

Preventing Food Waste at School



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Course Standards

Standard ENVS.4.5

Design and defend a solution in the form of a sustainability plan to reduce individual, city, or regional contribution (causes) to environmental impacts. Define the problem, identify criteria and constraints, develop possible solutions using models, analyze data to make improvements from iteratively testing solutions, and optimize the solution. Emphasize how market forces and societal demands influence personal choices.

Standard BIO.1.5

Design a solution that reduces the impact caused by human activities on the environment and biodiversity. Define the problem, identify criteria and constraints, develop possible solutions using models, analyze data to make improvements from iteratively testing solutions, and optimize a solution.



Why is it important to prevent food waste in schools?

1. Ask the class to think about the question posed on the slide: Why is it important to prevent food waste at schools?
2. After asking the question, invite them to consider what they learned in previous lessons to help answer this question.
3. Ask students to share their thoughts by raise of hand.

Why is it important to prevent food waste in schools?



Environmental Impacts



Economic Benefits



Social Responsibility

**Social Responsibility:
Fighting Food Insecurity**

- **33% of the U.S. food supply becomes food waste**
- **1 in 8 Utah households experience food insecurity**

1. Acknowledge that there are environmental impacts associated with food waste. Ways in which food waste impact the environment were discussed thoroughly in lesson 2 but are summarized here:

- Wasting water
- Contaminating water (leachate and eutrophication)
- Disrupted food chains
- Decreased biodiversity
- Increase in greenhouse gases

2. Discuss how there are economic benefits to preventing food waste at schools:

When less food is wasted, schools can better predict how much food they actually need to purchase in order to feed their students. This can allow for funds dedicated to purchasing food to be redistributed to other educational resources instead.

3. Discuss how there is an aspect of social responsibility associated with preventing food waste in schools:

By decreasing food waste at school, surplus food can be given to other students in need or local food banks to be distributed to the community.

4. Discuss how being socially responsible with food waste helps decrease food insecurity in communities. Read the two statistics found in the blue box.

5. Ask the students to think about ways in which they could decrease the amount of food they

waste while at school. Allow them to turn and discuss this question with a neighboring student for 1-2 minutes. Ask a few students to share their thoughts, if any.

<https://extension.usu.edu/hsi/foodsecuritycouncil/utah-hunger-statistics>

What can be done to prevent food waste at school?

1. Food Waste Audits
2. Share Table Approach
3. Composting
4. Offer vs Serve (OVS)



1. This slide serves as an overview of what the lesson will discuss in further detail. Read the four points on the slide out loud.

Food Waste Audits

Food waste audits are performed to obtain a better understanding of the types and quantities of foods being wasted in schools. This is done by sorting the uneaten food from a meal service into various food groups and measuring each food group's weight.

Obtaining data on food waste can help schools understand what strategies and solutions can be implemented to aid in the goal of preventing food waste.



Credit: University of Arkansas, USDA, EPA

1. Read the points on the slide.
2. Ask the students to think about what they think the most wasted foods are at school? Allow them to share their answers. Answers: Vegetables (31%), Milk (29%), Fruit and fruit juice (26%).
3. If your school has opted in to participate in a food waste audit, please refer to the attached optional activity at the end of this manual titled "Food Waste Audit Activity" for additional information on how to carry out an audit in your school.

Share Tables

- Share tables are stations where students can return foods or beverages distributed by the school's food service program that they decide they don't want to eat.



The food at these stations can be reused in 3 different ways:



Students may take the items on the share table to eat



Items can be re-served during another meal service



Food can be donated to non-profit organizations

1. Read the description of what a share table is to the students.
2. Discuss that food placed at these stations can be reused in 3 different ways. As you read off the information found in the boxes here, consider sharing the following information as well.

Box 1. Students can choose to grab additional servings of the foods placed on the table with no charge or penalty against them. Rules regarding the amount of food allowed to be taken by one student may vary and will likely vary on the demand for participation with share tables.

Box 2. Explain that many of these foods that aren't eaten can be re-served to students during a future meal service. There may be restrictions as to what can be re-served, but will vary from item to item.

Box 3. Explain that any additional food can be donated to those who are hungry or in need of it. Connect this idea back to the social responsibility of reducing food waste.

Explain that schools are protected from civil liability under the Bill Emerson Good Samaritan Food Donation Act of 1996, basically meaning that those who donate food in good faith to others are protected under law if the recipients were to become ill or be harmed by the food provided to them.

Share Tables

What can be placed on share tables?

Allowed *

Whole fruits with inedible peels
Whole fruits with edible skins/peels
Packaged non-perishable items
Packaged cold items
Packaged hot items

Not Allowed

Any opened items
Items in re-sealable packaging
Items served without a lid or top
Food served directly on the tray
Items brought from home

* Per USDA guidance. Verify with your local health department what can be placed on share tables.

Share tables are encouraged by the USDA, however, your school makes the decision to allow them assuming local regulations allow them. Please reach out to your school if you would like them to implement share tables.

1. Read through the list of what foods are and are not allowed to be placed on the share tables. Address the astrisk by saying that the allowed list of items are according to the USDA and could vary by location according to local health codes.
2. Explain that some items, such as milk, will need to be kept cold and will have to be placed in a container (fridge or cooler) rather than on the share table.
3. Express to the students that it is up to their school to decide to implement share tables. What students can do right now is petition for share tables and talk to school administration.

Composting



Composting is the controlled aerobic (oxygen-requiring) decomposition of organic materials by microorganisms. It is accomplished by mixing carbon-rich materials with nitrogen-rich materials, such as food scraps.

Food scraps are an excellent ingredient for creating a successful compost.

When used in the garden, compost returns nutrients to the soil, improving soil quality and supporting plant growth.



Definition from EPA

<https://www.epa.gov/sustainable-management-food/composting>

1. Read the text in the box. Explain that using food scraps in a compost pile can give them a purpose well past what we typically expect of our food.

Composting

What can be composted at school?



- Fruit scraps
- Vegetable scraps
- Brown paper bags
- Bread
- Cardboard and Paper (uncoated, small pieces)

- Nuts and Nut Shells
- Plants



- Meat
- Cheese and dairy products
- Cooked food
- Produce stickers
- Fatty/Oily food products

- Glossy paper
- Plastic and styrofoam



Remember to Recycle

Plastics (check for this symbol on the bottom)



PETE

Milk cartons
Juice cartons
Aluminum cans

1. Review the list of the items that can and can't be composted. Explain that the list provided here regarding what can and cannot be composted does not encompass everything, but rather is designed to include the items more likely to be found in a school cafeteria.

2. Remind the students to also be mindful of the importance to recycle the items that they use when in the cafeteria. Express that the recycling numbers can vary, however, the most common numbers are 1 and 2.

Competition Compost

Rules

- Each team will take turns sending one member to the front.
- The student will draw a card, read it aloud, and then decide whether the item goes into the "Compost" bin or the "Not Compost" bin.
- Your team can help you decide, but you must make the final choice.
- You will have 15 seconds to make your decision once you draw a card. If you take too long, you must forfeit your turn.

Speed Round

10 seconds to make your final decision with the card you select during the speed round.

Scoring

- +1 point for each correct decisions
- 1 point for incorrect decisions

During this activity, students will reinforce what they just recently learned regarding which items are appropriate to compost and which are not.

Please see the back of the manual for the activity titled "Competition Compost" for further instruction and associated materials.

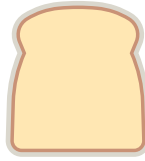
Offer vs Serve (OVS)

Did you know that students can decide not to be served all of the food offered to them during a meal service? This is called Offer vs Serve (OVS).

OVS allows for students to fight food waste by not taking food they know they aren't going to eat.

OVS is required in high schools, but optional in middle and elementary schools. The regulations for OVS differ between breakfast and lunch.

Grains



Fluid Milk



Fruit



OVS at Breakfast

Schools must offer at least four food items from the three required food components: Grains, Fluid milk, and Fruit

Students must select at least three of the four offered food items at breakfast, including at least $\frac{1}{2}$ cup of fruit and/or vegetable.

OVS is optional at breakfast for all grade levels.

1. Read the points on the slide.
2. Express that when students choose not to take food they know they are likely not going to consume, they are helping counter food waste as the food can be given to those who need or want it.

Offer vs Serve (OVS)

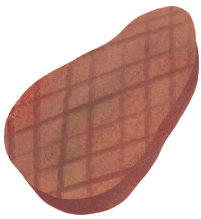
OVS at Lunch

Required in high schools

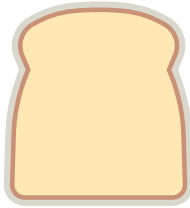
Schools are required to offer all 5 food components (see below) in minimum quantities to students during lunch.

Students are only required to be served 3 items from 3 different food components of the 5 food components available to them.

Meat or Meat Alternates



Grains



Fluid Milk



Fruit



Vegetables



Must choose one serving of fruit and/or vegetable

1. Read the points on the slide.
2. Make sure students understand that are required to take a serving of a fruit or vegetable. If they know they aren't going to eat these things, they should opt for pre-packaged versions of these items, if available. With items being pre-packaged, there are more options for how the food can be reused, like being added to a share table or being composted (assuming the fruits or vegetables are not cooked).

What can I do?

A Few More Ideas

- Save food for later- bring resealable containers
- Student Involvement
- Pack own lunch

- 1. Food Waste Audits**
- 2. Share Table Approach**
- 3. Composting**
- 4. Offer vs Serve (OVS)**

This slide offers a few final ideas as to what students can do to counter food waste at school and reviews the topics discussed during the lesson.

1. Read the list that discusses what else could be done to fight food waste. Refer to the following information as you read these points:
 - Saving food for later: Encourage students to bring resealable bags or containers with them, especially if bringing a lunch from home. This way, food that isn't consumed can be saved for later and doesn't have to be thrown away if not finished. Encourage them to bring ice packs to help save cold items.
 - Student Involvement: Encourage the students to reach out to the school administration to understand how they can influence what kind of food is offered to them at school. Student's could hold taste tests of new food items or ask for feedback from others on how food could be more appetizing and therefore less likely to become wasted.
 - Pack your own lunch: For students that bring lunch from home, encourage them to pack their lunches as they will have the best idea of what and how much of certain foods they will want to eat. If a parent packs the student's lunch, have the student express what they would like to eat.

2. Remind the students of the main 4 topics discussed in the lesson.

Competition Compost

Materials needed:

- A table
- Printed cards with compostable or non-compostable items
- Whiteboard to keep score
- Timer or stopwatch
- 2 small containers- One labeled "Compost" and the other labeled "Not Compost"

Preparation:

1. Set up a table or utilize a table that is at the front of the classroom or in an open space. Students will be approaching the table to participate in the activity.
2. Print pages 3-5. Cut out each card. Shuffle the cards randomly and place in a stack on the main table.
3. On either side of the card stack, place the two small containers with the labels noted in the materials section. Randomly select 6 cards to set aside and out of sight of the students. These cards will be part of a speed round at the end of the game. If no containers are available, you may also label two pieces of paper and place them on the table.

Objective:

During this activity, students will reinforce what they just recently learned regarding which items are appropriate to compost and which are not.

Instructions:

1. Divide the class into 2 teams.
2. Explain the following rules to the class:
 - a. Each team will take turns sending one member to the front.
 - b. The student will draw a card, read it aloud, and then decide whether the item goes into the "Compost" bin or the "Not Compost" bin.
 - c. The rest of their team can help them decide, but they must make the final choice.
 - d. Give each student 15 seconds to make their decision once they draw a card. If they take too long, they must forfeit their turn.
3. Award 1 point for each correct decision. Deduct 1 point for incorrect decisions. The answer key can be found on page 2. Keep this score recorded on the whiteboard as the game goes on.
4. Once the pile is gone, retrieve the 6 cards set aside from earlier and place on the center of the table. The remaining cards will be a part of a speed round. The students will be given 10 seconds to make their final decision with the card they select during the speed round.
5. Once all the cards have been sorted, tally the score and award a winner!



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Answer Key

Compost

- Brown paper bag
- Carrots
- Apple core
- Banana peel
- Vegetable scraps
- Fruit scraps
- Orange peel
- Grape vine
- Bread slice
- Torn up paper (uncoated)
- Pistachio shells
- Almonds
- Torn up cardboard
- Flower
- Watermelon rind

Not Compost

- Cooked corn
- Ground beef
- Slice of cheese
- Produce sticker
- Styrofoam
- Pizza slice
- Torn up paper (glossy)
- Chicken enchiladas
- Plastic straw

**Brown Paper
Bag**

Carrots

Apple Core

Banana Peel

**Vegetable
Scraps**

Fruit Scraps

Orange Peel

Grape Vine

Bread Slice

**Torn up paper
(uncoated)**

**Pistachio
Shells**

**Torn up
cardboard**

Flower

Almonds

**Watermelon
Rind**

Cooked Corn

Ground Beef

**Slice of
Cheese**

**Produce
Sticker**

Styrofoam

Pizza Slice

**Torn up paper
(glossy)**

**Chicken
Enchiladas**

Plastic Straw

PREVENTING FOOD WASTE AT SCHOOL ASSESSMENT

Questions:

Circle One

- | | | |
|----------|--|--------------|
| 1 | Social responsibility plays a very important role in helping prevent food waste. | True / False |
| 2 | Food waste audits only involves asking students why they decided not to eat the food they are throwing away. | True / False |
| 3 | Students are allowed to take additional servings of items placed on a share table, free of charge. | True / False |
| 4 | The following items can be placed on a share table: Orange, chips brought from home, packaged muffin. | True / False |
| 5 | Produce stickers can be put into a compost pile. | True / False |
| 6 | Food scraps are an excellent ingredient for creating a successful compost. | True / False |
| 7 | According to Offer vs Serve, students are required to select items from the fluid milk and vegetable components. | True / False |
| 8 | Offer vs Serve is not required to be implemented in elementary schools. | True / False |
-



PREVENTING FOOD WASTE AT SCHOOL ASSESSMENT

Questions:

Circle One

- | | | |
|----------------------------|--|--------------|
| <input type="checkbox"/> 1 | Social responsibility plays a very important role in helping prevent food waste. | True / False |
| <input type="checkbox"/> 2 | Food waste audits only involves asking students why they decided not to eat the food they are throwing away. | True / False |
| <input type="checkbox"/> 3 | Students are allowed to take additional servings of items placed on a share table, free of charge. | True / False |
| <input type="checkbox"/> 4 | The following items can be placed on a share table: Orange, chips brought from home, packaged muffin. | True / False |
| <input type="checkbox"/> 5 | Produce stickers can be put into a compost pile. | True / False |
| <input type="checkbox"/> 6 | Food scraps are an excellent ingredient for creating a successful compost. | True / False |
| <input type="checkbox"/> 7 | According to Offer vs Serve, students are required to select items from the fluid milk and vegetable components. | True / False |
| <input type="checkbox"/> 8 | Offer vs Serve is not required to be implemented in elementary schools. | True / False |



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Answer Key:

1. True
2. False; Understanding why students are throwing away certain food items is important but it must be coupled with understanding the weight of the different kinds of foods being wasted.
3. True
4. False; items brought from home cannot be placed on a share table.
5. False; they shouldn't be.
6. True
7. False; students are required to take items from the fruit and vegetable components.
8. True; OVS is only required to be implemented in high schools.

Conducting a Food Waste Audit



This guide is adapted from the USDA, EPA, and The University of Arkansas

Objectives:

- Quantitatively and qualitatively describe the food being wasted during school meal services
- Obtain data to understand what foods are commonly wasted and the reasons why
- Brainstorm food-waste reduction strategies to address the commonly wasted food items

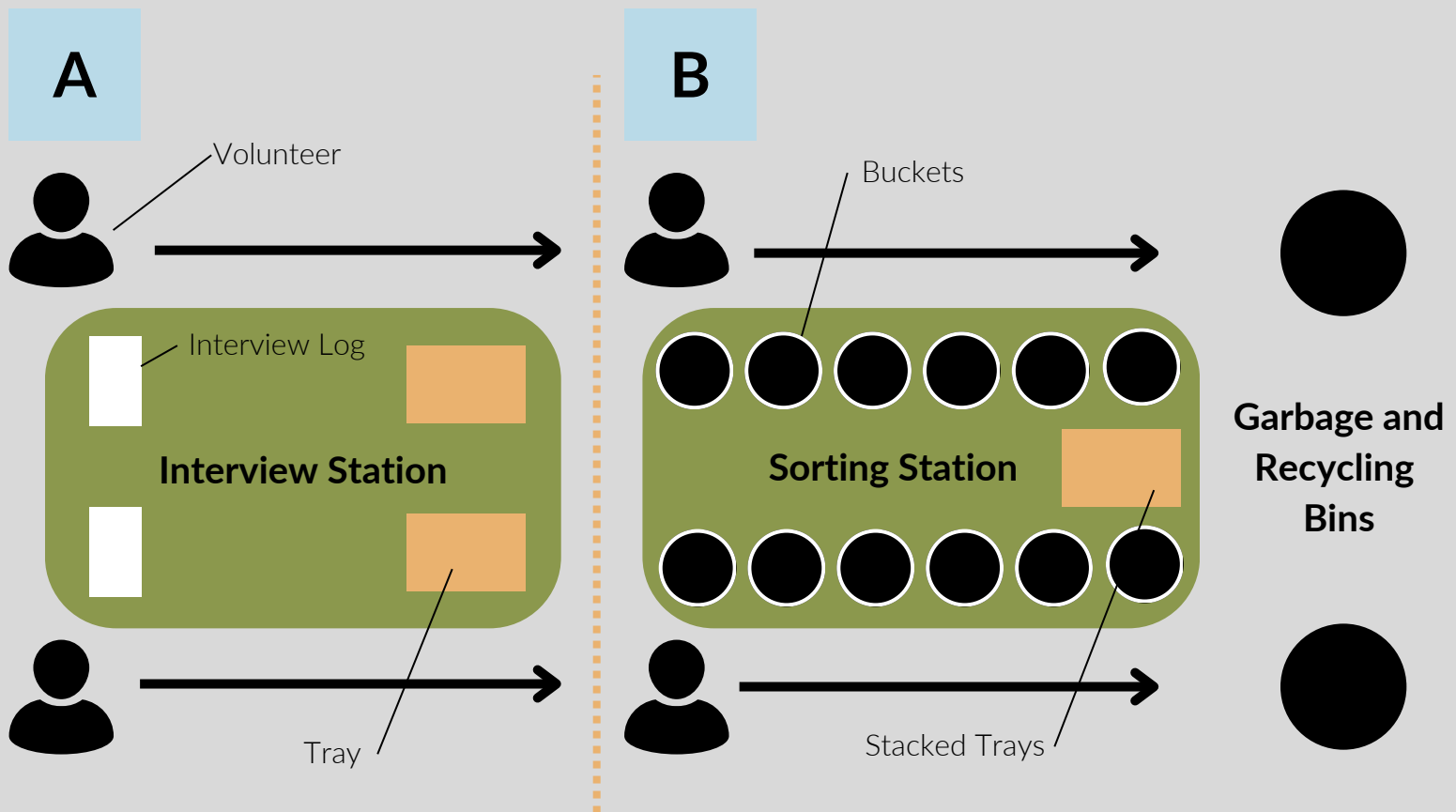
Materials Needed:

- 2 tables. Utilize extra tables that may exist in the cafeteria. Arrange ahead of time to know if there will be any available for use.
- 5-gallon buckets. The number that you will need will depend on how many food categories you decide to sort the waste into. With two lines, you will need twice as many buckets as categories. You may need 1-2 additional buckets to collect the milk.
- Large trash and recycling bins on wheels.
- Hand scale.
- Signage. Please see the PDF titled “Audit Signage” to print the signage for this activity.
- 4 student volunteers. Two will interview students and the other two will sort food.
- 1 staff member to oversee the process and help wherever needed.
- 2 clipboards.
- Pens.
- Interview sheets. Consider printing multiples of each interview sheet so that you don’t run out of space to record data.
- Gloves for handling trays and sorting food.
- 2 serving spoons. These will be used to sort the foods off of trays and into buckets.
- Paper towels for any spills.
- Disinfecting wipes to clean the table following completion of the activity.



Preparing for your audit:

- Meet with your cafeteria's nutrition director to help them understand the objectives of a food waste audit and to schedule the day(s) you will conduct the audit. Collecting data during one meal period will provide you with a general idea of the food waste being generated, however, collecting data during multiple meal service periods on different days can be even more beneficial to understanding how food waste can be addressed.
- Organize your team to carry out the audit. Find 1 to 2 staff to oversee the audit to ensure it runs smoothly. 4H directors may be able to oversee this process as well.
- Evaluate the physical layout of the cafeteria to ensure that you will have the space needed for the audit. Connect with the appropriate staff to ensure that arrangements can be made to accommodate for this space, if needed.
- Print the signage that will be used for the audit. See PDF titled "Audit Signage". Post the signage indicating the direction of where students can find the food waste audit stations.
- Using a scale, record the weight of one 5-gallon bucket that will be used to collect food. Record this weight on the "Food Waste Weight Log" (see page 5).
- Arrange with the custodial staff to have all of the garbage bins located by the food waste audit station to encourage participation.
- Set up the audit station in a configuration that resembles the diagram below.



Operating the Stations:

A

Interview Station

- During this stage of the audit, students will bring their lunch trays with any remaining food on it to the “Interview Station” table. There will be a volunteer set up on either side of the table to interview up to 2 people at once. Students will approach this table and will be asked questions regarding the food left on their trays. Follow this guide to help conduct the interviews:

1. Explain to the student that you are conducting an audit to understand how much food gets wasted during a meal service period and that you would like their input. If they agree to participate, move on to step 2.
2. Look at the student’s tray and mark on the interview sheet (see page 5) what items were not finished, including items that were untouched or unopened. Ask the student to explain why they did not finish each item and record that in the cell next to the corresponding item. Each item will get its own row of cells. If they disliked an item, ask them to elaborate what specifically they disliked about it.
3. Once all of the items on the tray have been accounted for, offer to take the tray from the student and then slide the tray to the end of the table. Thank the student for their time and dismiss them.

Tip: If you have downtime and nobody to interview, go around to tables to ask if people are done eating prior to the lunch period ending. Ask them to follow you to the station to be interviewed.

B

Sorting Station

- At this station, two sorters (one on either side of the table) will take the trays that came from students that went through the interview station, and will sort the remaining items into different food categories. You can decide the different categories to sort the food waste into, however the provided signage has the categories as the five food components offered to all students during school lunch as well a bucket for unopened items (i.e. bag of carrots, carton of milk).
- Once the food has been sorted into these buckets, place any non-food items (i.e. plastic or paper goods) into the garbage or recycling bins.
- Once the tray is empty place it on the table. Add additional trays to this pile as they are collected throughout the audit.
- Have additional labeled buckets on standby to take the place of filled buckets. Carefully watch and replace the milk bucket once it becomes about halfway filled.



Completing the Audit:

- Count the number of trays collected during the audit and record that number on the log pages.
- Once the meal service has ended, the buckets of food waste will then be weighed and recorded. Using a hand scale, weigh each bucket and record the weight on the Food Waste Weight Log (pg 6). There will be multiple buckets for each category so make sure to add these amounts up.



Interview Station



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Sorting Station



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Milk



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Vegetables



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Fruit



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Grain



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Meat/ Meat Alternates



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Unopened Items



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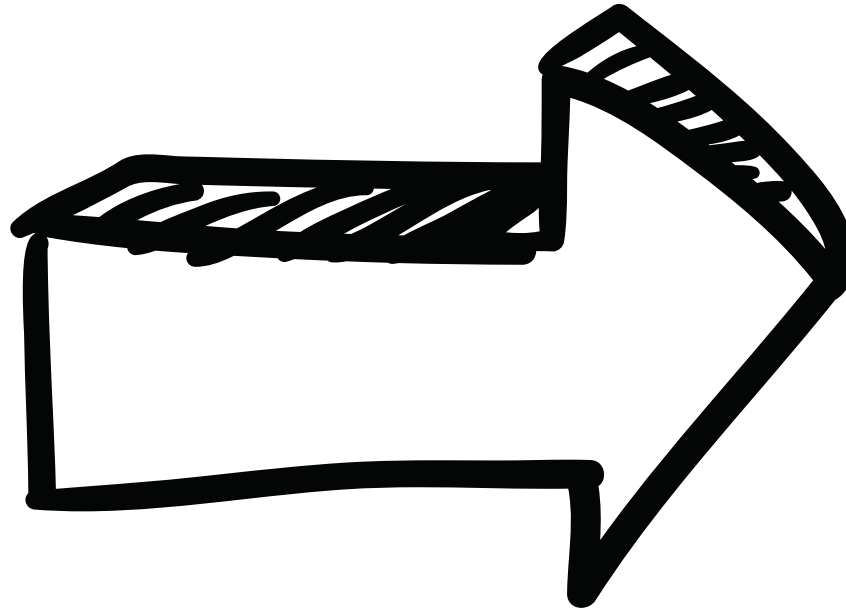


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Please Participate in our Food Waste Audit

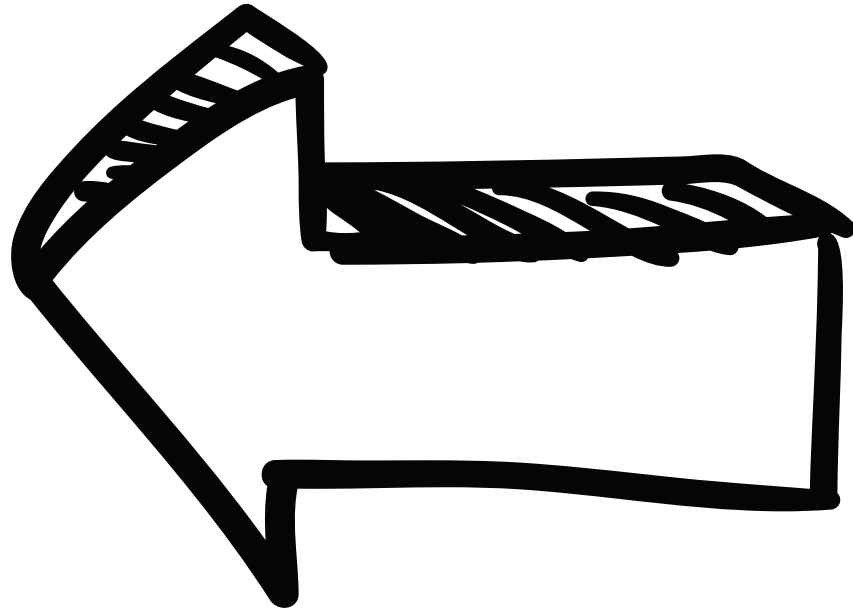


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