

Your Food Rescue Hero Adventure Begins!

In this journal you will join four garbologists who ask questions about how garbage affects people living in Alameda County and around the world.



Super Reducer

Super Reducer's Garbologist name is **Redford**.

Professor Reuse

Professor Reuse's Garbologist name is RiRi.

What in the world is a garbologist?

A garbologist is a scientist who studies garbage. Why study garbage? Because there is a LOT of it. And more is created every day!

Like other scientists, garbologists ask questions. They ask questions about garbage: Is it good for people? Is it harmful to people? Does it hurt or help the environment?

> You opened this journal as a student, but now you are a garbologist!

> By the end of this journal, you will know what it takes to be a **FOOD RESCUE ACTION HERO!**

Rot Girl

Rot Girl's Garbologist name is **Rhoda**.

The Recycler

The Recycler's Garbologist name is **Reese**.

There's more!

With this journal explores the problem of food in our garbage.

As you turn the pages, your garbology expertise about how to take action to stop food waste will increase! You will find out how to take action at school, at home and in your community!

And when you take action, you will transform into a Food Rescue Action Hero!

Garbologist Journal (🛅



In the first column, K stands for **Know**, write what you know about wasted food. In the second column, W stands for Want to Know, write what questions you may have about wasted food. In the third column, L stand for Learn. At the end of your garbologist journal, fill out the last column to reflect on what you learned.









What is the number one item that people throw away that goes to the landfill?

Circle every third letter to discover the answer:

WRFTNOLKOVSD

How much food is wasted in the United States each year?

To find out, color the apples that have an even number on them.

I colored _____ apples.

As a fraction, this would be:

would be:

Another way to say \(\frac{4}{10}\) is:

13

How much food does the average American family of four waste every month?

Here are the amounts of wasted food by food group.





18 lbs



Show your math here:

It really adds up!

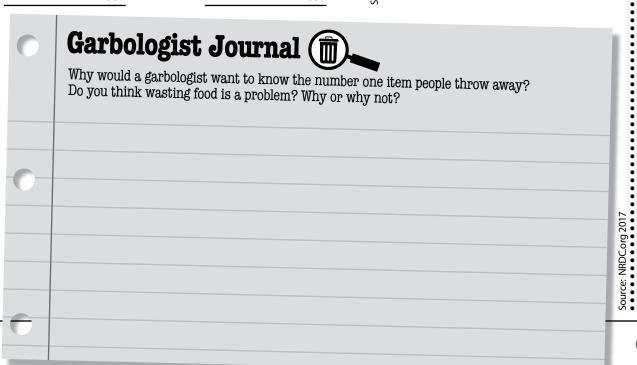
How many total pounds of food does the average American family throw away every month?

How many pounds of food does the average American family throw away in a year?

ource: USDA

lbs.

lbs.



When we throw an item away, it ends up in a **LANDFILL**. Once in a landfill, it's called

waste and that item

can never

be used again!



FOOD RESCUER FACT

40% of food in the U.S. is wasted each year. Wasted food is the number one item found in our landfills, a place where natural resources are lost __ forever.





Did you know that when you throw food away you are thowing away money?

Do You Throw Away Money?

"There are four people in my family. Take a look at the amount of food we threw out in one month. We multiplied the number of pounds of each food group by the average cost per pound. Can you complete the chart to show how much money we wasted in a year?"

- Reese



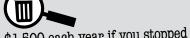
alone throws away \$165 billion a year in wasted food!



Food Item	Pounds (lbs) Tossed Each Month	Cost Per Pound	Total Money Wasted Each Month	Total Money Wasted Each Year
Fruits/Veggies	24 lbs	\$2.00	\$	\$
Dairy	22 lbs	\$1.00	\$	\$
Meat/Fish	18 lbs	\$3.00	\$	\$
TOTAL	lbs	\$	\$	\$

This is the amount of money Reese's family spent on food that was wasted in one full year!

Garbologist Journal (m



What would your family do with an extra \$1,500 each year if you stopped wasting food?



Wasting Food Wastes Water

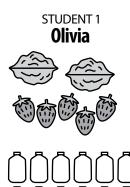
How thirsty is your food? All of the foods we eat need water to grow. Some need a **lot** of water. Take a look at how much water it takes to grow some popular foods.

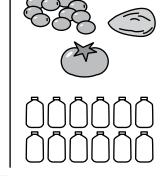
five four pistachios one walnut one almond tomato strawberries ten grapes 5 gallons 1 gallons 3 gallons 3 gallons 2 gallons 3 gallons gallon of milk hamburger slice of bread chicken one egg cheese 468 gallons 660 gallons 53 gallons 880 gallons 600 gallons for a 1/3 lb per pound 11 gallons burger per pound

Throwing away food wastes good food and money. Did you know it also wastes water? In our dry California climate, we can help save water by not wasting



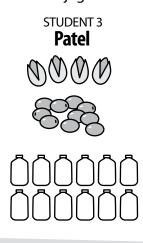
ATTENTION GARBOLOGISTS: Three students didn't finish their lunch. All those uneaten lunch foods are now headed to the landfill! Do the math and find out how much water was wasted by food thrown away. Color a water jug blue for every gallon wasted.





STUDENT 2

Kevin



Show your math below:



Now you know that when we waste food, we waste water. What are some other actions you can take every day to save water?



food!

FOOD RESCUER FACT

The average American consumes 300 gallons of California water each week by eating the food the Golden State produces.

STOPWASTE at home • at work • at school

Source: NYTimes.com 2015

Did you know that every step in the process of getting food to your plate takes energy?



FOOD RESCUER FACT

Every year, millions of tons of food are wasted. Scientists estimate that the energy used to grow, process and transport the food wasted in the U.S. each year is the same as wasting about 350 million barrels of oil!

That's about twice as

That's about twice as much energy as all the people in Switzerland use in a year.

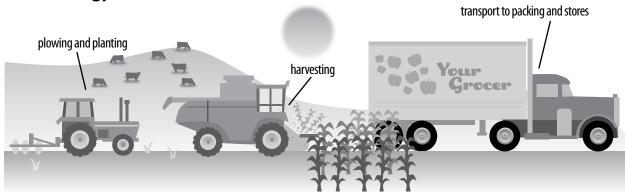


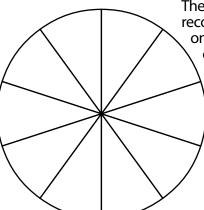
Source: University of Texas at Austin 2018



Wasting Food Wastes Energy

It takes energy to grow and process the food you eat. Farmers use machinery to plow, plant and harvest food. It takes energy, time and labor to grow and harvest the food that livestock eats. It takes energy to transport food. Every step in the process of getting food to your plate takes energy.





There is a missed opportunity when we waste food – we could recover it and feed people who are hungry. In Alameda County, one out of three children don't know where their next meal will come from. This is known as being **food insecure**. These children might even be your classmates, a neighbor, or could be you.

Pie Chart

This pie represents all the food we produce in the United States. Color four slices red. That represents the fraction of food Americans waste. Four out of 10 slices is the same as $\frac{4}{10}$ or 40%.

Label the pie chart: What We Waste • What We Eat

Garbologist Journal

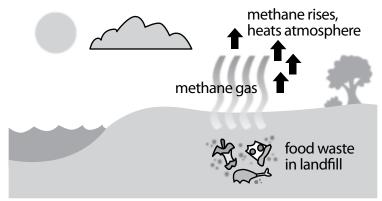


One way to waste less food is to buy only what you will eat and eat what you ask for. Help whoever shops for food in your home by completing and giving them this letter.

WIIOOVOI BIIOPA
Dear, I want to stop wasting food. You can help by only buying the heathy snacks I will eat. The healthy snacks I eat are:
If I eat these snacks, I won't waste food because they are my favorites. When I don't waste food, I am also saving resources like
Sincerely,

Food Waste and Global Climate Change

When wasted food goes to a landfill, it begins to rot. When it rots, it creates a gas called methane.



When methane gas molecules are released into the atmosphere, they absorb heat and make more heat by heating up the molecules around them. When human actions create too many methane gas molecules in the atmosphere, the gas heats up our planet - this is called **global warming**. Global warming causes our climate to change.

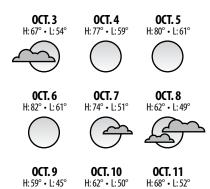
Taking action to stop food waste reduces global climate change and helps people and our planet!

Weather vs. Climate Change: What's the Difference?

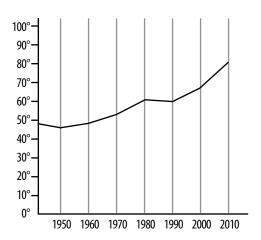
Weather refers to the condition of the air around us on a particular day or week. The weather may be cold or warm todav.

Climate refers to the average or typical weather conditions in a region of the world. For example, polar bears live in the Arctic where the *climate* is very cold.

Weather reflects temperature over the course of a short amount of time.



Climate is a measurement of temperature trends over a long period of time.



Garbologist Journal (m



As a garbologist, you now know more about the negative effects on our Earth when people waste food. Cast your vote below for the thing that motivates you the most to take action to become a Food Rescuer Action Hero!

- ☐ Wasting food wastes money.
- ☐ Wasting food wastes energy.
- ☐ Wasting food wastes water.
- ☐ Wasting food is wrong when so many people go hungry.

This is why I chose the above answer:



About 30 million tons

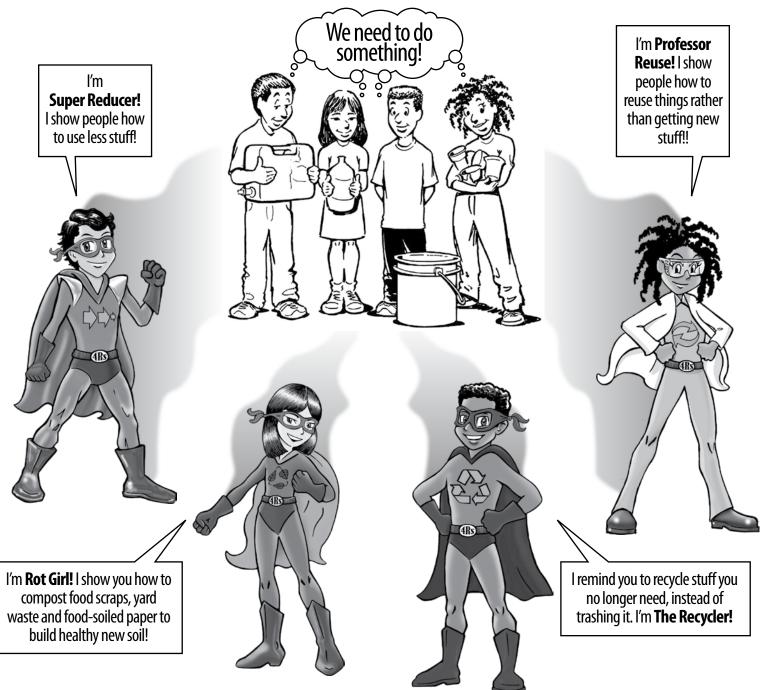
of waste end up in

California landfills each year. More than 30% of this waste

could be used for compost or mulch.

Action Heroes to the Rescue!

Wasted food causes a lot of problems! Wasted food costs money. It wastes water. It wastes energy. It contributes to global climate change. And, because food is something people need to survive, food should feed people, not landfills.



When garbologists take action, they become **Action Heroes** who improve the lives of others. **Food Rescue Action Heroes** can take action at school, at home and in their community!



YOU can be an Action Hero, too!

Food Rescue Heroes Take Action at School

At school, we can be Food Rescue Action Heroes by ...

Being like Super Reducer:

I'm going to FEED MYSELF and eat what I take at the school lunch line!



Being like Professor Reuse:

I'm going to FEED OTHERS at school by sharing unopened cafeteria food!



Being like The Recycler:

I'm going to remind students to SHARE unopened food items!



Being like Rot Girl:

I'm going to FEED THE SOIL and compost uneaten food and scraps!



YOU as a Food Rescue Action Hero

You can transform into a Food Rescue Action Hero, too! Draw a picture of yourself as an action hero on the Journal page below! What is your Action Hero name? What is your special power?

Food Rescue Hero Journal

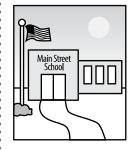


Now that you have become a Food Rescue Action Hero, the rest of the journal activities in this book are called Food Rescue Hero Journal

My Food Rescue Action Hero name is:

The Food Rescue Action Hero Plan

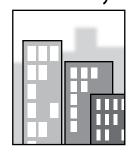
STEP 1: Take Action at School



STEP 2: Take Action at Home



STEP 3: Take Action in the Community



By following this plan, you'll make a big difference!



A Food **Share Table** gives other students who might still be hungry after their lunch, the chance to take additional food and drinks at no cost.



As many as 13 million children in the United States face hunger every day and are **food insecure**. Being food insecure means not having enough food daily. Around the country, reports show that items placed on Share Tables are picked up almost immediately.











In the photo below, Sequoia Elementary School student, Joey, makes sure only unopened, unbitten food is put on the Food Share Table. Joey wears a special green cape because he is on the school's Green Team as a Food Rescue Hero!

Food Share Table Reduces Waste

OAKLAND - Sequoia Elementary School student, Sabrina, took her milk at the cafeteria, but decided she wanted water instead.



Sabrina filled her reusable bottle in the cafeteria and drank it all. so she didn't open up her milk.

Her friend Juju had a special classroom

birthday party, so she didn't eat her yogurt she got from the cafeteria as she was full.

Their friend Adolpho took two apples from the cafeteria, but was full and only ate one.

Sabrina's milk and Juju's packaged yogurt is considered "still sealed or unopened food." Adolpho's extra apple is considered "unbitten."

Before their school started their Food Share Table, students threw unwanted food in the trash. From there, the trash went to the landfill and caused the formation of climatechanging methane gas, instead of feeding hungry children.

Today, Sabrina, Juju, and Adopho put all "unwanted, still sealed or unopened, and unbitten" food from their cafeteria on their school's Food Share Table. Instead of food going to the landfill, other students can enjoy nutritious food at no cost during mealtime and landfill waste is reduced.

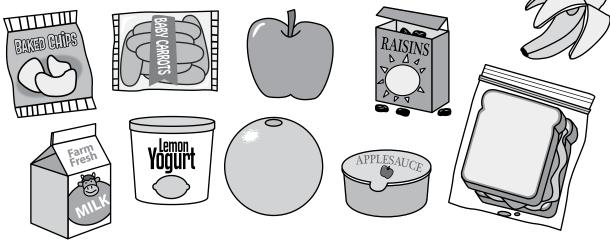
Food Rescue Hero Journal After reading the news article above, I was surprised that
Here's why I think it would be a good idea to start a Food Share Table at my school:
I will take action by talking to about starting a Food Share Table at my school or improving our existing one.

Food Share Tables Stop Food Waste!

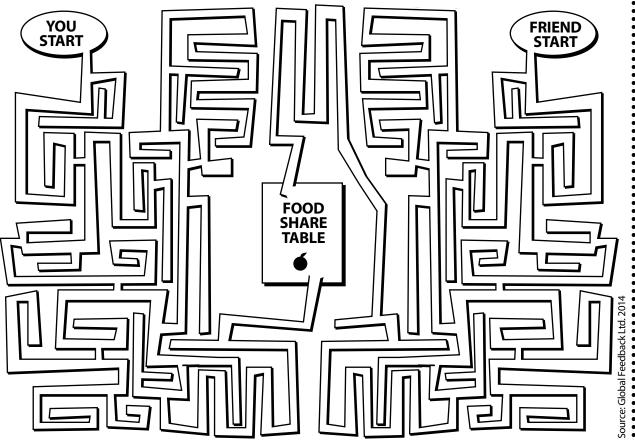
More and more schools are setting up Food Share Tables because they keep food out of the landfills. Instead, children can enjoy good, nutritious food at no extra cost.

What goes on the Food Share Table?

Food that is whole, uneaten or unopened can be placed on the Food Share Table. Use a green crayon to circle the foods that can go to the Food Share Table. Then, check your answers at the bottom of the page.



Challenge a friend to see who can get through the maze to the Food Share Table the fastest. On your mark, get set, go!



One third of the world's food is wasted each year. That's why we need YOU as a Food Rescue Hero!



FOOD RESCUER FACT

All of the world's nearly one billion hungry people could be fed on less than a quarter of the food waste from the United States, the United Kingdom and Europe.





Before you plan and shop for meals, check what food is in your fridge. The internet has a huge selection of recipes for leftovers.



FOOD

In 2015, the first-ever national food loss and waste goal in the United States was launched, calling for a 50% reduction by 2030. The USDA and EPA partnered with charities, churches, the private sector, and local, state and tribal governments to reduce food loss and waste in order to improve overall food security and conserve our nation's natural resources.

Food Rescuers Take Action at Home

How much food is going to waste in your fridge? Try a **fridge** food audit to find out. (Audit is a fancy way to say "count or measure something.)

REFRIGERATOR FOOD AUDIT SCORECARD

STEP 1: Count how many total food items are in your fridge.

There are items of food in my refrigerator.

STEP 2: Take out of your refrigerator anything that is spoiled, expired, moldy or looks or smells bad. Take out anything you don't think your family is going to eat or drink (make sure to ask permission, first!). Count how many of these items you remove from your fridge.

How many of each of the following needed to be removed?

VEGGIES	FRUIT	DAIRY	GRAINS	LEFTOVERS	OTHERS

SCORE VOUR EAMILY! None: GROCERY GREATS!

1-2 items: SHOPPING STARS 3-4 items: ROOM TO IMPROVE 5-6 items: NEED A STRATEGY 6-7 items: WASTE ALERT!

More than 7 items: FAMILY MEETING!

Food Reducer Math Challenge: Figure out what fraction of the food in your refrigerator is wasted food. Show your math here:

Number of wasted food items:	
------------------------------	--

Number of items in the fridge: _____

Fraction of food that is wasted:___

Write as a percentage: _



Source: USDA.gov 2015

Grocery Shopping Takes a Team

It takes everyone in your family working together to reduce the amount of food waste in your home day after day.



Shopping when hungry?

A 2013 Cornell University study showed that shopping when you're hungry is a really bad idea. Participants in the study who were hungry bought more food, spending more money. But they also tended to choose more higher-calorie snack items than people who had eaten before shopping. Food for thought!



Food Rescue Heroes PLAN their meals and make a SHOPPING LIST.

- **1.** Before you shop, plan the meals you'll cook at home and list the items that are needed.
- 2. "Shop" your refrigerator, freezer and cupboards for ingredients before you shop. Cross items you find off your shopping list before you leave home.
- 3. At the store, buy just enough for the meals you planned.

Solution:

Plan for meals and make a sign to eat fresh food first! Store food properly! Eat everything you buy or bring home from eating out. Make leftover recipes! Compost spoiled food!

Food Rescue Hero Journal (III

Take action by analyzing your data: What patterns do you see that lead to wasted food? Here is a guide on common problems at home:

Problem:

Forgotten food / Surplus

Too much spoiled food Leftovers

Rotten food

Based on our observations, my fa	mily and I will nodere	
Planning our moole go	minia gira i win i.edace	wasted food in the future by

- g our meals so we will buy only what we will eat
- ☐ Store our food better so it stays fresh
- ☐ Eat everything we buy
- ☐ Compost our scraps and spoiled food in the green bin

ther ways we could reduce wasted food at home:	

SHOPPER IDE*r*

Avoid using a shopping cart whenever you can. Why? It's too easy to toss in extra food items. Instead, bring a small reusable shopping bag with you to gather only what's on your list.



Storing food properly keeps food fresher, longer! of the most important ways to avoid food waste.

And it's one



Your refrigerator temperature should be at or below 40°F (4°C). The freezer temperature should be 0°F (-18°C).

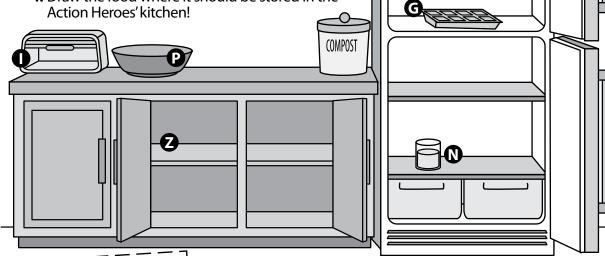


Action Heroes' Food Storage Game



Super Reducer has a sidekick to help him. It's a little reusable water bottle named

- 1. Read about the correct way to store each food.
- 2. Find the place in the kitchen picture where that food should be stored.
- 3. Write the letters in each location on the lines above to spell the name of the mystery sidekick.
- 4. Draw the food where it should be stored in the Action Heroes' kitchen!





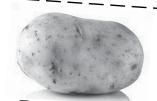
Bread

Store in a breadbox, not the refrigerator. This keeps bread from drying out. Make sure to keep the bread sealed after taking slices out.



Apples

Store apples on the counter for up to 7 days. Keep them away from bananas and avocados, as those will speed up ripenina.



Potatoes

Store potatoes in a cool, dark place at room temperature. Keep away from onions and add an apple to avoid early sprouting.



Asparagus

Trim the ends of asparagus and place them upright in a glass of water, just like cut flowers. Then place in the fridge.



Don't let herbs go to waste. Save them for later by making herb cubes in the freezer with oil or butter in ice cube trays.



The Sad Fate of Forgotten Foods

Sometimes food goes bad because we forget it. In the back corner of the fridge, or in a dark cupboard, perfectly good food slowly goes bad because it has been forgotten and replaced with fresh food. Sooner or later, it winds up getting thrown out.

Here's a good tip to keep food from being forgotten. Place an empty container in your refrigerator labelled, "EAT THIS FIRST." Put food items that may go bad soon in that container, so that anyone who opens the fridge looking for a bite to eat, knows to eat that food first, while it's still nice and tasty.



You can download and print this sign to use in your fridge to reduce food waste. Visit StopFoodWaste.org to get it.

Visit StopFoodWaste.org
for tips on storing other
foods and make a
Food Storage Card for
each. Share your cards
with your family.

Food Rescue Hero Journal Reducing food waste makes me feel It makes me feel this way because I wish everyone knew the following about food waste:

Is it still good?

A "Sell-By" date tells how long a food item should be displayed in a store.

A "Best if Used By" date is the period of time of best flavor or quality.

A "Use-By" date, which is provided by the manufacturer, shows the recommended date the product is at peak quality.

These dates are guidelines and don't necessarily mean the food has gone bad.

Source: USDA 2016

SMART STORAGE TIP

For food labelling keep a wet erase marker close by. Mark items with name of food, date made and date to be eaten by. Mark seasonings and dressings in glass with the date of purchase using a permanent





Prepping meals and storing your food when you are back from the store reduces food waste! Casseroles, stir-fries, fritattas, soups and smoothies are all great ways to use up leftover food.

FOOD

If food waste were a country it would be the 3rd largest emitter of greenhouse gases after China & the U.S.



Source: FAO.org 2013

Food Rescue Action Tool: EAT!

Food Rescue Heroes around the world reduce food waste by eating everything they have at home. Avoid wasting food by cooking with leftovers!

How to say "EAT" in Other Languages

Do the math to discover how to say the word "eat" in each language. Draw a line to connect each word with its language.

$$11+11=$$
 French $21-7=$ Tagalog $14+6=$ German $23-10=$ Polish $30-11=$ Romanian $6+9=$ Italian $23-10=$ Manager $=15$ $=14$ manger $=16$ $=14$ manger $=16$

LEFTOVER RECIPE-MAKING

Before those leftovers spoil, turn them into a tasty new meal! Here

Show your math here:

are two examples of student-created recipes made from leftovers.

PIZZA ON MY HEEL

Dried heels of bread turn into something yummy! (Bread heels are the end pieces of sliced loaves of bread.)

INGREDIENTS:

- Leftover bread heels
- Shredded cheese
- Leftover pasta or tomato sauce
- Toppings you like

DIRECTIONS:

- 1. Toast the heel slices
- 2. Spread pasta/tomato sauce on the bread, heel side down.
- **3.** Sprinkle cheese across the top. Add toppings if you want them.
- 4. Toast pizza in a toaster oven or under the broiler for 5 minutes.

Created by Christopher L. *





* These recipes were created by 9 to 13-year-old students on the Lightsabers Phoenix Squadron robotics team. Their cookbook is available free on Amazon.

TACO MAC'N CHEESE

Combine two favorite foods and get a third favorite!

INGREDIENTS:

- Leftover taco meat
- Tortilla chip crumbs
- Leftover macaroni and cheese
- Sour cream and salsa (optional)

DIRECTIONS:

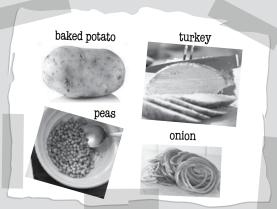
- 1. Mix macaroni and taco meat.
- 2. Microwave until warm.
- **3.** Put a dollop of sour cream and/or salsa on top.
- **4.** Sprinkle with tortilla chip crumbs.

Created by Judah C.*

Food Rescue Hero Journal

Create a leftovers recipe! Make a new recipe from one of the groups of leftovers below so that everything gets eaten!

bell peppers	
TOT POPPOID	rice
THE STATE OF THE S	
kale	MECHANICAL STREET
	eggs
~	



Recipe name:	Created by:
Ingredients:	Instructions:

Send your recipe ideas to **schools@stopwaste.org** and it may be chosen for a special feature on our website or social media.

Soup it up!



Make a broth rich in minerals from your vegetable scraps.

Collect scraps in a freezer bag until you have a enough for a broth. About a quart-sized freezer bag should be enough. Be sure to clean them first and discard anything that is moldy.

Additions for flavor and nutrients include:

- fresh herbs
- garlic
- ginger
- peppercorns
- bay leaf
- shiitake mushrooms
- turmeric

Vegetable broth is good for up to a week in the refrigerator or freeze in ice cube trays and then store in freezer bags.



Composting turns food waste into healthy, rich soil for our gardens and farms to grow more fruits and veggies in the future!



In Alameda County, some residents get a special green bin for wasted food and yard trimmings. This waste is taken to a compost facility and

decomposed into compost instead of going to the landfill. That means it won't make methane gas.



Use a green crayon to circle the things that belong in the green bin. Use a red

crayon to cross out the things that do not belong in the green bin.

- Peels, cores, partially eaten food that was once alive: fruit, vegetables, breads, cereal, dairy, meat (including bones); coffee grounds, paper filters and tea bags.
- Food-soiled paper: Paper towels, paper plates, napkins, pizza boxes and paper lunch bags.
- Not accepted: Plastic (bags and Styrofoam), glass, metal, and pet waste.



FOOD RESCUER FACT

More and more people every day are understanding the importance of composting.

Nationally, the composting of food in the U.S. increased from 1.84 million tons in 2013 to 2.1 million tons in 2015.





Why collect and compost food scraps?

- Food scraps and food-soiled paper make up the largest category in our landfill.
- Food scraps and yard trimmings collected from curbside bins are sent to a composting facility where they are turned into compost.
- Compost is a valuable resource used by landscapers, farmers, and gardeners.
 Compost improves soil quality, water retention, increases crop yield, and reduces the need for chemical fertilizers and pesticides.
- Food scrap composting reduces greenhouse gases.
 Food scraps that are not composted collectively emit more methane than any other material in the landfill.



ANSWERS: Things that go in the green bin are the chicken leg, pizza box, bread, twig,leaves, fries and box, egg, apple core, paper lunch bag, bacon strip, grapes and stem. Things that do not go in the green bin are the glass bottle, yogurt container, plastic spork and plastic bag.

Food Rescuers Take Action in Their Community

- Hoover Elementary students in Oakland grow and collect surplus food in a school garden to share with families and community members.
- Kids can start a food donation collection at school or in their community and donate to a food bank.
- American High School students in Fremont, take uneaten food from the cafeteria to a nearby shelter.

Dear Principal Browning,

I propose two ways to reduce food waste by at least 40% at Kolb Elementary. They are to serve hot lunch in smaller trays and to have play time before we eat lunch.

We can reduce food waste by 10% by serving hot lunch in smaller trays. Smaller trays make students feel like there is less food.

Food Rescue Hero Journal

When students at Kolb Elementary School in Dublin, Calif., learned about the problems associated with food waste, they worked on ideas to reduce food waste at their school. The students wrote letters, like this one from Pranav, to their principal.

Read Pranav's letter and then write a letter to someone you think should know about Food Waste.

To prevent about 30% of the food waste at Kolb we can play before we eat lunch. After you play, you burn off a lot of carbohydrates and students will be hungry and not waste as much food. Also students will not feel that they are missing out on their play time. According to the Environmental Protection Agency (EPA), "Scheduling

recess before lunch can reduce plate waste by as much as 30%."

Please consider these strategies and implement them at Kolb, and possibly the rest of the schools in Dublin Unified School District. Thank you for your time in reading this letter!

Sincerely, **Pranav**

Food Rescue Action Hero Promise I promise to be a Food Rescue Action Hero everyday

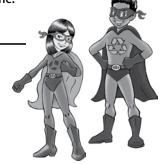
at school, at home, and in my community and teach others to do the same!



DATE

CONGRATULATIONS! Thank you, Food Rescue Action Hero, for taking action!





WILL YOU JOIN THE LEAGUE OF STOPWASTE ACTION HEROES?



Want to learn more? StopFoodWaste.org

