volunteer)* to bring our packaged bananas down to the docks to ship.
3. *(3<sup>rd</sup> volunteer holds up the sign Banana Shipping)* **T:** Now we need to ship those bananas up to Washington, so we'll need a boat *(boat to 3<sup>rd</sup> volunteer)* and of course some more gas to make sure our boat makes it all the way! *(Gas can to 3<sup>rd</sup> volunteer)*
4. **T:** Once we've made the trip to Washington-we'll need to unload those bananas into another truck which we know uses gas and oil *(truck/gas to 4<sup>th</sup> volunteer)*. Now we'll need some grocery store workers to help unload those bananas and display them in the produce section of your supermarket *(people to 4<sup>th</sup> volunteer)*. Ooh, we better call the marketing team and sign makers *(Banana's for sale sign to 4<sup>th</sup> volunteer)*
5. **T:** So, we're missing one more step investigators, how do we get the bananas from the store to your homes?

#### STUDENT ORAL RESPONSES

6. **T:** That's right! We need to drive our car *(car to 5<sup>th</sup> volunteer)* or better yet take a bus *(bus to 5<sup>th</sup> volunteer)*, don't forget that gas! *(Gas can to 5<sup>th</sup> volunteer)* Now we've bought that banana *(money to 5<sup>th</sup> volunteer)* and we can bring it back home and eat it!
7. *(Teacher reviews the steps and resources needed in the lifecycle)* **T:** Phew- that's a lot of steps, a lot of natural resources used to grow, pick, ship, buy and EAT a banana. Let's give these volunteers a big round of applause—Banana farmers, please deposit your farming props and signs into this "resource bin?" and head back to your seats.





## The Life Cycle of Bananas

1. Cut apart the pictures of the resources used to grow, transport, and sell bananas.
2. Put the pictures in the order that they happen.
3. Tape or glue them in your MYSTERY DATA LOG
4. Add icons of resources that are needed for each step in the banana's life cycle.

*(Teacher provides support as needed during student work time.)*

**ACTIVITY 2B: THE LIFE CYCLE OF BANANAS.**



Sun, soil, and water are needed to produce banana plants and flowers.

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*(Teacher asks students to look at their MYSTERY DATA LOG and compare the order they selected with slides 14-17. )*

**T: Talk about the order of the images. How are the resources the same or different from the resources you selected?**

ORAL STUDENT RESPONSES





Machinery and workers are needed to produce bananas. <sup>s</sup>

*(Teacher asks students to look at their MYSTERY DATA LOG and compare the order they selected with slides 14-17.)*

**T: Talk about the order of the images. How are the resources the same or different from the resources you selected?**

ORAL STUDENT RESPONSES



Bananas are harvested and washed by workers. The blue bags and wash water are filled with chemicals to protect bananas from pests and spoiling.



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**Background data:** Chemical pesticides, herbicides and insecticides. From nematicide (nematode or roundworm-killing) injections in soil, to insecticidal (insect-killing) banana bags, to fungicide (fungus-killing) aerial applications, pesticides are prevalent at every stage of banana production year-round.

*(Teacher asks students to look at their MYSTERY DATA LOG and compare the order they selected with slides 14-17.)*

**T:** Talk about the order of the images. How are the resources the same or different from the resources you selected?

ORAL STUDENT RESPONSES

Bananas are boxed and transported by trucks and cargo ships.

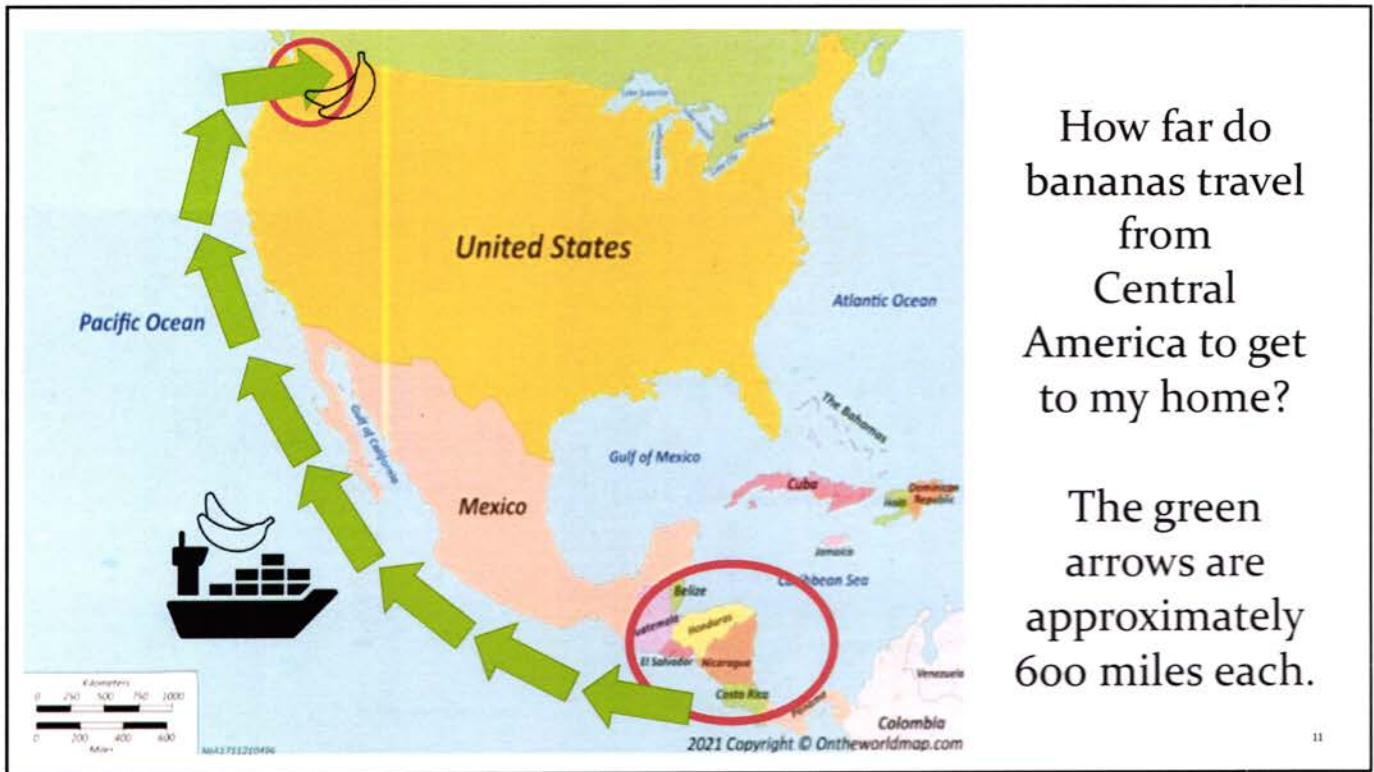


*(Teacher asks students to look at their MYSTERY DATA LOG and compare the order they selected with slides 14-17.)*

**T: Talk about the order of the images. How are the resources the same or different from the resources you selected?**

ORAL STUDENT RESPONSES





**T: At the top of this map, you can see a red circle around Washington State. The green arrows show the path the bananas travel from Central America to grocery stores in our area. Each green arrow is about 600 miles. How far did the bananas travel to get to your home? (4,800 miles).**

ORAL STUDENT RESPONSES



What does it take so we can eat bananas?



- Soil
- Water
- Sun
- Chemicals
- Workers
- Machinery
- Trucks
- Cargo Ships
- Gas
- Money

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**T: Let's review the resources used so we can eat bananas.**

(Teacher clicks on the list)

## Americans throw away 5 billion bananas every year!



It takes 270 days to grow bananas.



About 5-gallons of water is required every day for one banana plant.



5 gallons x 270 days to grow = 1,350 gallons of water.

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**T: How much water is used to grow one banana plant?**

ORAL STUDENT RESPONSES

**T: Investigators/Scientists, can you tell me some reasons why bananas might be thrown away?**

ORAL STUDENT RESPONSES

## REVIEW: Why is missing food a problem?



Some of the resources used so we can eat bananas.



**T:** Let's think about the life cycle of the banana and our ideas about why is missing food a problem. Take a moment to review your MYSTERY DATA LOG and any new ideas you have about why missing food is a problem.

**T:** Now turn and share with someone sitting next to you.

*(Teacher asks a few students to share their ideas. Or what they heard someone else say.)*

### ORAL STUDENT RESPONSES

*(Teacher clicks to show the resources text and icons.)*

**T:** When we throw a banana away—it's not just the banana, we throw away the resources used to grow, ship and market that banana in the grocery store. If bananas go into the trash, then those resources are wasted. And it's not just bananas, it's every food that doesn't get eaten—remember we talked about the food in one out of every four grocery bags goes missing!

**T:** To review... We know how much food gets wasted. We know how many resources it takes to produce food. And we know another reason why it's a problem if we waste food.

**T:** In Activity 3 we will investigate "Why food is wasted." In your MYSTERY DATA LOG tell us why you think food is wasted.

ACTIVITY 2C: STUDENTS WRITE THEIR IDEAS ABOUT WHY FOOD IS WASTED IN THEIR MYSTERY DATA LOG.